E-ISSN: 2997-9439

American Journal of Education and Evaluation Studies

https://semantjournals.org/index.php/ AJEES

| Research Article

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Evaluation of Adequacy and Utilisation of Multimedia Technologies for the Teaching and Learning of Economics in Senior Secondary Schools in the North Central Nigeria

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Abstract: This study evaluated the adequacy and utilization of multimedia technologies in the teaching of Economics in public secondary schools across North-Central Nigeria. The primary objective was to assess both the availability of these technologies and the extent to which they are effectively used in Economics instruction. To achieve this, two research questions and two hypotheses were formulated to guide the study. A descriptive survey research design was adopted. The study population comprised 1,912 principals and 3,924 Economics teachers from 1,912 senior secondary schools in the region. Using a simple random sampling technique, 82 principals and 335 Economics teachers were selected, resulting in a total of 417 respondents. Data were collected through interviews, questionnaires, and observational checklists. The analysis involved simple percentages for respondents' background data, means for answering research questions, and t-test statistics for hypothesis testing. Findings revealed that while multimedia technologies are acknowledged as relevant to Economics instruction, their actual use in public secondary schools remains unimpressive. Many of the devices are either unavailable or grossly inadequate, and most teachers rarely integrate them into their teaching. Interviews with principals further supported the limited presence and use of these tools. Based on these findings, it was recommended that government agencies, private organizations, and non-governmental bodies collaborate to enhance funding for the procurement of multimedia technologies. Additionally, initiatives such as hands-on workshops, online training, and mentorship programs should be implemented to improve teachers' confidence and competence in using these tools. The government should also invest in improving technological infrastructure in schools irrespective of their location and ensure the provision of high-quality instructional resources like interactive simulations, video tutorials, and digital textbooks. Furthermore, education stakeholders should establish systems for continuous monitoring and evaluation of the availability and use of multimedia technologies, while also offering targeted support to help teachers overcome barriers to effective integration in Economics instruction.

Introduction

In traditional class teaching, what the teacher conveys in the class are mainly from the book. Students could do nothing but receive them passively, without any room for innovation. Traditionally, the knowledge has been conveyed by literal description. Although it can also describe the objective world, the description is abstract. Learners have to imagine the objective existence by themselves based on the literal description which is a pretty hard process. Even with the tape recorders, video recorders, slide projectors, and other electronic teaching means, due to the poor interaction, learners have to take or control the information resources to a limited degree. As a result, learners cannot choose the teaching contents and process according to self-conditions. Traditional economics teaching also adopts some electronic technologies, however, these traditional electronic technologies focus on the choice and design of audio-visual media, ignoring the design of learning process and teaching mode in a sense.

According to the practical teaching effects of the course of economics, although the multimedia teaching method has been widely used, its positive effects, such as improving the teaching efficiency, and enhancing students' enthusiasm for learning, have not been displayed completely. Even in some cases, the application of multimedia teaching brings about a series of negative effects. For instance, the multimedia courseware are designed poorly, mostly are electronic blackboard writing or electronic notes; teachers rely on multimedia courseware too much, losing the opportunity of showing the attractiveness and the manners by means of class teaching, making the class teaching more boring. As for how to solve these problems, scholars do not present any systematic solution. In view of the aforementioned, these therefore necessitated diversification of avenues through which teaching and learning can be made meaningful and result oriented. Here, the use of additional, new innovative media to facilitate teaching and learning, becomes needful.

Mengchun and Hongxin (2011) further asserted that applying Multimedia to Economics Teaching is accompanied by the following advantages:

(1) Display the deduction process and the model clearly. Multimedia can help to change the complex mathematical derivation and model to vivid multimedia presentation, saving the teacher's blackboard time and deepening students' understanding. Take "Western Economics" for example. Mathematical derivation and model description are the essential contents, such as margin analysis, using geometry figures and curves to vividly reflect the relationship between economic variables and the trend of quantitative change. So do the general equilibrium theory, welfare function, and Pareto Optimality. For these contents, traditional teaching has to spend lots of time in writing formulas, drawing figures and tables, and copying cases. Besides, it is difficult for the traditional teaching reflecting the changing process of curves in one figure.

Therefore, in order to improve the teaching effect of western economics, multimedia is an inevitable choice, because it can display amounts of mathematical formulas derivations and tables and changes on the screen clearly, saving the class time, and helping students' learning. By means of the visual and impressive teaching, students can understand the knowledge deeply.

(2) Multimedia reflects characteristics of case teaching, helping to improve the ability of students. The course of economics emphasizes on both practice and theory. Without the support from practices, the theory will be water without sources, tree without roots. So, to explain the principles of economics, the teacher needs to mobilize a large number of cases in teaching. The case teaching turns into an effective way; multimedia is the best for case teaching.

Thus, it is important to continually examine how effective these Multimedia technologies are in practical use. Hence, this study is an attempt to investigate what obtains in schools as far as Multimedia and teaching and learning is concerned, particularly as it relates to, Adequacy and

Utilisation of Multimedia Technologies for the teaching and learning of Economics in Senior Secondary School in the north central Nigeria

Statement of the Problem

In the 21st-century educational landscape, the integration of multimedia technologies has become essential for effective teaching and learning, particularly in subjects like Economics that require abstract reasoning, visualization, and the application of real-life scenarios. Multimedia technologies—including projectors, educational software, interactive whiteboards, internet resources, and audio-visual aids—have the potential to enhance comprehension, increase student engagement, and improve academic outcomes.

Despite the recognized benefits of multimedia technologies, there is growing concern about their adequacy and actual utilization in many Nigerian secondary schools, particularly in the North Central region. Preliminary observations and anecdotal evidence suggest that many Economics teachers in senior secondary schools either lack access to these tools or do not use them effectively due to various constraints such as inadequate infrastructure, lack of training, or limited institutional support.

Therefore, this study seeks to evaluate the adequacy and utilization of multimedia technologies for the teaching and learning of Economics in senior secondary schools in North Central Nigeria, with the aim of identifying existing gaps and recommending strategies for more effective integration of these technologies in the classroom.

Evaluating the adequacy and utilization of Multimedia Technology in Economic Instruction is essential for identifying gaps and informing strategic actions to improve curriculum implementation. Thus, the study 'Evaluation of the Adequacy and Utilization of Multimedia Technology used in Economics Instruction in Public Secondary Schools in North-Central, Nigeria' is an attempt to investigate the prevalence and use of Multimedia Technology for Economic Instruction in North-Central Nigeria.

Purpose of the Study

The aim of this study is to evaluate the, Adequacy and Utilization of Multimedia Technology used in Economics Instruction in Public Secondary Schools in North-central, Nigeria. Specifically, the study shall strive to achieve the following objectives:

1) ascertain the adequacy of Multimedia Technology for Economics Instruction in public Secondary Schools in North-central, Nigeria;
2) examine the utilisation of available Multimedia Technology for Economics Instruction in public Secondary Schools in North-central, Nigeria;

Research questions

To guide the conduct of this study the following questions were put in place:

1) Is Multimedia Technology adequate for Economics Instruction in public Secondary Schools in North-central, Nigeria?
2) Are the teachers utilise Multimedia Technology for Economics Instruction in public Secondary Schools in North-central, Nigeria?

Delimitation of the Study

The main focus of this study is to evaluate the, Adequacy and Utilization of Multimedia Technology used in Economic Instruction in Public Secondary Schools in North-central, Nigeria. The study was conceived in the wake of the need to improve the teaching and learning of Economics in Public Secondary Schools in North-central, Nigeria, having recognised the immense

importance of Multimedia Technology in facilitating the teaching and learning process. The study population is made of Principals and Economics Teachers in Senior Secondary Schools in North-central, Nigeria. Variables of the study include, adequacy, utilization, Multimedia Technology and Economics Instruction.

Conceptual Framework

The Conceptual Framework explains the relationships between key variables of the study. It depicts the plan, structure or pattern of the study. It is presented in visual form as:

Independent Variables Dependent Variable

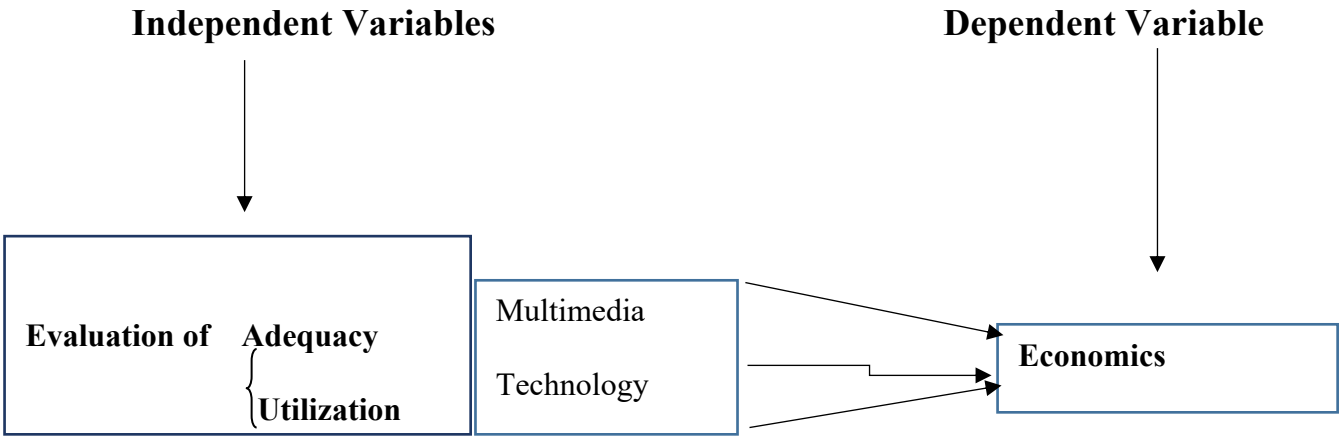


Figure 1: Conceptual Framework

As shown in Figure 1, the Independent Variable is made up of two variables viz: Evaluation of Adequacy and Utilization of Multimedia Technology while the Dependent Variable is the Economic Instruction. This implies that the Independent Variables are the determinants of Dependent Variable. That is, Economics Instruction depends on the availability, adequacy and utilization of Multimedia Technologies. The availability, adequacy and utilisation of Multimedia Technologies for Economics Instruction enhance teaching and learning of Economics in secondary schools.

Evaluation and its Importance

The purpose of evaluation in an educational context is to make a judgment about the level of skills or knowledge, to measure improvement over time, to evaluate strengths and weaknesses, to rank students for selection or exclusion, or to motivate. The process follows defined criteria and usually includes an attempt at measurement. Experts stress that evaluation can:

1) Improve programme design and implementation.

It is important to periodically assess and adapt your activities to ensure they are as effective as they can be. Evaluation can help you identify areas for improvement and ultimately help you realize your goals more efficiently. Additionally, when you share your results about what was more and less effective, you help advance environmental education.

2) Demonstrate programme impact

Evaluation enables you to demonstrate your programme's success or progress. The information you collect allows you to better communicate your programme's impact to others, which is critical for public relations, staff morale, and attracting and retaining support from current and potential fund.

Characteristics of Good Evaluation

A well-planned and carefully executed evaluation will reap more benefits for all stakeholders than an evaluation that is thrown together hastily and retrospectively. Though you may feel that you lack the time, resources, and expertise to carry out an evaluation, learning about evaluation early-on and planning carefully will help you navigate the process.

1) **Good evaluation is tailored to your programme and builds on existing evaluation knowledge and resources.**

Your evaluation should be crafted to address the specific goals and objectives of your EE programme. However, it is likely that other environmental educators have created and field-tested similar evaluation designs and instruments. Rather than starting from scratch, looking at what others have done can help you conduct a better evaluation.

2) **Good evaluation is inclusive**

It ensures that diverse viewpoints are taken into account and that results are as complete and unbiased as possible. Input should be sought from all of those involved and affected by the evaluation such as students, parents, teachers, programme staff, or community members. One way to ensure your evaluation is inclusive is by following the practice of participatory evaluation.

3) **Good evaluation is honest**

Evaluation results are likely to suggest that your programme has strengths as well as limitations. Your evaluation should not be a simple declaration of programme success or failure. Evidence that your EE programme is not achieving all of its ambitious objectives can be hard to swallow, but it can also help you learn where to best put your limited resources.

4) **Good evaluation is replicable and its methods are as rigorous as circumstances allow.**

A good evaluation is one that is likely to be replicable, meaning that someone else should be able to conduct the same evaluation and get the same results. The higher the quality of your evaluation design, its data collection methods and its data analysis, the more accurate its conclusions and the more confident others will be in its findings.

Concepts of Economics

The English term ‘Economics’ is derived from the Greek word ‘Oikonomia’. Its meaning is ‘household management’. Economics was first read in ancient Greece. Aristotle, the Greek Philosopher termed Economics as a science of ‘household management’. Jahan (2017) is of the view that with the change of time and progress of civilization, the economic condition of man changes. As a result, an evolutionary change in the definition of Economics is noticed. Towards the end of the eighteenth-century Adam Smith, the celebrated English Economist and the father of Economics, termed Economics as the ‘Science of Wealth’. According to him, “Economics is a science that enquires into the nature and causes of the wealth of nations”. In other words, how wealth is produced and how it is used, are the subject-matter of economics. In the subsequent period Alfred Marshall defined Economics by saying, ‘Economics is a study mankind in the ordinary business of life’. In other words, according to Marshall, Economics studies not only the wealth but also the activities centring the wealth. In modern times more realistic definitions have been given to economics. In social life human wants are unlimited, but the means to satisfy those wants are scarce. Economics studies how to use the limited resources to satisfy the unlimited wants of men. In the words of Lionel Robins, the modern economist, ‘Economics is a science which studies human behaviour as relationship between ends and scarce means which have alternatives uses’. So, Economics as a social science study how people perform economic activities and how they try to satisfy unlimited wants by the proper use of limited resources.

Economics is the study of how societies use scarce resources to produce valuable commodities and distribute them among different people (Jahan, 2017).

Teaching and Learning of Economics in Senior Secondary Schools in Nigeria

The teaching of Economics is more than ever before gathering a lot of attention among Economics educators. The quest to make meaningful impact on the lives of learners is a serious task before educators. A sustainable development can only take place in a nation if the citizens are well educated and empowered to apply the knowledge acquired through education in solving their problems rather than depending on the government. Economics as a field of study is capable of facilitating the economic and political progress of the people Oleabhiele (2022). This can only be achieved through effective implementation of Economics curriculum.

Economic education focuses on the scholarship of teaching and learning economics as a subject. It encompasses the content to be taught (what-subject content knowledge), different teaching methods (how-pedagogical content knowledge), designing of applicable assessment practices (why-purpose of using assessment tools/strategies), and information of general interest to teachers of economics in primary, secondary to undergraduate studies. The purpose of economic education is to create future responsible citizens, effective decision-makers and voters for change. Economic education is a very crucial subject that many of our nation's schools tend to overlook (Van Wyk, 2014). The importance of economic education goes far beyond the goal of improving an understanding of the basic principles of supply and demand and the workings of the economy. Economics can be taught by generating new knowledge with the help of exposing students to real-life learning environments and experiences (Van Wyk, 2014). The teaching of economics in our secondary schools is embedded with many obstacles in its implementation and these have contributed immensely to the fall in the standard of performance in public examination (Salako, 2012). The problems faced in the implementation of the 6-3-3-4 curriculum can be viewed on the contribution of individual, students, public and government to the teaching of economic for instance the response of some people to be assessed will be noted (NERC, 2017).

Concepts of Multimedia

Multimedia as name suggests is the combination of Multi and Media that is many types of media (hardware/software) used for communication of information. There are number of data types that can be characterized as multimedia data types. These are typically the elements or the building blocks of or generalized multimedia environments, platforms, or integrating tools. The basic types can be described as follows: Text, Graphics, Audio, Animation, Video, Graphic Objects. This means Multimedia is a representation of information in an attractive and interactive manner with the use of a combination of text, audio, video, graphics and animation. In other words, we can say that Multimedia is a computerized method of presenting information combining textual data, audio, visuals (video), graphics and animations. For examples: E-Mail, Yahoo Messenger, Video Conferencing, and Multimedia Message Service (MMS).

Source: https://www.tutorialspoint.com (2022)

Components of Multimedia

Multimedia is characterized by the presence of text, pictures, sound, animation and video; some or all of which are organized into some coherent programme (Phillips, 2014). Following are the common components of multimedia:

Text- All multimedia productions contain some amount of text. The text can have various types of fonts and sizes to suit the profession presentation of the multimedia software.

Graphics- Graphics make the multimedia application attractive. In many cases people do not like reading large amount of textual matter on the screen. Therefore, graphics are used more often than text to explain a concept, present background information etc. There are two types of Graphics:

Bitmap images- Bitmap images are real images that can be captured from devices such as digital cameras or scanners. Generally, bitmap images are not editable. Bitmap images require a large amount of memory.

Vector Graphics- Vector graphics are drawn on the computer and only require a small amount of memory. These graphics are editable.

Audio- A multimedia application may require the use of speech, music and sound effects. These are called audio or sound element of multimedia. Speech is also a perfect way for teaching. Audio are of analogue and digital types. Analogue audio or sound refers to the original sound signal. Computer stores the sound in digital form. Therefore, the sound used in multimedia application is digital audio.

Video- The term video refers to the moving picture, accompanied by sound such as a picture in television. Video element of multimedia application gives a lot of information in small duration of time. Digital video is useful in multimedia application for showing real life objects. Video have highest performance demand on the computer memory and on the bandwidth if placed on the internet. Digital video files can be stored like any other files in the computer and the quality of the video can still be maintained. The digital video files can be transferred within a computer network. The digital video clips can be edited easily.

Animation- Animation is a process of making a static image look like it is moving. An animation is just a continuous series of still images that are displayed in a sequence. The animation can be used effectively for attracting attention. Animation also makes a presentation light and attractive. Animation is very popular in multimedia application.

Multimedia Technology are useful instructional materials only if they stimulate and motivate the students. The audio-visual support to a pedagogue can actually help in doing so. A multimedia tutor can provide multiple numbers of challenges to the student to stimulate his interest in a topic. The instruction provided by pedagogue have moved beyond providing only button level control to intelligent simulations, dynamic creation of links, composition and collaboration and system testing of the user interactions.

Adequacy and Utilisation of Multimedia Technology for Economics Instruction

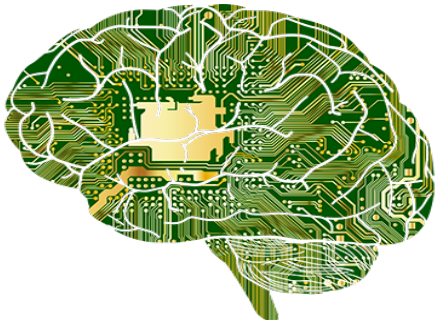
The Multimedia Technology has turned out to be, arguably, the most revolutionary implement ever deployed for educational purposes, and is rapidly becoming indispensable to educators and learners alike even in Africa (Ibeneme, 2013). Modern academia uses technological devices for virtually everything, from advertising admission to facilitating student application, to applicant admission, development of teaching materials, knowledge impartation, evaluation, and school administration and discipline (Oke, 2013). Multimedia Technology enables communication, interaction, collaboration, computation, visualization, simulation, and data modelling. It also facilitates instruction, tutoring, mentoring, gathering and filtering of data, consolidation of information and derivation of knowledge. Combinations of all the above are instantiated as multimedia and multimodal applications.

Effective teaching of Economics demands full deployment and application of ICT facilities. Adequacy of Multimedia Technology devices depend largely on funding, while utilization may be influenced by teachers' orientation and training, availability of enabling facilities like lighting, and public policy. Kwache (2017) posits that Multimedia Technology (MT) is a general-purpose technology with a major impact on process technologies and product technologies and has social and political implications. Kwache sees MT as diffusing widely across several industries and sectors of the economy through diverse applications. It is an umbrella term that includes any communication device or application encompassing radio, television cellular phone, computer, network, hardware and software, satellite system, among others, as well as various devices and applications associated with them.

Relevance of Multimedia in Education

Multimedia is of innumerable relevance and benefit in Education. The benefits of multimedia learning in the words of Nuiteq.com (2016) include:

1. Deeper understanding



Source: Pixabay

According to research, a benefit of multimedia learning is that it takes advantage of the brain's ability to make connections between verbal and visual representations of content, leading to a deeper understanding, which in turn supports the transfer of learning to other situations. All of this is important in today's 21st century classrooms, as we are preparing students for a future where higher-level thinking, problem solving and collaborative skills will be required.

2. Improved problem solving

Source: Unsplash

Source: Pixabay

A large percentage of the human brain dedicates itself to visual processing. Thus, using images, video and animations alongside a text stimulates the brain. Student attention and retention increase. Under these circumstances, in a multimedia learning environment, students can identify and solve problems more easily compared to the scenario where teaching is made possible only by textbooks.

Progressive Utilization Theory

Progressive Utilization Theory (PROUT) is a socio-economic theory first mentioned in 1959 and fully outlined in 1962 by Indian philosopher and spiritual leader Prabhat Ranjan Sarkar (1921-1990). According to Prabhat Ranjan, PROUT is a social system that overcomes the limitations of both capitalism and communism. Among other things, "progressive utilization" would optimize the use of natural industrial and human resources, based on cooperative coordination on a wide basis, ranging from local communities to larger regions and nations and between the people of diverse geographical areas. PROUT seeks the welfare and happiness of all and is also concerned with education. The relevance of the Progressive Utilization Theory (PROUT) to this study is its

encouragement to optimize the use of available natural resources as well as other resources that belong to agencies in the community where the school is located. This theory encourages the Economics teacher to use all available resources (within and outside) the school to teach Economics.

Research Design

The design for this study was a descriptive survey research design. This research design was considered appropriate for this study because it describes a situation as it is and identifies present conditions of the existing situation. The study also adopted survey method. The researcher is particularly interested in evaluating the adequacy and utilization of multimedia technology for Economics instruction in public Senior Secondary Schools in North-Central, Nigeria.

Population of the Study

The population of this study consisted of Principals and Economics Teachers of Senior Secondary Schools in North-central Nigeria. The population of the study was made up of 1912 Principals and 3924 Economic Teachers totalling 5836. The population breakdown is presented in table 1 below:

Table 1: Population Distribution

S/no		State	Schools	Principals	Teachers	Grand Total
1.	1	Benue	345	345	690	1035
2.	2	Kogi	296	296	592	888
3.	3	Kwara	349	349	798	1147
4.	4	Nassarawa	268	268	536	804
5.	5	Niger	275	275	550	825
6.	6	Plateau	284	284	568	852
7.	7	FCT	95	95	190	285
		Total	**1912**	**1912**	**3924**	**5836**

Source: Nigeria Bureau of Statistics (2025)

Sample Size and Sampling Technique

For the purpose of this study the sample size of 417 Respondents was used. This includes 82 principals and 335 Economics teachers. The choice of the sample size is obtained by applying the 10% and 20% of principals and teachers' total population sample size formula as suggested by Mugenda and Mugenda (2003) respectively. According to them, a sample size of 10-20% of the total population suffices for the study. The sample size was obtained from three (3) states of the North-central Nigeria, where 82 Senior Secondary Schools was selected.

For the selection of the sample size the simple random sampling technique was used at all levels. With the simple random sampling technique every element of the sample frame has equal chance of being selected.

The sampling procedure was such that the proportionate representation was used. In this procedure, sample was selected based on the population strength of each sample frame. Having done all the computations, the sample size is presented in table 2 below:

Table 2: Sample Size Distribution

State	Principals' Population	Sample size	Teachers' Population	Sample Size	Sample Size
Kogi	296	29	592	118	147
Nassarawa	268	26	536	107	133
Niger	275	27	550	110	137
Total	**839**	**82**	**1678**	**335**	**417**

Instrumentation

Three Instruments were used in the conduct of this study. These are a 63-Item Questionnaire, a 17-Item Structured Interview Schedule and a 15-Item Observational Checklist. The Items of the Questionnaire were fashioned around the Modified Likert Rating Scale (of 4-point scale), while the Interview Schedule was closed ended i.e. each item was accompanied by ready-made responses for the Respondent to choose from. The 17- Item Structured Interview Schedule was closed end schedule that asks questions with ready-made responses, requiring participants to respond to them with relative ease.

Validity and Reliability of the Instruments

The drafted instruments were submitted to the research experts and three (3) subject specialists (for Economics and Instructional Technology), and experts in the Department of Educational Measurement and Evaluation in Kogi state University for them to scrutinise for content and construct validity. Their observations in terms of spelling errors, comments on the ambiguity of the items and suggestions to avoid those highlighted were duly effected in order to improve the validity of the Instruments.

The final draft of the instruments were pilot tested on 30 respondents spread in five (5) Senior Secondary Schools in the Federal Capital Territory FCT-Abuja, to determine the adequacy, effectiveness and validity of the instruments for the test. Respondents in the FCT were not among those used in the main study because it helps to maintain objectivity and avoids influencing the study area population. Of the 30 respondents, five (5) Principals were administered the Interview schedule, while twenty five (25) Economics Teachers in secondary schools were administered the Questionnaire. Their responses in relatively short time of one hour and the ease with which they respond to the Items of the Instruments would determine the suitability of the Instruments.

To further determine the suitability and reliability of the Instruments, the Cronbach Alpha Reliability Coefficient (r) Formula was used. The reliability indices of the interview and questionnaire were found to be 0.702 and 0.816 respectively. It is asserted that where and when the reliability index obtained is much more than 0.5, the instrument is adjudged to be reliable, otherwise, the instrument is discarded as unreliable. Therefore, the reliability indices obtained for interview and questionnaire indicate that instruments were reliable and suitable for data collection for the study.

Method of Data Analysis

Data collected for this study was analysed at two different levels, viz:- Descriptive and Inferential. At the descriptive level, the frequency count, percentages and means were used to describe responses to research questions. When the overall mean is 2.50 and above, the question items are accepted and when the overall mean is below 2.50, the question items are rejected. At the inferential level, the hypotheses were tested with t-test statistics at 0.05 significance level for hypotheses The decision rule is that if the calculated value is greater than the table value, the null hypothesis is rejected and otherwise is accepted. The use of t-test statistics was to determine if there was a significant difference between the means of two groups and how they are related.

Data Analysis and Results

The following are responses of the Principals on the interview conducted on the evaluation of the availability, adequacy and utilisation of Multimedia Technology for Economics instruction in public Senior Secondary Schools in North-Central, Nigeria.

Research Question 1: Is Multimedia Technology adequate for Economics instruction in public Secondary Schools in North-Central Nigeria?

Table 8: Mean Scores Responses of Respondents on Adequacy of Multimedia Technology for Economics Instruction

S/N	Items	SA	A	D	SD	$\bar{x}$	Decision
1	Number of Multimedia devices in my school for Economics teaching and learning is very appreciable	62	99	199	57	2.40	Disagreed
2	Number of students or teachers per Multimedia device in Economics class is impressive	48	69	221	79	2.21	Disagreed
3	There are high numbers of computers connected to the internet for Economics teaching and learning	89	100	134	94	2.44	Disagreed
4	The ratio of computer/student for learning Economics is very impressive	39	67	218	93	2.12	Disagreed
5	Computer/teacher ratio is very high in my school	50	53	209	105	2.12	Disagreed
6	Available bandwidth in school is adequate to facilitate use of Multimedia device for Economics lessons	71	102	194	58	2.48	Disagreed
7	Searching for Economics reading materials is made possible as a result of the adequacy of the internet bandwidth	79	193	108	37	2.75	Agreed
8	Adequate electricity makes it possible for the use of interactive white smart board and other facilities to teach and learn Economics in my school	88	178	122	29	2.78	Agreed
9	There are reasonable number of Economics textbooks, magazines, journals, graphics and charts in my class	97	149	134	37	2.73	Agreed
10	Available teachers are adequate to effectively teach Economics in my school	51	126	175	65	2.39	Disagreed
	Sectional Mean					**2.44**	**Rejected**

Source: Field Survey, 2025 **N = 417**

Table above reveals the mean scores responses of the respondents on the adequacy of Multimedia Technology for Economics instruction in Senior Secondary Schools in North-Central Nigeria. Respondents disagreed with items 21, 22, 23, 24, 25, 26 and 30 as indicated in table 8 while they only agreed with items 27, 28 and 29 that searching for Economics reading materials was made possible as a result of adequacy of the internet, adequacy of electricity makes it possible for the use of interactive white smart board and other facilities to teach and learn Economics and there were reasonable number of Economics textbooks, magazines, journals, graphics and charts

respectively. However, the sectional mean ($\bar{x}$) of 2.44 indicates the inadequacy of Multimedia technology for Economic instruction in Senior Secondary Schools in North-Central Nigeria.

Research Question 2: Are the teachers utilise Multimedia Technology for Economics instruction in public Secondary Schools in North-Central Nigeria?

Table 9: Mean Scores Responses of Respondents on Utilisation of Multimedia Technology for Economics Instruction

S/N	Items	SA	A	D	SD	$\bar{x}$	Decision
11	Multimedia usage supports the teaching and learning of Economics in my school	88	185	42	20	3.01	Agreed
12	I make use of Multimedia each time I teach in the class	51	109	138	37	2.52	Agreed
13	Change in teaching methods are visible when Economics teachers use Multimedia Technology	102	177	48	8	3.11	Agreed
14	Development of practical, foundational and reflexive competencies in Economics students is as a result of teachers' use of Multimedia Technology	99	193	35	8	3.14	Agreed
15	The rate and extent at which learners have improved in various activities in Economics class is as a result of the teachers' use of Multimedia Technology	76	159	63	37	2.82	Agreed
16	Very often teachers use Multimedia Technology to teach Economics which make students learn very fast and effectively	13	73	128	121	1.93	Disagreed
17	Use of Multimedia Technology by Economics teachers engender creativity in students	103	197	29	6	3.19	Agreed
18	Use of Multimedia Technology saves time and learners contact time is increased	79	196	50	10	3.03	Agreed
19	Teachers' use of Multimedia helps the achievement of Economics lesson' behavioural objectives	69	158	89	19	2.83	Agreed
20	Impact of computers on educators and learners is very visible when Multimedia Technology are put to use	97	199	37	2	3.17	Agreed
	Sectional Mean					**2.88**	**Accepted**

Source: Field Survey, 2025 **N = 335**

Table above shows the mean scores responses of the respondents on the utilisation of Multimedia Technology for Economics instruction in Senior Secondary Schools in North-Central Nigeria. Respondents agreed to all items on the utilisation of Multimedia Technology for Economics instruction except item 36 that was disagreed upon by the respondents on how often the teachers use Multimedia Technology to teach Economics which make students learn very fast and effectively as indicated in table 9. Sectional mean ($\bar{x}$) of 2.88 shows that utilisation of Multimedia Technology for Economic instruction enhance students comprehension of the contents.

Research Findings

The following are the findings of the study, the study revealed that:

1) Multimedia Technologies were not adequate for Economics instruction in public Secondary Schools in the North-Central Nigeria.
2) Personal variables such as gender, teacher's experience and attitude influence the utilisation of Multimedia Technology for Economics instruction in public Secondary Schools in the North-Central Nigeria.

Limitations of the Study

As with many human endeavours, this study was not without its limitations. Notable among them are the following:

1) **Data Availability and Quality:** Accessing relevant and high-quality data posed a significant challenge due to issues such as privacy concerns, proprietary restrictions, and the general unavailability of reliable existing data. In some cases, the available data were incomplete, outdated, or biased, thereby affecting the comprehensiveness of the study.
2) **Logistical and Financial Constraints:** The researcher encountered considerable difficulty travelling between selected states, particularly in light of the high cost of transportation. This challenge was further compounded by the need to obtain permission before conducting interviews and administering questionnaires. However, the support of dedicated research assistants helped to mitigate these challenges.

Recommendations

Based on the findings, the researcher put forward the following recommendations:

1) Government should adequately provide schools with high-quality instructional resources such as interactive simulations, video tutorials, and digital textbooks. These materials should be designed to enhance student engagement and understanding of Economic concepts.
2) To address personal variables that may influence the use of Multimedia Technologies, targeted support and resources should be provided to help teachers overcome barriers and ensure that all educators can effectively use multimedia tools to enhance Economics instruction.

Conclusion

The evaluation of the adequacy and utilization of multimedia technologies for the teaching and learning of Economics in senior secondary schools in North Central Nigeria reveals a significant gap between availability and effective use. While some schools may possess certain multimedia resources, their adequacy in terms of quantity, quality, and variety remains insufficient to meet the growing demands of 21st-century teaching and learning. Moreover, the level of utilization by teachers and students is relatively low, often due to inadequate training, lack of technical support, and irregular power supply. These challenges limit the potential benefits of multimedia technologies in enhancing students' understanding, engagement, and academic performance in Economics. Therefore, for multimedia technologies to be fully integrated into Economics education in the region, there must be deliberate efforts by policymakers, school administrators, and other stakeholders to improve infrastructure, provide capacity-building programs, and encourage a culture of innovation and digital literacy in secondary schools.

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