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Utilization and Challenges of Information and Communication Technology (ICT) in Teaching and Learning Business Education in Tertiary Institutions in Anambra State, Nigeria

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ABSTRACT

Aim of the Study: This study investigated the utilization and challenges of Information and Communication Technology (ICT) in teaching and learning within business education programs at tertiary institutions in Anambra State, Nigeria.

Methodology: The study employed a descriptive survey design to examine ICT use in teaching and learning Business Education at Nwafor Orizu College of Education Nsugbe (NOCEN), Nnamdi Azikiwe University Awka, and the Federal College of Education (Technical), Umunze in Anambra State, Nigeria. With a population of 553 (51 lecturers and 502 students), a sample of 232 was randomly selected. Data were collected through interviews and a validated 39-item questionnaire, with a reliability coefficient of 0.89. Analysis of responses including 99% return rate, involved frequency distribution and mean scores to assess ICT utilization and challenges in these institutions.

Findings: The study reveals that while ICT tools such as the internet and email are widely used and considered beneficial for enhancing educational quality, significant challenges persist. These include inadequate infrastructure, funding issues, and inconsistent power supply. Strategies for overcoming these obstacles include improved funding, enhanced ICT literacy, and regular power supply. The findings underscore the need for strategic policy implementation and institutional support to maximize ICT benefits in business education.

Conclusion: This study contributes to the understanding of ICT integration in Nigerian tertiary education and provides actionable recommendations for policy makers and educators.

Keywords: ICT Utilization, Business Education, Tertiary Institutions, Descriptive Survey Design, Challenges in Education.

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Introduction

The integration of Information and Communication Technology (ICT) in teaching and learning has become increasingly significant in modern education. The utilization of ICT in Business Education offers numerous benefits that enhance teaching and learning processes. Business Education refers to the academic discipline focused on teaching students the principles and practices related to business and management (Akpan & Akpan, 2022). It encompasses a range of subjects including accounting, finance, marketing, management, and entrepreneurship. The goal of Business Education is to equip students with practical skills and theoretical knowledge necessary for effective business operations and decision-making. This field aims to prepare individuals for careers in various business sectors by developing competencies in business strategies, financial analysis, and organizational behavior (Chowdhury et al, 2022). By integrating Information and Communication Technology (ICT) into both theoretical and practical components, Business Education provides a foundation for understanding and succeeding in the modern business environment.

Information and Communication Technology (ICT) refers to the diverse set of technologies used to handle telecommunications, broadcast media, intelligent building management systems, and network-based control and monitoring functions (Infante-Moro & Gallardo-Pérez, 2021). It encompasses hardware (such as computers, servers, and mobile devices), software (including applications and operating systems), and telecommunications systems (like the internet, wireless networks, and satellite communications). ICT facilitates the storage, retrieval, and exchange of information, enabling efficient communication and data management (Ezenwafor & Okolochi, 2021). In education, ICT tools enhance teaching and learning by providing interactive resources, enabling distance learning, and supporting administrative functions. The integration of ICT is crucial for modernizing processes and improving productivity in various sectors (Beranič & Heričko, 2022).

According to Felicia, O. K. (2021), ICT tools such as multimedia presentations, online databases, and educational software improve the quality of instruction and facilitate interactive learning experiences. Business educators utilize tools like PowerPoint presentations to make lessons more engaging and to present complex information clearly (Jim et al, 2024). This is consistent with the findings of Thaanyane and Jita (2024), who emphasize that ICT applications, including e-learning platforms and virtual classrooms, support a more dynamic and flexible learning environment. Furthermore, the use of ICT in Business Education helps in developing students' digital literacy, a crucial skill in the modern workforce. According to Elogbo and Ettah (2024), integrating ICT into the curriculum allows students to acquire technical skills that are essential for their future careers. Okoli and Okudare (2024) also note that ICT tools enable students to access a wide range of learning resources beyond the traditional textbook, which enhances their research capabilities and broadens their knowledge base.

Despite its benefits, the effective utilization of ICT in Business Education faces several challenges in Nigerian tertiary institutions. One major challenge is the inadequate infrastructure. According to Joseph et al, (2022), many institutions lack the necessary ICT facilities, such as reliable computers and high-speed internet, which impedes the effective integration of technology into teaching and learning processes. This finding is echoed by Irukaku and Arhueremu (2021), who highlight that the scarcity of up-to-date hardware and software limits the ability of educators to fully leverage ICT tools. Another significant challenge is funding. Orji et al, (2022) argues that insufficient financial resources hinder the acquisition and maintenance of ICT infrastructure in Nigerian institutions. This is compounded by the high cost of technology, which makes it difficult for institutions to invest in modern ICT equipment and training programs for staff. As stated by Emeasoba et al, (2022), limited funding also affects the ability to provide ongoing technical support and updates for existing systems.

Additionally, there is a problem with power supply, which affects the reliability of ICT services. According to Hassan et al, (2024), frequent power outages disrupt the use of electronic devices and online platforms, leading to a loss of instructional time and reduced effectiveness of ICT-based teaching

methods. This challenge is significant in Nigerian institutions, where inconsistent power supply remains a persistent issue. Resistance to change is another barrier to effective ICT utilization. Ekpo et al, (2024) highlight that some educators are resistant to adopting new technologies due to a lack of familiarity or perceived complexity. This resistance can result in a slower integration of ICT into the curriculum and a reluctance to engage with innovative teaching methods.

The urgency of studying the utilization and challenges of ICT in Business Education in Anambra State, Nigeria, arises from the critical need to address significant gaps in technology integration. Despite the potential of ICT to enhance teaching and learning, many institutions face infrastructural deficits, inadequate funding, and inconsistent power supply. These issues hinder effective ICT use and impact educational quality. Understanding these challenges is essential for developing targeted interventions to improve ICT infrastructure and support, ensuring that Business Education programs can fully leverage technology for better learning outcomes.

Research Questions

1. What are the areas of ICT usage in teaching and learning Business Education?
2. What are the factors determining the ICT usage in teaching and learning business education?
3. What are the ways of using ICT in teaching and learning business education?
4. To what extent are the ways of using ICT in teaching and learning being applied by students and lecturers?
5. What are the benefits of ICT usage teaching and learning business education?
6. What are the problems challenging ICT usage in teaching and learning?
7. What are the strategies for solving the problems of ICT usage in teaching and learning Business Education?

Method

The study utilized a descriptive survey design to explore the use of Information and Communication Technology (ICT) in teaching and learning Business Education across tertiary institutions in Anambra State, Nigeria. This design enabled a thorough examination of data and characteristics related to ICT usage in these educational settings. The research focused on three institutions within Anambra State: Nwafor Orizu College of Education Nsugbe (NOCEN), Nnamdi Azikiwe University Awka, and the Federal College of Education (Technical), Umunze. These institutions were selected to provide a broad perspective on ICT utilization in varying educational environments.

The study's total population comprised 553 individuals, including 51 lecturers and 502 final-year students. Specifically, NOCEN had 263 students and 18 lecturers, the Federal College of Education (Technical), Umunze included 185 students and 19 lecturers, and Nnamdi Azikiwe University, Awka consisted of 54 students and 14 lecturers. A sample size of 232 was drawn using simple random sampling to ensure each individual had an equal chance of being selected. Data were collected through oral interviews and a structured questionnaire, which contained 39 items divided into two sections. Section A gathered personal data from respondents, while Section B addressed various aspects of ICT usage, utilizing a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) and an extent scale from 1 (Very Low Extent) to 5 (Very High Extent).

The questionnaire was validated through face and content validation by two Business Education lecturers and an expert in measurement and evaluation. Based on their feedback, the instrument was revised and approved. Reliability was assessed using test-retest methods with 60 respondents from Anambra State University, yielding a Pearson correlation coefficient of 0.89, indicating high reliability. The administration process involved distributing 232 questionnaires, of which 230 were returned, resulting in

a 99% response rate. Data analysis involved using frequency distribution tables and simple percentages for personal data, while research questions were analyzed using mean scores.

Results

Testing of Personal Data

Table 1: *Demographic Distribution of Respondents*

Category	Frequency (f)	Percentage (%)
Sex Distribution		
Male	82	36
Female	148	64
Total	230	100
Respondent Status		
Students	193	84
Lecturers	37	16
Total	230	100
Institutions		
UNIZIK	37	16
NOCEN	107	47
UMUNZE	86	37
Total	230	100

Table 1: Demographic Distribution of Respondents reveals that a majority of respondents were female (64%, or 148 out of 230) and students (84%, or 193 out of 230). Regarding institutional representation, the largest group came from Nwafor Orizu College of Education Nsugbe (NOCEN) at 47% (107 out of 230), followed by Federal College of Education (Technical), Umunze (37%, or 86 out of 230), and Nnamdi Azikiwe University (16%, or 37 out of 230). This distribution highlights a predominance of female students and a significant representation from NOCEN.

Research Question 1: What are the areas of ICT usage in teaching and learning Business Education?

Table 2: *Area of ICT usage*

S/N	Items	Σfx	$\bar{X}$	Remark
1	Teaching students	1041	4.5	Agree
2	Evaluation	874	3.8	Agree
3	Digitalizing lecture	911	4.0	Agree
4	Developing instructional material	830	3.6	Agree
	Total	**3806**	**16.5**	

Table 2: Area of ICT Usage shows that ICT is actively used in various educational areas. The highest mean score ($\bar{X}$ = 4.5) is for teaching students, indicating strong agreement on its effectiveness. Digitalizing lectures follows ($\bar{X}$ = 4.0), and evaluation also shows positive use ($\bar{X}$ = 3.8). Developing instructional materials has the lowest mean score ($\bar{X}$ = 3.6) but still reflects agreement. The total score of 16.5 supports the conclusion that ICT is considered valuable across these educational functions.

Research Question 2: What are the factors determining the ICT usage in teaching and learning business education?

Table 3: *Determinants of ICT usage in teaching and learning*.

S/N	Items	Σfx	$\bar{X}$	Remark
5	Available ICT infrastructure	1042	4.5	Agree
6	Accessibility to ICT infrastructure	1002	4.4	Agree
7	Teachers professional development	942	4.1	Agree
8	Available support to computer-using teachers	594	2.6	Undecided
	Total	**3580**	**15.6**	

Table 3 outlines the determinants of ICT usage in teaching and learning. It shows that the availability of ICT infrastructure (Σfx [1042], $\bar{X}$ [4.5]) and accessibility to ICT infrastructure (Σfx [1002], $\bar{X}$ [4.4]) are agreed upon as positive factors. Teachers' professional development (Σfx [942], $\bar{X}$ [4.1]) also has a positive impact. However, the support available to computer-using teachers (Σfx [594], $\bar{X}$ [2.6]) is met with indecision. The total Σfx for all items is [3580], with an overall mean $\bar{X}$ of [15.6], reflecting varied opinions on these factors' influence.

Research Question 3: What are the ways of using ICT in teaching and learning business education?

Table 4: *Ways of using ICT usage in teaching and learning*

S/N	Items	Σfx	$\bar{X}$	Remark
9	To present thematic, individual or group work through power point presentation.	927	4.0	Agree
10	To search for assignment through internet.	962	4.2	Agree
11	Sending of assignment and receiving of comments through e-mail.	1047	4.6	Agree
12	Using of school website to receive lecture	872	3.8	Agree
13	Using of teleconferencing to exchange ideas	938	4.8	
	Total	**4746**	**21.4**	

Table 4 illustrates various methods of using ICT in teaching and learning. The use of PowerPoint presentations for thematic or group work (Σfx [927], $\bar{X}$ [4.0]), searching for assignments online (Σfx [962], $\bar{X}$ [4.2]), and sending/receiving assignments and feedback via email (Σfx [1047], $\bar{X}$ [4.6]) are all agreed upon as effective practices. Using the school website for lectures (Σfx [872], $\bar{X}$ [3.8]) is also supported, while teleconferencing for idea exchange (Σfx [938], $\bar{X}$ [4.8]) is highly endorsed. The total Σfx for all items is [4746], with an overall mean $\bar{X}$ of [21.4], indicating broad agreement.

Research Question 4: To what extent are the ways of using ICT in teaching and learning being applied by students and lecturers?

Table 5: *Extent of ICT usage by students and lecturers*

S/N	Items	Σfx	$\bar{X}$	Remark
14	Power point presentation	344	1.5	Disagree
15	Internet	903	4.0	Agree
16	E-mail	559	2.4	Disagree
17	School website	350	1.5	Disagree
18	Teleconferencing	689	3.0	Undecided
	Total	**2845**	**12.4**	

Table 5 examines the extent of ICT usage by students and lecturers. PowerPoint presentations (Σfx [344], $\bar{X}$ [1.5]) and school websites (Σfx [350], $\bar{X}$ [1.5]) are viewed negatively, with disagreement on their use. The internet (Σfx [903], $\bar{X}$ [4.0]) is agreed upon as a widely used tool. Email (Σfx [559], $\bar{X}$ [2.4]) also shows disagreement, indicating limited use. Teleconferencing (Σfx [689], $\bar{X}$ [3.0]) is met with indecision

regarding its extent of use. The total Σfx is [2845], with an overall mean $\bar{X}$ of [12.4], reflecting mixed opinions on ICT usage.

Research Question 5: What are the benefits of ICT usage teaching and learning business education?

Table 6: *Benefits of ICT usage in teaching and learning*

S/N	Items	Σfx	$\bar{X}$	Remark
19	Provision of access to huge source of information.	997	4.3	Agree
20	Improvement in the quality of teaching and learning.	904	3.9	Agree
21	Reduces the teacher's burden.	779	3.4	Agree
22	Challenge students to learn independently.	671	2.9	Undecided
23	Motivates students to learn.	862	3.8	Agree
	Total	**4212**	**18.3**	

Table 6 outlines the benefits of ICT usage in teaching and learning. Providing access to a vast source of information (Σfx [997], $\bar{X}$ [4.3]) and improving teaching and learning quality (Σfx [904], $\bar{X}$ [3.9]) are strongly agreed upon. ICT also helps reduce the teacher's burden (Σfx [779], $\bar{X}$ [3.4]). However, the benefit of challenging students to learn independently (Σfx [671], $\bar{X}$ [2.9]) is met with indecision. Motivating students to learn (Σfx [862], $\bar{X}$ [3.8]) is also agreed upon. The total Σfx for all items is [4212], with an overall mean $\bar{X}$ of [18.3], reflecting general agreement on the benefits.

Research Question 6: What are the problems challenging ICT usage in teaching and learning?

Table 7: *Problems challenging ICT usage in teaching and learning*

S/N	Items	Σfx	$\bar{X}$	Remark
24	Absence of policies and management support.	960	4.2	Agree
25	Issues of funding	926	4.0	Agree
26	Epileptic power supply	890	3.9	Agree
27	Resistance to change	702	3.1	Agree
	Total	**3478**	**15.2**	

Table 7 identifies problems challenging ICT usage in teaching and learning. The absence of policies and management support (Σfx [960], $\bar{X}$ [4.2]), funding issues (Σfx [926], $\bar{X}$ [4.0]), and epileptic power supply (Σfx [890], $\bar{X}$ [3.9]) are all agreed upon as significant obstacles. Resistance to change (Σfx [702], $\bar{X}$ [3.1]) is also acknowledged as a problem but to a lesser extent. The total Σfx for all items is [3478], with an overall mean $\bar{X}$ of [15.2], indicating broad agreement on these challenges impeding effective ICT integration.

Research Question 7: What are the strategies for solving the problems of ICT usage in teaching and learning Business Education?

Table 8: *Strategies for solving problems of ICT usage in teaching and learning*.

S/N	Items	Σfx	$\bar{X}$	Remark
28	Proper monitoring	832	3.6	Agree
29	Improved funding	994	4.3	Agree
30	Regular power supply	930	4.0	Agree
31	Enhancing level of ICT literacy among teachers	988	4.3	Agree
	Total	**3744**	**16.2**	

Table 8 presents strategies for addressing problems related to ICT usage in teaching and learning. Proper monitoring (Σfx [832], $\bar{X}$ [3.6]), improved funding (Σfx [994], $\bar{X}$ [4.3]), regular power supply (Σfx [930], $\bar{X}$ [4.0]), and enhancing ICT literacy among teachers (Σfx [988], $\bar{X}$ [4.3]) are all agreed upon as effective

solutions. The total Σfx for these strategies is [3744], with an overall mean $\bar{X}$ of [16.2], reflecting general consensus on these approaches to improving ICT integration and overcoming existing challenges.

Discussions

In teaching and learning Business Education, ICT usage spans several areas: teaching students, evaluation, digitalizing lectures, and developing instructional materials. Teaching students via ICT tools like multimedia presentations enhances engagement and understanding. Evaluation processes are streamlined with ICT, enabling more efficient and accurate assessments. In contrast, while some studies highlight challenges in digitalizing lectures due to technical issues (Okoli & Okudare, 2024), this finding agrees with the notion that ICT can significantly enhance instructional material development through interactive and updated content (Felicia, 2021). Thus, effective ICT integration can transform Business Education, despite some persistent challenges.

Factors determining ICT usage in Business Education include available ICT infrastructure, accessibility, teachers' professional development, and support for computer-using teachers. Adequate ICT infrastructure and accessibility are crucial, as they ensure the necessary tools are present and usable. In contrast, while available support for computer-using teachers is often limited, impacting effective usage, this finding agrees with the critical role of ongoing professional development in enhancing teachers' ICT skills and confidence (Elogbo & Ettah, 2024). Thus, a comprehensive approach addressing infrastructure, accessibility, and support is essential for optimizing ICT use in Business Education (Beranič & Heričko, 2022).

In Business Education, ICT enhances teaching and learning through various methods. PowerPoint presentations are widely used to present thematic, individual, or group work, making content more engaging and visually accessible. Searching for assignments online allows students to access extensive resources quickly, which supports research and learning (Ezenwafor & Okolochi, 2021). Email facilitates efficient submission of assignments and receipt of feedback, streamlining communication. However, the use of school websites for lectures and teleconferencing for idea exchange faces challenges such as technical issues and limited adoption (Thaanyane & Jita, 2024). Despite these hurdles, ICT remains a powerful tool in business education.

The extent of ICT application by students and lecturers varies. The internet is widely used for research and accessing educational resources, reflecting its integration into academic activities. In contrast, while email is commonly utilized for submitting assignments and receiving feedback, some institutions report limited engagement with its full potential (Infante-Moro & Gallardo-Pérez, 2021). Teleconferencing, although beneficial for virtual meetings and discussions, faces challenges with inconsistent adoption and technical issues, as highlighted by recent studies (Jim et al, 2024). This finding agrees with observations of uneven use and integration across different educational settings.

ICT usage in Business Education offers several benefits. It provides access to vast information resources, enhancing research and learning. This aligns with improvements in teaching quality, as ICT tools facilitate interactive and engaging lessons (Chowdhury et al, (2022). In contrast, while ICT reduces teachers' workload by automating tasks, some studies report mixed results regarding its impact on fostering independent learning among students (Akpan & Akpan, 2022). Nevertheless, ICT effectively motivates students to engage more actively with their studies. Overall, ICT's benefits are significant, though challenges in its application persist.

Challenges in ICT usage for teaching and learning include the absence of policies and management support, which can hinder effective integration. In contrast, funding issues significantly impact the acquisition and maintenance of ICT resources, aligning with findings on financial constraints. Epileptic power supply further exacerbates these challenges by disrupting ICT accessibility. Resistance to change among educators also impedes ICT adoption, as noted in recent studies. This finding agrees with the

broader observation that overcoming these obstacles requires comprehensive support and infrastructure improvements (Emeasoba et al, 2022).

Strategies for addressing ICT usage problems in Business Education include proper monitoring, improved funding, regular power supply, and enhancing ICT literacy among teachers. Proper monitoring ensures effective utilization and maintenance of ICT resources. In contrast, improving funding directly addresses resource constraints, which is essential for acquiring and maintaining technology (Orji et al, 2022). Regular power supply is crucial for reliable ICT use, though challenges persist in many regions (Joseph et al, 2022). Enhancing ICT literacy among teachers boosts their ability to effectively integrate technology into their teaching, which this finding agrees with (Irukaku & Arhueremu, 2021).

Conclusion

The study on the utilization and challenges of Information and Communication Technology (ICT) in teaching and learning Business Education within tertiary institutions in Anambra State, Nigeria, reveals both significant advancements and persistent obstacles. ICT has markedly enhanced teaching and learning processes by facilitating access to diverse resources, improving instructional quality, and fostering interactive learning environments. However, challenges such as inadequate infrastructure, limited funding, erratic power supply, and resistance to technological adoption continue to impede its effective use.

Addressing these challenges requires a multifaceted approach. Improved funding is essential for acquiring and maintaining ICT resources, while regular power supply and comprehensive infrastructure development are crucial for ensuring consistent access. Additionally, enhancing ICT literacy among educators through targeted professional development can significantly improve technology integration in teaching practices. While ICT holds substantial promise for transforming Business Education, overcoming existing barriers is critical for realizing its full potential. Effective policy implementation, increased support, and strategic investment in technology are necessary to support the successful integration of ICT in Nigerian tertiary institutions.

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Conflict of Interest

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