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EFFECTIVENESS OF UTILIZATION OF MODERN OFFICE EQUIPMENT IN TEACHING OF BUSINESS EDUCATION COURSES IN PUBLIC TERTIARY INSTITUTIONS IN ANAMBRA STATE

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ABSTRACT

This study examined the effectiveness of utilization of modern office equipment in the teaching of business education courses in tertiary institutions in Anambra State. Four research questions and four null hypotheses tested at 0.05 level of significance guided the study. Descriptive survey research design was adopted for the study. The population for the study was 119 business education lecturers in four public tertiary institutions in Anambra State. The entire 119 business education lecturers were chosen using census sampling procedure. The instrument for data collection was a researcher developed questionnaire titled "Effectiveness of Utilization of Modern Office Equipment Questionnaire" (EUMOEQ).Mean and standard deviation were used to answer the research questions and the hypotheses were tested using independent t-test at 0.05 level of significance. The study found that computer utilization, internet utilization, interactive white board utilization and projector utilization are effective in the teaching of business education courses in tertiary institutions in Anambra State. The study also found that there is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of computer utilization, internet utilization, interactive white board utilization and projector utilization in teaching of business education. The study concluded that the integration of modern office equipment has positively transformed the teaching of Business Education in public tertiary institutions in Anambra State. It was recommended that tertiary institutions in Anambra State should ensure regular upgrade of computer laboratories, proper maintenance, and provision of adequate power supply to support practical learning in Business Education. Also, since internet utilization is effective, institutions should invest in stable broadband services across departments and classrooms. Also, the management of public tertiary institutions should always organize

continuous professional development programmes to enhance lecturers' competence in using interactive whiteboards, multimedia integration, digital annotation, and innovative teaching strategies so as to maximize student engagement.

Key Words: Modern Office Equipment, Computer, Internet Interactive White Board, Projector

INTRODUCTION

The growth and development of any nation is hinged on the level of education attained by its citizens. In other words, education is the bridge to the development of any nation. Education is an act of consciously imparting values, knowledge and skills in accordance with the requirements in a formal situation. Education is a fundamental process aimed at developing an individual's intellectual abilities. It transforms a person into a civilized, refined, and cultured member of society (Ojo & Bashir, 2020). In fostering a civilized and organized community, education serves as the key instrument that shapes human perfection. According to Ogungbo et al (2024), it is a systematic process through which individuals acquire knowledge, experience, skills, and desirable attitudes. Indeed, education is an integral aspect of human existence, encompassing biological, sociological, spiritual, and cultural dimensions. The ultimate goal of education is to promote the fullest development of human potential. Properly educated individuals are better equipped to contribute meaningfully to collective progress, enhance social relationships, stimulate emotional and physical growth, and cultivate aesthetic and spiritual awareness (Igbongidi, 2022).

Education has possibilities of developing into a full grown, matured, competent adult man or woman. Education also takes upon the responsibility for striking a balance while developing this abilities and harmonious personality becomes the result (Onajite et al, 2019). Education can influence minds through dissemination of new ideas and knowledge every time. In Nigeria, our education is made up of informal and formal system. Informal education refers to any form of learning that takes place outside the traditional school environment, whereas formal education involves structured learning experiences systematically delivered by qualified teachers within organized institutions such as schools, colleges, academies, institutes, or universities (Emeka & Amaewhule, 2024). The formal system of education, such as business education, is structured around a standardized curriculum designed to ensure an effective and efficient teaching and learning process.

Business education is the key for positive change in the society because of its far reaching effects on growth and development in all sectors of the economy. Business education is a branch of vocational education that provides individuals with the essential skills and theoretical knowledge required to perform effectively in the business environment, whether in paid

employment or through self-employment (Nwosu & Akpomedaye, 2023). It is an educational training designed to help individuals acquire the right attitudes, concepts, knowledge, understanding, and skills needed for success in various business-related careers, such as administration, management, or teaching, within the business world (Oluwalola, 2021). According to Onajite et al. (2019), business education involves the transfer of both pedagogical and business competencies essential for developing the skills, attitudes, and knowledge necessary for effective participation in business activities.

In the same vein, business education is education for business or training skills that is required in business offices, clerical occupation and business policy analysis. Emeka and Amaewhule (2024) broadly defined business education as an educational programme that trains students in various aspects of business practice, including marketing, typing, shorthand (now complemented by computer literacy and operations), service delivery, secretarial duties, stenography, accounting, and office information management. According to Olom and Nyiam (2025), business education prepares learners in two closely related areas: education for business and education about business. Education for business focuses on professional training in business methods and techniques, strategies for attracting clients and generating profit, developing innovative ideas for profitable ventures, and cultivating the appropriate attitudes and behaviors expected of a successful businessperson.

Therefore, business education is one vital programme in Nigeria tertiary institutions that has the capacity to bring about the required liberation and stimulation of the citizens for global competition and national development. It is believed that for any nation to promote sustainable economic growth, effort should be made to invest sufficient amount of financial resources on education particularly for effective teaching and learning. Therefore, for the business education programme to maintain its relevance in meeting the needs of individuals and society, it must adapt to current trends in modern technology and align with the evolving academic and economic demands of the environment. Business education encompasses vocational knowledge and practical skills essential for securing employment and achieving advancement across a wide range of business-related careers (Nwosu & Akpomedaye, 2023).

Business education prepares individuals to know: how and when to buy goods for profitable outcome (in-season and out- season), where to obtain goods for better sales, where to situate business for continued existence, where to make best sales for (increased turnover rate), where to make sales for increase profit, tricks in season forecast for good business making and self-conviction indicator about risk making. Onajite et al (2019) contented that business education is an integral part of vocational education that is directed towards developing the learner to become productive in teaching, paid employment and self-employment. To remain relevant in meeting the needs of individuals and society, business education programmes

must embrace these modern office equipments in academic and economic demands of society. Today, lecturers of business education use modern office equipments like computer, multimedia, post cards, flash cards to teach and there is digital learning through online. Unfortunately, business education programme do not adequately impart to recipients the necessary skills, knowledge and competences required for office work and self-employment (Onajite et al, 2019). As new knowledge and skills continue to creep into the world, high level of obsolesce in old knowledge, skills and taste requires update and upgrade, therefore, effectiveness in the use of modern office equipment are needed to keep pace with the world educational standard. Aminu et al (2024) observed that modern office equipment enables lecturers to perform their tasks with minimal fatigue. Such equipment not only enhances efficiency but also improves productivity, which aligns with the primary goal of any educational institution effective teaching and learning delivery.

Effective teaching of business education is required to contribute meaningfully to development of the economy. Teaching is a scientific and interactive process, primarily involving classroom discussion which takes place between teacher and students and occurs during certain definable activities and its major components are content, communication and feedback. Igbongidi (2022) defined teaching as an interactive process involving the exchange of ideas between the teacher and the student. Similarly, Abanum et al (2022) described teaching as the process of imparting knowledge within the classroom through deliberate sharing of knowledge and experiences, usually organized within a specific discipline, aimed at stimulating the learner's intellectual and psychological growth. Teaching encompasses a range of activities, behaviors, and processes that guide and direct learning. According to Emeka and Amaewhule (2024), teaching is both an art and a science which involves structuring learning experiences that lead to desirable educational outcomes. However, these outcomes can only be achieved through effective and purposeful teaching.

Effective teaching is constantly recognised as one of the key drivers in school improvement. Effective teaching is a set of strategies, behaviors, and knowledge that helps students achieve their goals. It involves creating a positive learning environment, building relationships, and using instructional methods that are appropriate for the students and content (Ojo & Bashir, 2020). Effective teaching helps students to achieve their goals – both personal and academic. Effective teaching occurs best when all education stakeholders share responsibility for continuous improvement and student achievement. This cannot be achieved without effective use of modern office equipment.

Modern office equipment enhances effectiveness by automating tasks, improving communication, and enabling better instructional environment, ultimately leading to increased productivity and reduced costs (Ngoka & Nzewi, 2024). Modern office equipment refers to the tools and devices used to perform office tasks efficiently, tasks that would otherwise

be difficult, time-consuming, or even impossible to accomplish manually (Koko & Okogun, 2020). In addition, Okoye and Ahubaraezeama (2022) noted that office equipment is the introduction of technology of labor saving devices which was brought out through innovation known as revolution in the office. The equipment has become the integral part of a modern machines and equipment used in different offices and different operations in the office equipment. Office equipment are those items of furniture and machines which help in the more efficient production of office services, communication and record. Office equipment and machines are invaluable aids to office management nowadays when quick, accurate and cost effective data and information are an important factor determining the success or failure an organization (Kalairo et al, 2022). Modern office equipment like computer and internets is constantly changing and improving in its capacity to produce high-quality documents and images necessary for effective teaching of business education. Modern office equipment produces more output and has a higher capacity for production, making the learning environment more productive (Oteng & Seidu, 2021). Modern office equipment has the capacity to save energy by entering a power saving mode when not in use. When not in use, the machine will go to sleep, conserving energy in the short and long term. It improves the grade of work in terms of quality output. As a result, there is a greater sense of teamwork and better coordination among the staff (Asogwa & Agusiobo, 2022).

Modern office equipment refers to the various technological tools, machines, and devices used to perform office and instructional tasks more efficiently, accurately, and quickly. These tools include computers, internet facilities, printers, photocopiers, interactive whiteboards, projectors, and other electronic devices. Modern office equipment helps to automate routine tasks that would otherwise be difficult, time-consuming, or impossible to perform manually. By improving communication, information processing, record keeping, and document preparation, these technologies contribute significantly to increased productivity, improved quality of work, and reduced operational costs (Ngoka & Nzewi, 2024; Koko & Okogun, 2020; Kalairo et al., 2022). The use of modern office equipment is particularly important in educational institutions, where teachers and other office personnel require efficient tools to perform their duties. In business education, equipment such as computers, the internet, interactive whiteboards, and projectors enhances instructional delivery by making teaching more effective, interactive, and engaging. These technologies enable teachers to prepare instructional materials, access relevant information, present lessons clearly, and communicate effectively with students. Consequently, the availability and proper utilization of modern office equipment can improve the quality of teaching and learning and increase the effectiveness of business educators (Oteng & Seidu, 2021; Echomgbe & Eleanor, 2023).

Technological advancement has transformed office operations in Nigeria and across the world. The introduction of computers, internet services, wireless communication, and other digital technologies has changed traditional methods of performing office activities. Educational institutions and other organizations are increasingly adopting automated systems to improve efficiency and reduce the limitations associated with manual operations. These technological developments have also influenced curriculum planning, teaching methods, instructional strategies, and the overall administration of tertiary institutions (Okoye & Ahubaraezeama, 2022; Ugbe & Ogunleye, 2020). Before the emergence of modern technologies, office tasks were mainly performed manually using equipment such as typewriters, duplicating machines, and collating machines. However, these traditional machines were often slow, bulky, noisy, and required considerable time, energy, and resources. They have therefore been gradually replaced by modern and automated office equipment that supports faster and more efficient operations. Today, modern office technologies are essential for communication, information processing, document preparation, and instructional delivery. In this study, particular attention is given to computers, the internet, interactive whiteboards, and projectors as important tools for promoting effective teaching and learning in business education (Mumuni & Hawa, 2021; Odah et al., 2022; Ogunlade & Omodara, 2020).

A computer is an electronic device that receives data through input devices, processes the data according to predefined instructions, and produces useful information through output devices in forms such as business documents, schedules, and management reports (Mohammed, 2022). Computers have become essential in various fields, including education, banking, medicine, industry, navigation, communication, and transportation, where they improve productivity through automation and efficient information processing (Onoja, 2020). In education, computers enhance teaching and learning by simplifying complex concepts, increasing students' motivation and achievement, and providing access to information and interactive learning opportunities (Bernadette et al., 2018; Abdullah & Indah, 2023). Although computers cannot replace teachers, they serve as valuable instructional tools that enable teachers and learners to conduct research, complete projects, access educational materials, communicate, and collaborate with others across different locations through the internet, thereby making business education and other subjects more engaging and effective (Abdullah, 2021).

The Internet is a global system of interconnected computer networks that has revolutionized communication, commerce, education, and other human activities by enabling networks and devices across the world to exchange information through the Transmission Control Protocol/Internet Protocol (TCP/IP) (Aliu et al., 2024). As a network of networks, it connects private, public, academic, business, and government institutions through electronic, wireless, and optical technologies and provides access to services

such as the World Wide Web, electronic mail, telephony, file sharing, and other online applications (Jayashree, 2021; Boladele, 2020). Its borderless nature has transformed how people conduct business, learn, communicate, promote ideas, shop, and engage in professional and personal activities, while search engines such as Google, Microsoft Bing, and Yahoo facilitate easy access to information and digital resources (Olom & Nyiam, 2025). Presently, the Internet has become an indispensable tool for students, researchers, teachers, and other professionals, as it enables them to access academic and professional information, conduct research, exchange messages and documents, and utilize various electronic services, thereby improving communication, learning, research, and overall productivity (Onu & Amadi, 2020; Enwere, 2024).

An interactive whiteboard (IWB) is a digital display that combines the features of a traditional whiteboard with computer technology, enabling teachers and students to interact directly with digital content using their fingers, a stylus, or an electronic pen. It can be connected to a computer and projector or exist as an interactive flat-panel display, allowing users to write, draw, annotate documents, display multimedia materials, browse the internet, and control applications directly from the board (Serin, 2019). Unlike conventional projectors and screens, IWBs promote active participation, collaboration, and the manipulation of information by both teachers and learners, thereby improving classroom interaction and engagement (Imoke et al., 2024). The technology enables users to display, save, edit, print, and reuse texts, images, software applications, websites, and other instructional resources, making teaching more flexible and effective (Abanum et al., 2022). The use of IWBs can also increase learners' motivation, participation, confidence, academic achievement, and positive classroom behaviour while helping teachers manage instructional time more effectively and share reusable teaching materials with colleagues (Onu & Amadi, 2020; Emeka & Amaewhule, 2024; Yanez & Coyle, 2019).

Furthermore, a projector is an electronic output device that uses light to display images, videos, and other visual content from a computer or other input source onto a large projection screen for viewing by a group of people (Echomgbe & Eleanor, 2023). Projectors are available in different types and sizes and may support modern connectivity options such as Wi-Fi, Bluetooth, VGA, and HDMI, making them useful in classrooms, auditoriums, and other learning environments. In education, projectors improve the visibility and presentation of instructional content and enable teachers to incorporate PowerPoint presentations, images, videos, and online resources into their lessons (Oteng & Seidu, 2021; Costley, 2019). They also help teachers save instructional time by reducing the need for extensive writing and erasing on traditional chalkboards, while allowing students to develop and present digital materials more effectively (Nnajiofor & Ejikeme, 2020). Therefore, the adoption and effective utilization of projectors and other modern office equipment can enhance the teaching of business

education, although their use may be influenced by factors such as the gender of lecturers.

Gender is an important variable in educational studies because it relates to the socially and culturally constructed roles, behaviours, expectations, attitudes, and responsibilities associated with males and females. While sex refers primarily to biological differences, gender is a broader social and psychological concept that explains how society assigns different roles, values, levels of power, and expectations to men and women (Ogbuefi & Ile, 2024; Oluwaseun et al., 2022). Gender therefore influences personality traits, behaviours, relationships, and participation within social institutions, including schools, where it may affect educational experiences and achievement (Lee et al., 2022). The concept also helps to explain social and historical constructions of masculinity and femininity, as well as power relations and hierarchical structures between males and females in society (Saleha et al., 2021). Consequently, examining gender in this study is important for understanding whether differences between male and female lecturers may influence the adoption and utilization of modern office equipment in the teaching of business education.

Depending on the context, gender may refer to biological sex (the state of being male or female). Gender issues have become a central topic of discussion in research worldwide, including in Nigeria (Yahaya & Ogundola, 2024). The question of gender is a matter of great concern especially among academics and policy formulators. In our digital age, modern office equipment is an essential driving force in ensuring effective teaching and learning particularly in tertiary institution. However, there is disparity in the usage of modern office equipment based on gender, hence the need to examine the influence of gender in the use of modern office equipment in the teaching business education. Based on the foregoing, the study examined the effectiveness of utilization of modern office equipments in the teaching of business education courses in tertiary institutions in Anambra State.

Statement of the Problem

Qualitative education is a major concern to stakeholders in Nigerian education system particularly employers of labour and the government. The quality of graduates of tertiary institutions in Nigeria is almost nothing to be proud of in the public. The Nigerian education scene is quite impressive quantitatively but qualitatively deficient. This might be attributed to non availability and poor utilization of modern office equipment in Nigerian tertiary institutions. In developed countries of the world, modern office equipment like computers has been found to facilitate qualitative teaching and learning in different fields of education. If modern office equipment are optimally utilized in business education by competent lecturers, qualitative learning outcome in the programme will be guaranteed. However, most tertiary institutions' lecturers in Nigeria lack adequate pedagogical knowledge for effective utilization of modern office equipment for teaching.

It is uninteresting and common to see business education lecturers' offices without adequate modern office equipment like computers, fax machines, WAP phones, teleprinters, internet and e-mail facilities and where it exist they lack the necessary skills to use these equipment to facilitate teaching and learning of business education. There seems to be a gap in the practical skills especially as regards to the modern office equipment utilization proficiency in the present teaching of business education courses.

The effective utilization of modern office equipment in business education delivery tends to have a lot of challenges. It appears that lack of adequate modern office equipment and lack of business education lecturers with requisite knowledge on how to use these equipments seems to be a prominent challenge. The ever changing role of technology in recent times seems to be a challenge to business education lecturers as many of the lecturers are not trained on the use of modern office equipment particularly computers and other information and communication technologies. This appears to have resulted to the poor performance of students in business education since lecturers seem not to be utilizing modern office equipment while impacting knowledge on the students. Many studies have been conducted on modern office equipment but no recent empirical investigation has been carried out on the effectiveness of utilization of modern office equipment in the teaching of business education courses particularly in tertiary institutions in Anambra State. Based on the foregoing, the study investigated the effectiveness of utilization of modern office equipment in the teaching of business education courses in tertiary institutions in Anambra State.

Research Questions

The study was guided by the following research questions:

1. To what extent is computer utilization effective in the teaching of business education courses in tertiary institutions in Anambra State?
2. To what extent is internet utilization effective in the teaching of business education courses in tertiary institutions in Anambra State?
3. To what extent is interactive white board utilization effective in the teaching of business education courses in tertiary institutions in Anambra State?
4. To what extent is projector utilization effective in the teaching of business education courses in tertiary institutions in Anambra State?

Research Hypotheses

The following null hypotheses were formulated and were tested at 0.05 level of significance.

1. There is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of computer utilization in teaching of business education in tertiary institutions in Anambra State.

2. There is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of internet utilization in teaching of business education in tertiary institutions in Anambra State.
3. There is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of interactive white board utilization in teaching of business education in tertiary institutions in Anambra State.
4. There is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of projector utilization in teaching of business education in tertiary institutions in Anambra State.

METHOD

Descriptive survey research design was adopted in this study. The study was carried out in Anambra State of Nigeria. The population of the study consisted of 119 business education lecturers comprising of 17 male and 102 female education lecturers (Office of the Head, Department of Business Education of the respective tertiary institutions, 2025). The public tertiary institutions covered in this study include Nnamdi Azikiwe University Awka; Chukwuemeka Odumegwu Ojukwu, Igbariam; Nwafor Orizu College of Education, Nsugbe and Federal College of Education (Technical), Umunze. The sample of this study consisted of 119 business education lecturers in the public tertiary institutions in Anambra State. Census sampling procedure was used since the population of the study is small and manageable.

The instrument for data collection was a researcher structured questionnaire titled "Effectiveness of Utilization of Modern Office Equipment Questionnaire" (EUMOEQ). The instrument (EUMOEQ) contained two sections; A and B. Section A contained the demographic information of the respondents. Section B contained 40 items which elicit information on the effectiveness of utilization of modern office equipments in teaching business education in public tertiary institutions. Face validity of the instruments was established by three experts. Two of the experts are lecturers in Business Education and one expert from measurement and evaluation, all from the Faculty of Education, Chukwuemeka Odumegwu Ojukwu University. The instrument for data collection was trial-tested on a representative sample of 30 business education lecturers (15) each was randomly selected from Enugu State University of Science and Technology (ESUT) and from Federal College of Education Eha-Amufu, Enugu State). Cronbach Alpha Co-efficient was used to determine the internal consistency of items in an instrument. The computation yielded reliability coefficients of 0.76 for Effectiveness of Computer Utilization Scale, 0.82 for Effectiveness of Internet Utilization Scale, 0.80 for Effectiveness of Interactive White

Board Utilization, 0.84 for Effectiveness of Projector Utilization Scale and overall coefficient of 0.79.

Data collected from the business education lecturers were analyzed using mean and standard deviation. Mean was used to answer the research questions while the standard deviation was used to ascertain how homogenous or heterogeneous the opinions of the respondents were in relation to the items in the questionnaire. Decision rule were based on 2.50 as High Extent and below 2.50 as Low Extent. Thereafter, independent t-test was employed to test the hypotheses at 0.05 level of significance with the aid of Statistical Package for Social Sciences (SPSS) version 25. The decision rule was that the null hypotheses were rejected where the p-value of 0.000 is less than the significant value of 0.05, otherwise, the null hypotheses were accepted.

Results

The data obtained from the field by the researcher were presented and analysed in relation to the research questions and hypotheses in the study. At the end of the presentation, a summary of the findings was made. The following hypotheses were tested with independent t-test at 0.05 level of significance.

Research Question 1: To what extent is computer utilization effective in the teaching of business education courses in tertiary institutions in Anambra State?

Table 1: Mean and Standard Deviation (SD) of Extent of Computer Utilization Effectiveness in Teaching Business Education

		Mean	Std. Deviation	Decision
1	Computer use has improved teaching quality in Business Education courses	2.98	0.70	High Extent
2	Lecturers utilize computers to teaching of business education courses	3.00	0.71	High Extent
3	Utilization of computer makes teaching of business education simple	2.72	1.30	High Extent
4	Students understand concepts better when computers are utilized	2.74	1.10	High Extent
5	The utilization of computer in business education courses increase student's engagement	3.49	0.50	High Extent
6	Computers are utilized in student's assessment in business education sources	2.50	0.87	High Extent
7	Computers are utilized in student's evaluation in business education courses	2.27	1.30	High Extent
8	The utilization of computer helps in covering the syllabus in business education courses more effectively	2.98	0.70	High Extent
9	Technical problems limit effective computer use in teaching business education courses	3.25	0.83	High Extent
10	Inadequate funding affects the utilization of computers in teaching business education courses	3.01	0.70	High Extent
	Grand Mean	28.94	8.71	
	Mean of Means	2.89	0.87	High Extent

As seen in Table I, business education lecturers in public tertiary institutions responses on computer utilization effectiveness in teaching business education courses. The finding showed a mean of means of 2.89

which indicated a high extent of utilization and a low standard deviation of 0.87 which showed that their responses were clustered close to the mean. This implied that computer utilization in teaching business education courses was effective to high extent.

Research Question 2: To what extent is internet utilization effective in the teaching of business education courses in tertiary institutions in Anambra State?

Table 2: Mean and SD of Extent of Internet Utilization Effectiveness in Teaching Business Education

		Mean	Std. Deviation	Decision
1	Internet access utilization makes in teaching of business education courses very simple	3.23	0.83	High Extent
2	Internet connectivity enhances the teaching of business education courses	2.87	0.71	High Extent
3	internet resources are commonly used in teaching of Business Education courses	3.01	0.94	High Extent
4	The utilization of internet in business education courses increases student's engagement	2.52	0.74	High Extent
5	Internet are utilized in student's assessment in business education sources	3.25	0.64	High Extent
6	Internet are utilized in publishing student's results in business education courses	3.31	0.60	High Extent
7	Lecturers effectively use online tools to teach Business Education courses	3.49	0.50	High Extent
8	Internet is utilized in research for Business Education courses	3.11	0.71	High Extent
9	Internet is utilized to make learning of business education courses more interactive	3.27	0.82	High Extent
10	Internet utilization makes learning of business education courses more engaging.	2.98	0.62	High Extent
	Grand Mean	31.04	7.11	High Extent
	Mean of Means	3.10	0.71	High Extent

Results from Table 2 depicted the responses of business education lecturers in public tertiary institutions on internet utilization effectiveness in teaching education courses. The result displayed a mean of means of 3.10 indicating a high extent of utilization effectiveness and a low standard deviation (SD) of 0.71 which indicated that their responses were clustered close to the mean which also indicated that the mean is a good fit for the model. This concluded that internet utilization in teaching business education courses was effective to high extent.

Research Question 3: To what extent is interactive white board utilization effective in the teaching of business education courses in tertiary institutions in Anambra State?

Table 3: Mean and SD of Extent of Interactive White Board Utilization Effectiveness in Teaching Business Education

		Mean	Std. Deviation	Decision
1	Interactive white board is utilized makes teaching of business education courses interesting	3.49	0.50	High Extent
2	Interactive white board utilization enhances the teaching of business education courses	3.00	0.71	High Extent
3	Interactive white board is utilized in teaching of business education courses to increase interaction between the student and the lecturer	2.72	0.30	High Extent
4	Interactive white board utilization in business education courses increases student's engagement	3.50	0.50	Very High Extent
5	The available interactive whiteboard is functional	3.01	0.70	High Extent
6	Interactive white board utilization improves understanding of complex business concepts.	3.23	0.83	High Extent
7	Interactive white board use has made learning of business education courses more dynamic	2.50	1.13	High Extent
8	Interactive white board use has made learning of business education courses more engaging.	3.35	0.43	High Extent
9	Interactive white board is utilized to ensure active participation by the students.	3.49	0.50	High Extent
10	The use of Interactive white board in Business Education courses is more effective than traditional blackboards.	3.25	0.83	High Extent
	Grand Mean	31.54	7.43	High Extent
	Mean of Means	3.15	0.74	High Extent

Findings from Table 3 x-rayed the responses of business education lecturers in public tertiary institutions on interactive white board utilization effectiveness in teaching business education courses. The result deduced a mean of mean of 3.15 which indicated a high extent of utilization effectiveness and a low standard deviation of 0.74 which revealed that the responses of business education lecturers were relatively close to the mean. This indicated that the mean was a good fit for the model. This implied that interactive white board utilization in teaching business education courses was effective to high extent.

Research Question 4: To what extent is projector utilization effective in the teaching of business education courses in tertiary institutions in Anambra State?

Table 4: Mean and SD of Extent of Projector Utilization Effectiveness in Teaching Business Education

N = 114

		Mean	Std. De	ecision
1	Projector is utilized in teaching of business education courses	3.49	0.50	High Extent
2	Projectors are utilized to enhance the teaching of business education courses	3.03	0.71	High Extent
3	Projectors are utilized in projecting graphs in business education courses	2.76	0.83	High Extent
4	Projectors are utilized in business education courses to increase interaction between the students and the lecturer	3.23	0.84	High Extent
5	Projectors are utilized in business education courses to increase student's engagement	3.27	0.82	High Extent
6	Projectors is utilized to improve understanding of complex business concepts	3.33	0.71	High Extent
7	Projector is utilized to ensure active participation of students in business education courses	3.01	1.00	High Extent
8	Projectors is utilized to help in better understanding of course content	3.49	0.53	High Extent
9	Projectors are utilized to enhance the use of multimedia in teaching of business education courses	3.50	0.52	Very High Extent
10	Projectors are utilized to cover more business education course contents in less time.	3.07	0.70	High Extent
	Grand Mean	32.18	7.16	High Extent
	Mean of Means	3.22	0.72	High Extent

The analysis in Table 4 revealed the responses of business education lecturers in public tertiary institutions on projector utilization effectiveness in teaching business education courses. The study revealed a mean of means of 3.22 which showed a high extent of utilization effectiveness and a low standard deviation (SD) of 0.72 which deduced that the responses of business education lecturers were relatively close to the mean. This deduced that the mean was a good fit for the model. This indicated that projector utilization in teaching business education courses was effective to high extent.

Hypothesis I: There is no significant difference in the mean rating of male and female business educators on the extent of computer utilization effectiveness in teaching of business education in tertiary institutions in Anambra State.

Table 5: Independent t-test of Male and Female Business Education Lecturers on Extent of Computer Utilization Effectiveness in Teaching Business Education Courses

Source of variation	N	$\bar{X}$	SD	df	t-cal	*P*-value	Decision
Male Business Educators	16	2.68	2.21	112	.480	0.632	Not Significant
Female Business Educators	98	28.97	2.26				

Analysis from Table 5 signified the independent t-test of male and female business education lecturers on extent of computer utilization effectiveness in teaching business education courses in tertiary institutions in Anambra State. The Table showed t-calculated of .480 with degrees of freedom of 112 and associated p-value of .632. The associated p-value of .632 was greater than 0.05 level of significance, thus the null hypothesis was not rejected. Consequently, there is no significant difference in the mean responses of male and female business education lecturers on the extent of computer utilization effectiveness in teaching business education courses in tertiary institutions in Anambra State.

Hypothesis 2: There is no significant difference in the mean ratings of male and female business educators on the extent of internet utilization effectiveness in teaching business education in tertiary institutions in Anambra State.

Table 6: Independent t-test of Male and Female Business Education Lecturers on Extent of Internet Utilization Effectiveness in Teaching Business Education Courses

Source of variation	N	$\bar{X}$	SD	df	t-cal	*P*-value	Decision
Male Business Educators	16	21.43	3.16	112	.457	0.872	Not Significant
Female Business Educators	98	30.80	2.96				

Result in Table 6 revealed the independent t-test of male and female business education lecturers on extent of internet utilization effectiveness in teaching business education courses in tertiary institutions in Anambra State. The Table revealed t-calculated of .457 with degrees of freedom of 112 and associated p-value of .872. The associated p-value of .457 was greater than 0.05 alpha level, hence the null hypothesis was not rejected. Invariably, there is no significant difference in the mean responses of male and female business educators on extent of internet utilization effectiveness in teaching business education courses in tertiary institutions in Anambra State.

Hypothesis 7: There is no significant difference in the mean ratings of male and female business educators on the extent of interactive white board utilization effectiveness in teaching business education in tertiary institutions in Anambra State.

Table 7: Independent t-test of Male and Female Business Education Lecturers on Extent of Interactive White Board Utilization Effectiveness in Teaching Business Education Courses

Source of variation	N	$\bar{X}$	SD	df	t-cal	*P*-value	Decision
Male Business Educators	16	24.00	4.06	112	.247	0.807	Not Significant
Female Business Educators	98	31.48	3.96				

Table 7 showed the independent t-test of male and female business education lecturers on extent of interaction white board utilization effectiveness in teaching business education courses in tertiary institutions in Anambra State. The Table showed t-calculated of .247 with degrees of freedom of 112 and associated p-value of .807. The associated p-value of .807 was greater than 0.05 alpha level, henceforth the null hypothesis was rejected. Meanwhile, there is no significant difference in the mean responses of male and female business educators on extent of interactive white board utilization effectiveness in teaching business education courses in tertiary institutions in Anambra State.

Hypothesis 4: There is no significant difference in the mean ratings of male and female business educators on the extent of projector utilization effectiveness in teaching business education in tertiary institutions in Anambra State.

Table 8: Independent t-test of Male and Female Business Education Lecturers on Extent of Projector Utilization Effectiveness in Teaching Business Education Courses

Source of variation	N	$\bar{X}$	SD	df	t-cal	*P*-value	Decision
Male Business Educators	16	26.43	3.01	112	.499	0.618	Not Significant
Female Business Educators	98	31.80	2.69				

Table 8 displayed the independent t-test of male and female business education lecturers on extent of projector utilization effectiveness in teaching business education courses in tertiary institutions in Anambra State. The result deduced t-calculated of .499 with degrees of freedom of 112 and associated p-value of .618. The associated p-value of .618 was greater than 0.05 alpha level, hence the null hypothesis was not rejected. Invariably, there is no significant difference in the mean responses of male and female business educators on extent of projector utilization effectiveness in teaching business education courses in tertiary institutions in Anambra State

Discussion of Findings

The findings of this study were discussed in line with the research questions and hypotheses that guided the study. It was carried out under the following sub-headings: The findings of the study as shown in Table 1 indicated that computer utilization is effective in the teaching of business education courses in tertiary institutions in Anambra State. This aligns with contemporary literature emphasizing the centrality of computers in instructional delivery, digital content creation, data processing, and simulation of real office tasks. This outcome suggests that lecturers are increasingly integrating computer-based applications such as word processing, spreadsheets, accounting packages, and presentation tools into business education teaching. The result further underscores that computer literacy among lecturers and students has improved, thereby enhancing instructional efficiency and promoting mastery of market-relevant competencies. The result of the corresponding null hypothesis indicated that there is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of computer utilization in teaching of business education in tertiary institutions in Anambra State. This agrees with the position of Emre (2021) that computer is capable of coordinating computer-mediated communication between lecturers and students. This agrees with the findings of Kiarie, Kerich and Ondigi (2020) that the availability and utilization of computers in teaching and learning correlate positively with the realization of educational objectives of teaching and learning of business education.

The findings of the study as shown on Table 2 indicated that Internet utilization is effective in the teaching of business education courses in tertiary institutions in Anambra State. This aligns with global trends in technology-driven education, where the internet serves as a platform for accessing up-to-date instructional materials, e-libraries, virtual collaboration tools, and multimedia resources. The effectiveness of internet use in Anambra State tertiary institutions implies that students are exposed to real-time business information, online research, and digital learning environments that enrich their understanding of modern business practices. It also suggests that institutions have made progress in providing internet connectivity or that lecturers employ personal data resources to enhance teaching. The result of the corresponding null hypothesis shows that there is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of internet utilization in teaching of business education in tertiary institutions in Anambra State. This agrees with the position of Loqo (2021) that modern office equipments integration in teaching and learning provide more detailed accounts of the ability to improve teaching and learning in schools. This agrees with the findings of Nwafor et al (2025) that emerging technologies are beneficial in the teaching and learning of Business Education. Similarly, Nwosu and Akpomedaye

(2023) found that google search engine have positive influence in teaching and learning of Business Education.

The findings of the study as shown on Table 3 indicated that interactive white board utilization is effective in the teaching of business education courses in tertiary institutions in Anambra State. This result indicates a positive shift toward interactive and participatory instructional techniques. Interactive whiteboards support visualization, instant annotation, demonstration of software operations, and collaborative class engagement. Their effectiveness shows that lecturers can present complex business concepts in more simplified, dynamic, and visually appealing formats, thereby improving student attention, retention, and classroom interaction. The result of the related null hypothesis showed that there is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of interactive white board utilization in teaching of business education in tertiary institutions in Anambra State. This agrees with the position of Ifinedo et al (2020) that integrating modern office equipment like computer and internet facilities in the teaching and learning can speed up the delivery of information and at the same time facilitate teaching. This agrees with the findings of Igbongidi (2022) that teaching business education courses are positively impacted by modern technology. Similarly, Igbongidi (2022) found that teaching business education courses are positively impacted by interactive whiteboard. In the same vein, Imoke et al (2024) found that the use of interactive whiteboard was more effective in enhancing students' performance than the traditional whiteboard. Also, Emeka and Amaewhule (2024) found that interactive whiteboards enhanced effective teaching of accounting courses in the Business Education programme.

The findings of the study as shown in Table 4 indicated that projector utilization is effective in the teaching of business education courses in tertiary institutions in Anambra State. This implies that projectors enhance teaching by enabling lecturers to deliver multimedia presentations, display charts, graphs, accounting processes, and other digital resources to large student groups. The effectiveness of projectors reflects their role in facilitating clear, organized, and standardized lesson delivery, reducing instructional time, and improving students' comprehension of technical business content. The result of the corresponding hypotheses indicated that there is no significant difference in the mean ratings of male and female business educators on the extent of effectiveness of projector utilization in teaching of business education in tertiary institutions in Anambra State. This agrees with the position of Gumedze (2020) that the use of modern office equipments has made teaching and learning a little easier, concrete, and real and more result-oriented. This agrees with the findings of Ojo and Bashir (2020) that new technologies have a positive impact on the teaching of business education courses. Similarly, Ogundele and Lasun (2020) found that new technologies have a positive influence on the teaching of business education courses.

Conclusion

The study examined the effectiveness of utilizing modern office equipment in the teaching of Business Education courses in public tertiary institutions in Anambra State. The study found that modern office technologies specifically computers, the internet, interactive whiteboards, and projectors are effectively utilized and significantly enhance the instructional process. Their effective use demonstrates that lecturers are increasingly integrating digital tools into teaching, thereby improving lesson delivery, promoting student engagement, and strengthening practical skill acquisition. The effective utilization of computers supports hands-on learning in essential business applications, while internet use provides access to up-to-date information and enriches the content delivered in the classroom. Interactive whiteboards enhance visualization and participatory learning, making lessons more interactive and engaging. Likewise, projectors contribute to clearer, more organized, and more impactful presentations of instructional materials.

The study concludes that the integration of modern office equipment has positively transformed the teaching of Business Education in public tertiary institutions in Anambra State. These technological tools not only facilitate better understanding of course concepts but also prepare students with the digital competencies required in contemporary business environments. Continued institutional support, capacity building, and improved maintenance culture will further strengthen the effective use of these technologies in Business Education programs.

Implications of the Study

The findings of this study have several important implications for Business Education, educational policymakers, and tertiary institutions in Anambra State.First, the effective utilization of computers in teaching Business Education implies that institutions must continue to prioritize the provision and upgrading of computer laboratories. Since students rely heavily on computer-based applications in business tasks such as accounting, data analysis, and documentation, sustained investment in functional computers will ensure that learners develop relevant digital skills needed in the modern workplace.

Secondly, the finding that internet utilization is effective suggests the need for consistent and reliable internet connectivity in tertiary institutions. For Business Education programs, internet access is critical for research, online simulations, virtual classrooms, and access to real-time business information. This implies that institutions and government agencies should expand broadband infrastructure to ensure that internet-supported teaching and learning remain uninterrupted and effective. Furthermore, the effectiveness of interactive whiteboard utilization further implies a shift towards more student-centered and interactive pedagogical approaches. This finding suggests that lecturers require continuous training to maximize the

features of interactive whiteboards, such as annotation tools, multimedia integration, and interactive lesson activities. Improved lecturer competence in this area will deepen student engagement and enhance conceptual understanding.

Additionally, the effective use of projectors implies that multimedia instructional delivery has become an integral part of Business Education teaching. This underscores the need for institutions to ensure routine maintenance of projectors and the availability of backup devices to minimize disruptions during instructional sessions. It also suggests that lecturers must continually improve their presentation skills to fully harness the pedagogical benefits of projected content. Overall, the study implies that the quality of Business Education in Anambra State is closely tied to the availability, proper utilization, and continuous upgrade of modern office equipment. Enhancing digital infrastructure, strengthening lecturer capacity, and sustaining institutional support will further improve teaching effectiveness and ensure that students graduate with the competencies required in today's technology-driven business environment.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Tertiary institutions in Anambra State should ensure that computer laboratories are adequately equipped with up-to-date systems. Regular upgrades, proper maintenance, and provision of adequate power supply should be prioritized to support practical learning in Business Education.
2. Since internet utilization is effective, institutions should invest in stable broadband services across departments and classrooms. Government agencies, ICT partners, and institutional management should collaborate to expand internet infrastructure to support research, virtual learning, and access to digital instructional resources.
3. Continuous professional development programmes should be organized to enhance lecturers' competence in using interactive whiteboards. Training should focus on interactive features, multimedia integration, digital annotation, and innovative teaching strategies that maximize student engagement.
4. Institutions should provide more projectors in lecture halls to ensure uninterrupted multimedia instruction. Routine servicing, provision of spare parts, and availability of technical support staff will enhance consistent use during teaching. Management of tertiary institutions should develop clear policies for the effective utilization, maintenance, and security of modern office equipment. This includes guidelines for equipment handling, scheduling, and reporting of faults.

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