

USE OF INFORMATION AND COMMUNICATION TECHNOLOGY FACILITIES FOR BUSINESS EDUCATION INSTRUCTIONS IN COLLEGES OF EDUCATION IN NORTHWEST NIGERIA

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Abstract

This study investigated the use of Information and Communication Technology (ICT) facilities for Business Education instruction in Colleges of Education across North West Nigeria. Employing a descriptive survey design, the research involved 243 business educators from ten colleges offering the program. Data was collected using a validated checklist with a two-point rating scale (reliability coefficient of 0.86). Frequency counts, percentages, and chi-square tests were used for analysis. Findings revealed that the majority of both interactive and non-interactive ICT facilities were utilized in delivering Business Education courses. Interestingly, the study found no significant relationship between ICT utilization and the respondents' location or gender. The research emphasizes the critical need for training and support to enhance educators' effective use of these technologies, considering factors like age and experience. It recommends that colleges in North West Nigeria, regardless of location, should encourage the utilization of various ICT facilities. Furthermore, regular training for business educators is crucial to ensure their effective integration of modern ICT into instructional delivery, ultimately improving teaching and learning experiences. Students should prioritize continuous skill development beyond academics while Governments and NGOs must collaborate with education institutions to invest in modernizing infrastructure and curriculum to match industry demands.

Keywords: Utilization, Interactive & Non-Interactive, ICT, Facilities, Instructional delivery.

Introduction

Utilization in this research refers to the extent to which available tangible and intangible resources, specifically ICT equipment and facilities, are actively used in teaching business education. Business education aims to equip students with marketable skills, knowledge, and attitudes for employment and career advancement, facilitating their transition to the workplace (Aliyu, 2006). Information and Communication Technologies (ICTs), as defined by the ITU (2023), encompass a wide range of electronic tools and telecommunications used for processing and transmitting information, including hardware, software, networks, and services. These technologies enable global communication, collaboration, and information access, revolutionizing various aspects of life and learning.

Business education instruction is a multifaceted discipline focused on equipping individuals with the knowledge, skills, and attitudes necessary for success in various aspects of the business world. This field encompasses a broad spectrum of subjects, including accounting, marketing, management, entrepreneurship, finance, and information technology, among others. The primary goal of business education is to prepare students for diverse career paths, whether they aspire to work in corporate settings, manage their own businesses, or contribute to economic development through innovation and leadership. Instruction in business education often integrates theoretical concepts with practical applications, utilizing case studies, simulations, internships, and real-world projects to enhance learning and develop critical thinking, problem-solving, and decision-making abilities. It aims to foster a

comprehensive understanding of business operations, market dynamics, ethical considerations, and the global economic landscape, ensuring graduates are well-prepared to navigate the complexities of contemporary commerce.

Colleges of Education in Nigeria play a pivotal role in the nation's educational system, serving as specialized institutions dedicated to the training and professional development of teachers. These colleges are primarily responsible for producing qualified educators for primary and junior secondary schools across the country. Their curriculum is designed to provide students with a strong foundation in pedagogical theories, subject-matter knowledge, and practical teaching skills through supervised teaching practice. Graduates from Colleges of Education are awarded the Nigeria Certificate in Education (NCE), which is the minimum qualification required to teach at these levels. Beyond initial teacher training, many Colleges of Education also engage in research and community service, contributing to educational reforms and addressing local societal needs. They are instrumental in ensuring a steady supply of competent and dedicated teachers, thereby impacting the quality of education and the overall human capital development in Nigeria.

Ugwu and Oboegbulem (2011) view ICT as modern methods of handling information using electronic devices for accessing, storing, processing, transporting, and delivering information services, including software, media, and delivery systems. They note that ICTs in education include a wide array of rapidly evolving technologies such as desktops, digital cameras, local area networks, the internet, the World Wide Web, CD-ROMs, DVDs, e-learning, and video-conferencing. The increasing global prominence of ICT means it is relevant to nearly every aspect of human activity. ICT automates and computerizes the processes of collecting, typing, filing, copying, processing, analyzing, managing, storing, retrieving, and using information for problem-solving and decision-making. The advent and application of ICT have simplified teaching through electronic media, the internet, computers, and e-presence or video-conferencing.

Key examples of ICTs include interactive, communication, and data processing technologies (Davenport & Beck, 2001; Littlejohn, 2017; Chandler, 2011). The integration of ICT has transformed learning (Avgerou, 2008), shifting educational approaches (Bates, 2019; Laurillard, 2016). UNESCO (in Ammani, 2021) emphasizes ICT's role in enhancing teaching and learning, particularly in business education (Means et al., 2010). Research highlights numerous benefits of ICT in education, such as improved access to resources, enhanced learning outcomes, increased student engagement, catering to diverse learning styles, fostering creativity, transforming teaching practices, and promoting collaboration (Cuban, 2001; Mishra & Koehler, 2006; Dede, 2008; Mayer, 2009; Richard, 2008; Rose & Meyer, 2002; Vygotsky, 1978; Siemens & Towns, 2009). However, effective teacher utilization is crucial for realizing these benefits (Pacey, 1999), and there's a growing global awareness of ICT in education (Pacey, 1999). ICT tools, both interactive and non-interactive, offer significant potential for skill development (Nwosu, 2003). The importance of ICT in business education curriculum and its relevance in Colleges of Education for administration and teaching (Nwosu, 2003), as well as the expected ICT proficiency of business education graduates and lecturers (Papioioannon & Charalambous, 2011), provides the context for studying ICT utilization in North-West Nigerian Colleges of Education.

Statement of the Problem

Despite curriculum restructuring to emphasize ICT in Nigerian Colleges of Education, the performance of NCE business education graduates has not significantly improved. A key reason appears to be that many instructors still prefer traditional teaching methods, often relying on outdated and malfunctioning equipment for skills-based courses, even though modern ICT-based approaches are available. This preference may be linked to the underfunding of ICT resources, which consequently impacts both the teaching and learning processes in business education.

Furthermore, Azih (2010) notes a high student interest in business education despite inadequate instructional facilities and practical training from lecturers. The lack of modern teaching aids, laboratories, and overall instructional resources in many Nigerian schools hinders effective teaching

and learning. The underutilization of existing ICT facilities in Colleges of Education, potentially due to issues like poor network connectivity, lack of electricity, or inadequate storage in the North-West region of Nigeria, further exacerbates this problem. Consequently, this research aims to determine the extent to which interactive and non-interactive ICT facilities are utilized in delivering business education courses in Colleges of Education within North-West Nigeria.

The consequences of failing to utilize ICT facilities in education, emphasizing its adverse effects on both students and society. Without practical exposure to modern technology, students face setbacks in learning, while society struggles with graduates who lack hand-on experience in real-world ICT applications.

This study aims at bridging the gap by advocating for comprehensive access to ICT tools in business education instruction in colleges of education in north West, Nigeria ensuring students gain essential practical skills to thrive in the 21st-century technological landscape.

Objective of the Study

This study's primary goal was to ascertain how interactive and non-interactive information and communication technology (ICT) facilities are utilized in business education courses taught in education colleges education. Specifically, the study sought to determine the:

1. Use of Interactive ICT facilities for business education instructions in Colleges of Education in North West Nigeria;
2. Use Non-interactive ICT facilities for business education instruction in Colleges of Education in North West Nigeria;

Research Questions

The following research questions were formulated to guide the study:

1. What are the interactive ICT facilities utilized for of business education instructions in Colleges of Education in North West, Nigeria?
2. What are the non-interactive ICT facilities utilized for business education instructions in Colleges of Education in North West, Nigeria?

Hypotheses

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

HO₁: The use of interactive ICT facilities for Business Education instructions do not significantly depend on location.

HO₂: The use of non-interactive ICT facilities for Business Education instructions do not significantly depend on gender.

Concept of Information Communication and Technology

Information and Communication Technology (ICT) encompasses the hardware, software, networks, and media used for the collection, storage, processing, transmission, and presentation of information (Oladeji, 2007). It involves the digital processing, storage, retrieval, and transmission of data and information dissemination (Oladeji, 2007). Makhanu (2010) describes ICTs as technologies for creating, managing, communicating, and distributing information, while Laaria (2013) includes telephones, televisions, radios, computers, the internet, and audio-visual equipment. Makhanu (2010) also defines ICT as any application or device used to manage, access, create, evaluate, integrate, and communicate information and knowledge, including digital technology. Manduku, Kosgey, and Sang (2012) specify ICT hardware as desktop computers, CD drives, laptops, telephones, electricity infrastructure, scanners, printers, and projectors.

Information Communication Technologies are classified into five fundamental types: sensing technologies, which gather environmental information into a computer-understandable format (e.g., scanners, keyboards, mouse); communication technologies, which facilitate connections between various technologies (e.g., fax machines, cellular phones, computer networks like LAN and WAN); analyzing technologies, comprising computer hardware and software that process information; display technologies, essential output devices that present processed data to humans (e.g., loudspeakers,

printers, display screens); and storage technologies, which enable the storage of large amounts of easily accessible information (e.g., magnetic tapes, magnetic discs, optical discs like CD-ROMs and VCDs).

Impact of Information and Communication Technology (ICT) on Education

Haddad (2008) contends that globalization and technological advancements have established a global economy driven by technology, information, and knowledge, profoundly influencing educational institutions. Consequently, schools must shift from simply conveying information to cultivating lifelong learning skills to ensure educational relevance and equity in a globalized world. The worldwide adoption of ICT in education indicates a gradual realization of its full potential. To maximize ICT's positive impact and relevance, Kling (2011) identifies crucial considerations for educators and policymakers.

Kling (2011) examines ICT's influence on learning and achievement, highlighting its empowering potential for teachers and students, though its direct impact on academic outcomes needs further research, except in ICT-specific subjects. For teachers and teaching, ICT integration requires support and professional development to be effective, enhancing rather than replacing traditional skills. Regarding content and curriculum, Kling (2011) cautions against simply importing digital resources, stressing the importance of alignment with local educational needs and assessment methods. ICT also plays a significant role in education research and development as both a subject of study and a tool for data collection and analysis. Furthermore, ICT has a substantial impact on school management and administration by enabling processes like student document tracking, online registration, grade submission, and record digitalization. Common ICT tools in education include e-learning, video lectures, e-libraries, the internet, and distance learning.

Business education is the intellectual and vocational instructions given to students to earn a living in the contemporary industrial and ever changing business environment. The tenet of business education embraces entrepreneurship, basic education, business environment and vocational practices.

Objectives of Business Education

According to Igboke (2000, cited in Ammani, 2021), business education at all levels aims to equip individuals with business skills and knowledge, develop skills for personal use, connect learning to national development, foster office occupation skills, prepare students for further business studies, and provide foundational skills for those entering the workforce directly. Essentially, if general education helps individuals adapt to their environment, business education helps them adapt to the business environment. In Nigeria, while offered at various levels, business education is a dedicated course in tertiary institutions like Colleges of Education and university faculties of education. Furthermore, ICT utilization has the potential to enhance teacher performance significantly compared to traditional methods. ICT tools like slide and opaque projectors can make abstract concepts clearer, stimulate curiosity, and encourage active participation in the classroom.

Interactive ICT Facilities:

The Smart Podium functions as an interactive pen display connected to a computer, enabling presenters to open documents, present multimedia, annotate digitally, and engage the audience by facing them (Targetstudy, 2019; Dekom, 2019; West Chester University, 2012). It streamlines presentations by instantly projecting various media and serves as an interactive monitor and tablet, particularly useful for navigating complex diagrams (FCLD, 2006). The Document Camera, also known as a visualizer or digital overhead, displays objects placed under it on a larger, interactive screen, facilitating live demonstrations, experiments, and magnified views of microscopic items (Smartclassroomequipments, 2014; Smartclassroomindia, 2014). An Interactive Pad (iPad), a tablet computer with a multi-touch screen and virtual keyboard offering internet access and multimedia capabilities (Wikipedia, 2019b), allows students to interact during presentations and can be mirrored on larger screens (Wainwright, 2013). ScreenBeam is a wireless device that connects phones, tablets, and laptops to HDTVs for media sharing and extended screen use (Actiontec Electronics, Inc., 2018; Actiontec Electronics, Inc., 2019),

enhancing classroom collaboration. Smartphones, mobile phones with advanced features (Techterms, 2010; Techopedia, 2019; Hope, 2019), offer web browsing and app capabilities and can be versatile classroom tools (Al-Fawareh & Jusoh, 2017; Hennessy, 2019).

Interactive Tables are multi-touch surfaces for displaying content and allowing user input (IGI Global, 2019; Mastervision, 2019), encouraging group learning and communication and catering to diverse needs (Elementary Technology, n.d). Computers with Internet Connectivity are essential for teaching, distance learning, and efficient services (Nwosu, 2006), processing and storing data for engaging learning experiences. Edusat, India's first educational satellite, supports audio-visual mediums, interactive classrooms, and multimedia systems. A Satellite Dish is an antenna for receiving satellite transmissions (Merriam-Webster, 2018; Nice & Harris, 2018). Graphics Tablets, with a flat surface and stylus, are used for hand-drawing images and graphics directly onto a computer monitor, as well as for data capture and tracing (Various names are provided).

Non-Interactive ICT Facilities:

A Projector is an optical device for image projection, with interactive models that can simulate interactive whiteboards on any surface, allowing annotation and enhancing student engagement (Projector Central, 2019; Harris-Briggs, 2018; Copper, 2018; Feierman, 2014; Epson, 2016; Hitachi Digital Media Group, 2016). Data Projectors specifically project computer signals onto a screen for presentations (Stein, 2017; Murdock, 2018). Slide Projectors, once common for viewing photographic slides, are auto-mechanical devices using optical methods (Wikipedia, 2018; Itstillworks, 2018). Educational CD-ROMs offer interactive multimedia content beneficial for early childhood education (Cevher-Kalburan et al., 2010). Tape Recorders, electrical devices for sound recording and playback, are versatile classroom tools with modern recording apps (King, 2016). Television provides mass education opportunities, stimulates learning, enhances social quality and flexibility, reduces reliance on verbal teaching, and improves quality (Leado, 2016).

Spreadsheet software is used for saving, sorting, and managing data in rows and columns, enabling calculations (Hope, 2018b; Rouse in Ammani, 2021). Calculators are devices for performing arithmetic operations, with advanced models handling complex functions (Gagan, 2015). Fax Machines transmit and receive paper-based messages over telephone lines (O'Brien in Ammani, 2021). Printers generate hard copies of electronic data (Hope, 2018). Flash Drives are portable USB devices for data storage (Wischhusen & Scales, 2000). Photocopying Machines quickly duplicate documents (Elendu in Ammani, 2021; Xerox website). Cameras capture still photographs or video, crucial for communication, education, and preserving history, with endless learning applications (Kichline, 2019; Everette, 2015; Lightbody, 2014).

Theoretical Framework

The theoretical framework reviewed the engagement theory.

Engagement theory

The Engagement Theory, proposed by Kearsley and Shneiderman in 1999, is a framework for designing learning activities that foster "engaged learning." This occurs when learners actively use cognitive processes like problem-solving, decision-making, and evaluation. The theory aligns with constructivism by viewing the learner as a builder and champions experiential and self-directed learning. While engagement can happen without technology, the theory specifically focuses on technology-based learning and teaching, believing technology can uniquely facilitate engagement through interaction and meaningful tasks. It emphasizes meaningful learning, collaboration (aligning with situated learning), and experiential, self-directed learning (similar to adult learning theories).

Engaged learning, according to the theory, involves students using active cognitive processes and being intrinsically motivated by meaningful learning environments and activities. A key aspect is creating successful collaborative teams working on ambitious, real-world projects. This theory is relevant because it promotes group interaction (reflecting the shift towards computers as communication tools) and emphasizes authentic learning settings, which were often missing in earlier models.

Methodology

This study employed a descriptive survey design to gather data on the utilization of interactive and non-interactive ICT facilities in the instructional delivery of business education courses in Colleges of Education in North-West Nigeria. The Population and sample of the study comprised 243 business educators in ten colleges of education who offer business education programme. There will be no sampling of the population since the population size is manageable. Checklist with a two-point rating scale was used to collect data. The instrument was validated, and tested for reliability using split-half statistic with a reliability coefficient of 0.86. Frequency counts and percentages were used to analyzed the collected data and to answer the research questions, while using chi-square to test the research hypotheses. The researcher collected and analyzed the opinions and views of 243 Business Education lecturers from ten colleges without manipulating any variables, presenting the data in its natural setting. Frequency counts and percentages were used to answer research questions, while Chi-square statistics tested null hypotheses at a 0.05 significance level, with utilization agreed upon if 50% or more respondents indicated so, and hypotheses accepted if the calculated chi-square value was less than the critical value.

Results

Research Question 1

What are the interactive ICT facilities utilized for business education instructions in colleges of education in North West Nigeria?

The analysis of research question one was presented in Table 1.

The answer to the interactive ICT facilities utilized for business education instructions is presented in Table 1.

Table 1:Percentage result on Interactive ICT Facilities utilized for Business Educ

S/N	Items	No. Available	No. Respondents for Utilized	% of Respondents Utilized	No Respondents for Utilized	% of Respondents Not Utilized
1.	Graphics Tablets	40	40	17.47	0	0
2.	Interactive Digital/ Smart Board	20	20	8.73	0	0
3.	Smart Podium	0	0	0	0	0
4.	Document Camera	20	20	8.73	0	0
5.	Smart Table	0	0	0	0	0
6.	Computer with Internet connectivity	35	35	15.28	0	0
7.	Interactive Pad (Ipad)	8	8	3.49	0	0
8.	Screen Beam (Classroom Commander)	0	0	0	0	0
9.	Smartphones	100	68	29.69	32	13.97
10.	Edusat (E-learning)	38	38	16.60	0	0

N:229

Instruments

Source: Administered Self-Questionnaire,

The data presented in Table 1 details the utilization of interactive ICT facilities for instructional delivery in business education. The findings indicate that among the interactive ICT facilities reported as available, all were utilized by the respondents. Specifically, graphics tablets (17.47%), interactive digital/smart boards (8.73%), document cameras (8.73%), computers with internet connectivity (15.28%), interactive pads (iPads) (3.49%), smartphones (29.69%), and Edusat (E-learning) (16.60%) were all reported as utilized. Conversely, smart podiums, smart tables, and screen beams (Classroom Commander) were not available, and consequently, were not utilized for instructional delivery.

Research Question 2

What are the non-interactive ICT facilities utilized for instructional delivery of business education courses in colleges of education in North-West, Nigeria?

The answer to the non-interactive ICT facilities utilized for instructional delivery in Business Education is presented in Table 2.

Table 2: Percentage Results of Non-Interactive ICT Facilities Utilized for Instructional Delivery in Business Education

S/N	Items	No. Available	No. of Respondents for Utilized	% of Respondents for Utilized	No. of Respondents for Not Utilized	% of Respondents for Not Utilized
1.	Digital calculators	229	50	21.83	179	78.17
2.	Fax machine	155	10	4.36	145	63.32
3.	Printer	229	79	34.50	150	65.50
4.	Scanner	229	129	56.30	100	43.70
5.	Flash drive	229	200	87.34	29	12.66
6.	Photocopying machine	229	180	78.60	49	21.40
7.	CD-ROM	229	229	100	0	0
8.	Tape Recorder	229	20	8.73	209	91.27
9.	Slide Projector	0	0	0	0	0
10.	Television	229	0	0	229	100

Source: Administered Self-Questionnaire

The results presented in Table 2 indicate the extent of utilization of non-interactive ICT facilities for instructional delivery in business education. The findings reveal varying levels of utilization across the listed items. Flash drives (87.34%) and photocopying machines (78.60%) show high percentages of utilization by respondents. Scanners were utilized by a notable 56.30% of respondents. Printers also show a considerable utilization rate at 34.50%. Digital calculators and tape recorders had lower utilization rates, at 21.83% and 8.73% respectively. Fax machines showed a very low utilization rate of 4.36%. Interestingly, CD-ROMs were reported as utilized by 100% of the respondents. Conversely, televisions were not utilized by any of the respondents (0%), aligning with the absence of available slide projectors reported in the table.

Hypotheses

The research hypotheses were analyzed using chi-square as presented below:

H₀₁: The use of interactive ICT facilities for Business Education instructions do not significantly depend on location.

The data analysis of hypothesis 1 using χ^2 is presented in Table 3.

Table 3: χ^2 Analysis on Use of Interactive ICT Facilities for Instructional Delivery Based on Location

Variable	Available	Not Available	Total
Urban	709 (704.66)	115 (119.34)	824
Rural	466 (470.34)	84 (79.66)	550
Total	1175	199	1374

$\chi^2 \text{ cal} = 0.339$ $Df = 1$ $\chi^2 \text{ crit} = 3.841$

Table 3 showed that χ^2 cal value (0.339) was less than the χ^2 crit valve (3.841). Based on the decision

rule to accept χ^2 cal if is less than χ^2 crit, it was accepted that the utilization of interactive ICT facilities for instructional delivery of business education courses does not significantly depend on location.

H₀₂: The use of non-interactive ICT facilities for Business Education instructions do not significantly depend on gender.

The data analysis of hypothesis 4 using χ^2 is presented in Table 4.

Table 4: χ^2 Analysis on Utilization of Non-Interactive ICT Facilities for Instructional Delivery based on Gender

Variable	Utilized	Not Utilized	Total
Male	948 (943.11)	298 (302.89)	1246
Female	612 (616.89)	203 (198.11)	815
Total	1560	501	2061

χ^2 cal = 0.264 Df = 1 χ^2 crit = 3.841

In Table 4, the χ^2 calculated (0.264) is less than the χ^2 critical (3.841). Based on the decision rule, the null hypothesis 4 was accepted. This revealed that the utilization of non- interactive ICT facilities for the instructional delivery Business of Education course does not significantly depend on gender

Discussion Findings

The findings of the study are summarized below:

The study investigated the utilization of interactive and non-interactive ICT facilities for instructional delivery in Business Education. Table 1 indicated that seven interactive ICT items were utilized: interactive projector, interactive digital/smart board, document camera, computer with internet connectivity, iPad, smartphones, and Edusat (E-learning). Conversely, smart podium, smart table, and Screen Beam (Classroom Commander) were not utilized. This high utilization (60% of available items) of interactive ICT was attributed to their user-friendliness and collaborative potential, a finding that contradicts Ogundele and Lawal (2016), who found technologies like digital cameras and interactive whiteboards were neither accessible nor utilized, and disagrees with Oni and Uko (2016), who noted the availability but lack of utilization of ICT in Higher Education Institutions.

Hypothesis 1 testing revealed that the utilization of interactive ICT facilities did not significantly depend on location (χ^2 cal < χ^2 crit), leading to its acceptance. This suggests that interactive ICT can be effectively used in both urban and rural institutions, offering benefits for teacher-student interaction and learner collaboration (Chinyere & Victor, 2016). This aligns with the Federal Republic of Nigeria's recognition of ICT relevance and commitment to providing necessary infrastructure (FRN in Amiaya, 2016; Amiaya, 2016; Azubuike, 2017). Ogundele and Lawal (2016) also noted the development of ICT centers in tertiary institutions across both urban and rural areas. The importance of availability for utilization was supported by Onojetah in Amiaya (2016). However, this finding contrasts with Wang (2013), who observed a difference in interactive whiteboard utilization, with urban teachers demonstrating greater familiarity and confidence than their rural counterparts.

Table 2 showed that eight non-interactive ICT facilities out of ten were utilized (80%): digital calculator, fax machine, printer, scanner, flash drive, photocopying machine, CD-ROM, tape recorder, and television. Only the fax machine and slide projector were not utilized. This suggests a higher reliance on non-interactive ICT, possibly due to their ease of operation. This aligns with Agim et al. (2018) and Emeasoba and Nweke (2016), who reported adequate utilization of similar ICT facilities in their respective studies.

Hypothesis 2 testing indicated that the utilization of non-interactive ICT facilities did not significantly depend on gender (χ^2 cal < χ^2 crit), leading to its acceptance. This suggests that both male and female lecturers in the North-West, Nigeria, utilize these facilities. This contradicts Onasanya et al. (2011) and the views of Volman and Eck in Mustafa (2014) regarding potential gender differences in ICT confidence and utilization. It also disagrees with Vin-Mbah (2016), who found a lack of multimedia and hypermedia technology utilization by both male and female Business Educators. However, this

finding is supported by Ismail et al. (2018), Fomsi and Orduah (2017), Azeta and Merwe (2017), and Ogundala and Lawal (2016), who found no significant gender differences in ICT use among educators.

Conclusion

Conclusion was drawn based on the findings of the study that most of the interactive and non-interactive ICT facilities were utilized in instructional delivery of Business Education Courses. Also, the utilization of interactive and non-interactive ICT facilities is not influenced by location or gender. ICT facilities are needed for instructional delivery of Business Education Courses in both urban and rural areas that the institutions are established. These facilities enhance teaching and learning and to a great extent promote interactions and collaborations among learners and teachers as well. Colleges of Education in the North-West, Nigeria are called upon by these findings to utilize ICT for effective delivery of instructions in Business Education Courses.

Recommendations

In line with the findings of the study, the following recommendations were made:

1. Colleges of education in both urban and rural areas of North-West Nigeria should be encouraged to integrate non-interactive ICT facilities into the Business Education instructions
2. To ensure effective Business Education instructions, the Government and non-governmental organizations should thrive to see that male and female educators in North West Nigerian colleges of education should receive regular training on utilizing non-interactive ICT facilities
3. Students should prioritize continuous skill development beyond academics. Actively seek internships, participate in business competitions, and cultivate digital literacy. Embracing lifelong learning prepares you for the dynamic business world.
4. Governments and NGOs must collaborate with education institutions. Invest in modernizing infrastructure and curriculum to match industry demands. Foster partnerships to provide practical training, boosting the quality of graduates and national development.

References

- Actiontec Electronics, Inc. (2018). Screenbeam mini2 wireless display receiver. Retrieved from <https://www.screenbeam.com/wp-content/uploads/2018/06/Actiontec-Datasheet-ScreenBeamMini2-2.pdf>
- Actiontec Electronics, Inc. (2019). Creates collaborative spaces with screenbeam wireless display. Retrieved from <https://www.screenbeam.com/solutions/education-solutions/>
- Agim, N. C., Iroze, P. C., Osuji, C. E., & Obasi-Haco, C. (2018). Availability and utilization of ICT facilities by students. *European American Journals*, 4(3), 1-14. Retrieved from: eajournals.com
- Al-Fawareh, H. M., & Jusoh, S. (2017). The use and effects of smartphones in higher education. *IJIM*, 11 (6), 103-111. doi.org/10.3991/ijim.v11i6.7453
- Aliyu, A. (2004). Information and communication technology and enhancement of education in the 21st century. Umunze: Research and Conference Unit, FCT (T) Umunze.
- Aliyu, A. (2006). Conducting research in education and the social sciences. Enugu: Tian Ventures.
- Amiaya, A.O. (2016) Availability and utilization of new technologies for teaching office technology and management in Delta State Polytechnics. *Nigerian Journal of Business Education*, 3(2), 63-72.
- Ammani A. (2021). Availability and utilization of information communication technology facilities in instructional delivery of business education courses in colleges of education in Nigeria. (Unpublished M.Ed Dissertation), Ebonyi State University, Abakaliki.
- Avgerou, C. (2008). Information and communication technologies and development. *Annual Review of Information Science and Technology*, 42(1), 83-120.
- Azeta, A.A., & Merwe, D.V. (2017). Gender differences and technology usage amongst postgraduate Students in a Christian University. Retrieved from <http://eprints.convenant>

- university.edu.ng/12483/1/Gender.pdf.
- Azih, N. (2010). Modern accounting skills required by accounting education students. *Business Education Journal*, 7(2), 120 -130.
- Azubuike, C. (2017). The role of information communication technology (ICT) in rural development of Nigeria. *Journal of Information Engineering and Application*, 7(1), 1-17.
- Bates, A. W. (2019). *Teaching in a digital age: Guidelines for designing teaching and learning*. BCcampus Open Education.
- Cevher-Kalburan, N., Yurt, O., & Ömerolu, E. (2010). The use of interactive cd-rom in early childhood education: teachers' thoughts and practices. *Procedia Computer Science*, 3, 1555–1561.
- Chandler, D. (2011). *Semiotics: The basics*. Routledge.
- Chinyere, M., & Victor, O. E. (2016). Assessment of the extent of utilization of e-learning opportunities for effective teaching and learning in Business education. *Nigerian Journal of Business Education*, 3(2), 212-221
- Copper, J. (2018). Interactive projectors increase student engagement. Retrieved from <https://www.weareteachers.com/interactive-projectors-increase-student-engagement/>
- Cuban, L. (2001). *Oversold and underused: Computers in the classroom*. Harvard University Press.
- Davenport, T. H., & Beck, J. C. (2001). *The knowledge advantage: How the best companies build value through knowledge*. Crown Business.
- Dede, C. (2008). *Planning for and assessing technology-enabled learning environments*. Routledge.
- Dekom, U. (2019). Smart podium 624. Retrieved from <https://www.dekom.com/en/media-technology/product/smart-podium-624/>
- Elementary Technology (n.d).Interactive tables. Retrieved from <https://elearningindustry.com/advantages-and-disadvantages-of-elearning>.
- Emeasoba, N. C., & Nweke O. M. (2016). Level of availability and utilization of ICT facilities in teaching and learning of OTM in polytechnics of south eastern states in Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)*, 7(6), 404-413.1- 10. Retrieved from:jeteraps.scholarlinkresearch.com
- Epson (2016). Eight creative uses of interactive projectors in the classroom. Retrieved from <http://news.epson.com.sg/news/eight-creative-uses-of-interactive-projectors-in-the-classroom-202780>
- Everette, M. (2015).10 Uses for Digital Cameras in the Classroom. Retrieved from <https://www.scholastic.com/teachers/blog-posts/meghan-everette/10-uses-digital-cameras-classroom/>
- Ezeh, P.C. (2010). Assessment of the level of ICT skills possessed by office technology and management teachers for effective service delivery in Polytechnics. *Nigerian Vocational Association Journal*, 15(1), 184-192.
- Faculty Center for Learning Development (2006). Smart podiums. Retrieved from [https://www.hartford.edu/academics/faculty/fcld/data/documentation/technology/presentation/ SMARTPodium.pdf](https://www.hartford.edu/academics/faculty/fcld/data/documentation/technology/presentation/SMARTPodium.pdf)
- Feierman, L. (2014). About interactive projectors. Retrieved 3rd April 2012. <http://www.technologia.org/>.
- Fomsi, E.F., & Orduah, S.E. (2017). Gender differences in the use of ICT among teachers in model primary schools in River State, Nigeria.
- Gagan, P. (2015). What can be some uses of a calculator, other than using it for the purpose of calculation? Retrieved <https://www.quora.com/What-can-be-some-uses-of-a-calculator-other-than-using-it-for-the-purpose-of-calculation>
- Haddad, W. D. (2008). Is instructional technology a must for learning? Retrieved 3rd April 2012. <http://www.technologia.org/>.
- Harris-Briggs, N. (2018). Interactive projector vs interactive display - Which is better? Retrieved

- from <https://www.avocor.com/blog/interactive-projector-vs-interactive-display/>
- Hennessy, M. A. (2019). Using smartphones and other pdas in class: these days, it is cool! Retrieved from <http://lessonplanspage.com/using-smartphones-and-other-pdas-in-class-these-days-its-cool/>
- Hitachi Digital Media Group (2016). 5 benefits of teaching with an Interactive projector. Retrieved from <http://www.hitachidigitalmedia.com/en-gb/news/blog/5-benefits-of-teaching-with-an-interactive-projector>
- Hope, C. (2018a). Printer. Retrieved from <https://www.computerhope.com/jargon/p/printer.htm>
- Hope, C. (2018b). Spreadsheet. Retrieved from <https://www.computerhope.com/jargon/s/spreadsheet.htm>
- Hope, C. (2019). Smartphone. Retrieved from <https://www.computerhope.com/jargon/s/smartphone.htm>
- Igboke, S. A. (2000). Business education: principles & methods. Onisha: Cape Publishers International Limited.
- IGI Global (2018). What is non-interactive? Retrieved from <https://www.igi-global.com/dictionary/non-interactive/20461>
- IGI Global (2019). Interactive table. Retrieved from <https://www.igi-global.com/dictionary/practical-metrics-for-error-assessment-with-interactive-museum-installations/46331>
- International Telecommunication Union (ITU). (2023). ICT Development Index 2023. Retrieved from <https://www.itu.int/itu-d/reports/statistics/idi2023/>
- Ismail, A., Affandy, H.B., & Hamzah, M.T. (2018). Factors influencing the use of ICT in rural school Libraries. Retrieved from <https://doi.org/10.1051/mateconf/201815006045>.
- Itstillworks (2018). How to use a slide projector? Retrieved from <https://itstillworks.com/how-2049330-use-slide-projector.html>
- Kichline, P. (2019). Why is the camera important? Retrieved from <https://www.useoftechnology.com/what-is-technology>.
- King, M. (2016). 4 Ways Audio Recording Can Boost Classroom Learning. Retrieved from <https://www.edutopia.org/discussion/4-ways-audio-recording-can-boost-classroom-learning>
- Kling, R. (2011). What is social information? Retrieved from <http://www.rkesc.indiana-edu>.
- Laaria, M. (2013) Leadership challenges in the implementation of ICT in public secondary schools, Kenya, *Journal of Education and Learning*, 2(1), 32-43 Doi:10.5539/jel.v2nlp32.
- Laurillard, D. (2016). The pedagogical implications of m-learning: Thriving in a 21st century world. Springer.
- Leado, B. (2016). Role of television in education. Retrieved from <https://blog.byjus.com/role-of-television-in-education/>
- Lightbody, K. (2014). Digital cameras enhance education. Retrieved from <https://www.securedge networks.com/blog/5-Smart-Ways-to-Use-iPad-Technology-in-the-Classroom>
- Littlejohn, S. W. (2017). Theories of human communication. Cengage Learning.
- Makhanu, E. (2010). Principals' literacy in ICT: towards improving secondary school performance in Kenya, (Unpublished Ph.D Thesis), University of South Africa.
- Manduku, J. Kosgey, A. & Sang, H. (2012). Adoption and use of ICT in enhancing management of public secondary schools: a survey of Kesses zone secondary schools in Warend District of Wasin Gishu Country, Kenya. Retrieved from <https://www.semantic scholar.org/paper/Adoption-and-Use-of-ICT-in-Enhancing-Management-of-MandukuJ-Sang/30b1d93ea891f173019d218065c144f8fa511599>
- Mastervision, N. (2019). Interactive table. Retrieved from https://en.wikipedia.org/wiki/Interactive_whiteboard
- Mayer, R. E. (2009). Multimedia learning. Cambridge University Press.
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. US Department of Education.

- Merriam-Webster (2018). Meaning of satellite dish. Retrieved from <https://www.merriam-webster.com/dictionary/satellite%20dish>.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for integrating technology in teacher education. *Journal of Teacher Education*, 57(1), 10-20.
- Murdock, R. (2018). What are the functions of data projectors? Retrieved from <https://www.techwalla.com/articles/what-are-the-functions-of-data-projectors>
- Mustafa, M.N. (2014). The effects of gender difference in ICT application: Bridging the Gap of knowledge and skills among teachers. *Australian Journal of Basic and Applied Science*, 8(10), 81-86.
- Nice, K., & Harris, T. (2018). Satellite dish. Retrieved from <https://www.useoftechnology.com/what-is-technology/>
- Nwosu, B. O., Anaka, E. A., & Eleoba, P. C. (2003). Fundamentals of word processing. Owerri: Chin and Chis Ventures.
- Nwosu, B.O. (2006). Business education and information technology in the 21st century: issues and trends. A paper presented at a public lecture organized by the school of business education, Federal College of education (Technical), Umunze, Anambra State on June 21.
- Ogundele, I. S., Lawal, L. (2016). Influence of new technologies on the teaching of business education courses in tertiary institutions in Kwara State. *Nigerian Journal of Business Education*, 3(2), 81-88
- Oladeji, A. (2007). Information and communication technology in classroom instruction. *Journal of Professional Teacher Trainer*, 11(1), 10-15.
- Onasanya, S.A., Shehu, R.A., Ogunlade, O.O., & Adefuye, A.L. (2011). Teachers' awareness and extent of utilization of information communication technologies for effective science and
- Pacey, L. (1999). Integration of information and communication technologies (ICTS) through teacher professional development. Comparative analysis of issues and trends in seven APEC economies. Canada: July Roberts & Associates Inc.
- Papioannon, P., & Charalambous, K. (2011) Principals' attitudes towards ICT and their perceptions about factors that facilitate or inhibit ICT integration in primary schools of Cyprus, *Journal of Information Technology Education*, 10(1), 349-369.
- Projector Central (2019). Top 10 interactive projectors. Retrieved from <https://www.projectorcentral.com/interactive-projectors.htm>
- Smartclassroomequipments (2014). Introduction to digital podium. Retrieved from <https://smartclassroomequipments.wordpress.com/2014/02/22/introduction-to-digital-podium/>
- Smartclassroomindia (2014). Document camera. Retrieved from <https://smartclassroomequipments.wordpress.com/2014/02/22/introduction-to-digital-podium/>
- Spacey, J. (2017). 5 examples of non-interactive thing. Retrieved from <http://www.who.int/gender-equity-understnding/gender-definition>.
- Stein, A. (2017). Definition of data projectors. Retrieved from <https://bizfluent.com/facts-7289237-definition-data-projectors.html>
- Targetstudy (2019). Smart classroom-advantage and disadvantage. Retrieved from <https://targetstudy.com/articles/smart-classrooms-advantages-and-disadvantages.html>
- Techopedia (2018). Scanner. Retrieved from <https://www.techopedia.com/definition/30441/scanner>
- Techopedia (2019). Smartphone. Retrieved from <https://www.techopedia.com/definition/2977/smartphone>
- Techterms (2010). Smartphone definition. Retrieved from <https://techterms.com/definition/smartphone>
- Ugwu, R.N., & Obogbulem, A. (2011). Information and communication technology (ICT) capacity building for staff personnel in post primary schools for effective school administration. *International Journal of Educational Research*, 11(1), 190-210.
- Vin-Mbah, F.I. (2016). Utilization of multimedia and hypermedia technologies in the tertiary

- business education classroom in Anambra State. *Nigerian Journal of Business Education*, 3(2), 14-24.
- Wainwright, A. (2013). Five smart ways to use ipad technology in the classroom. Retrieved from <https://www.securedgenetworks.com/blog/5-Smart-Ways-to-Use-iPad-Technology-in-the-Classroom>.
- Wang, P. (2013). Examining the digital divide between rural and urban schools: Technology availability, teachers' integration level and Students' perception. *Journal of Curriculum and Teaching*, 2(2), 127-145.
- West Chester University (2012). Smart podium basics. Retrieved from <https://www.wcupa.edu/infoservices/training/documents/courses/SMART/SmartPodium.pdf>
- Wikipedia (2018). Definition of mobile phone. Retrieved from <https://www.securedgenetworks.com/blog/5-Smart-Ways-to-Use-iPad-Technology-in-the-Classroom>
- Wikipedia (2019b). Ipad. Retrieved from <https://en.wikipedia.org/wiki/IPad>.
- Wischhusen, M. & Scales, J. S. A. (2000). *Information and communication technology*. Oxford: Heinemann Educational Publishers.