



## Availability and Use of ICT and Multimedia Resources in Teaching And Learning In Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus

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### ABSTRACT

*This study examines the availability and utilization of Information and Communication Technology (ICT) and multimedia resources in the Department of Library and Information Science (LIS) at Chukwuemeka Odumegwu Ojukwu University (COOU), Igbariam Campus. Against the backdrop of global digital transformation in education, the research identifies significant gaps in resource provision and integration within the Nigerian higher education context. A survey design was employed, with data collected from 117 respondents (13 lecturers and 104 students) using structured questionnaires. Descriptive statistics were used to analyze the findings. Results indicate limited availability of ICT and multimedia tools, with only 43.4% of the assessed resources accessible. Key available resources include electronic boards, multimedia computers, and social networks, while critical tools like internet-enabled environments and projectors remain scarce. Despite some availability, utilization rates are low, with only 40% of accessible resources actively used in teaching and learning. Major challenges include insufficient technical personnel, unreliable internet connectivity, funding constraints, and lack of technical expertise among staff. The study underscores the urgent need for institutional interventions, including enhanced infrastructure investment, targeted capacity-building programs for educators, and improved technical support systems. Addressing these gaps is essential for aligning the department's practices with global educational standards and leveraging ICT's full potential to enrich pedagogy and learning outcomes.*

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### INTRODUCTION

Globally, the realm of Information and Communication Technology (ICT) has initiated a paradigm shift from an emphasis on analog, research-based technological development to a focus on digital, knowledge-driven technological advancement in education. This transition has rendered ICT as one of the essential foundational elements of modern societal development. While ICT resources are often regarded as vital tools for enhancing educational standards across nations, the Nigerian higher education system lags behind in the effective implementation of these resources

within instructional development processes, indicating a significant gap in compliance and integration (Nwabueze & Ibeh, 2016).

ICT, as defined by Pelgrum (2012), encompasses a broad spectrum of technological tools and resources used for communication, as well as for creating, disseminating, storing, and managing information. In education, according to Nwabueze and Ibeh (2016) ICT is broadly classified into two primary approaches: ICT for education, which pertains to developing specific technologies tailored for learning and teaching, and ICT in education, which involves the practical

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application of existing general ICT components in instructional settings.

Recent advances in ICT have profoundly influenced educational procedures, enriching the quality of education delivered to students. When properly integrated, ICT resources serve dual purposes: enabling more efficient classroom instruction and enhancing pedagogical effectiveness (Nwana, 2012). Nigeria, recognizing the global prioritization of ICT in education, has incorporated it into national educational policies. The Federal Republic of Nigeria's revised National Policy on Education (2014) acknowledges ICT as a result of ongoing technological change and as an educational innovation.

Furthermore, multimedia in education has proven highly effective by providing diverse instructional modalities for various subjects (Oshinaike & Adekunmisi, 2012). Multimedia fundamentally alters communication pathways, enabling messages to be conveyed and comprehended more effectively through a combination of texts, graphics, sound, and animations. Well-designed multimedia teaching systems significantly enhance the communication of ideas and knowledge (Nwafor-Orizu, Ezejiofor, Ibeh and Okonkwo 2024).

Initially, ICT and multimedia resources largely focused on developing computer literacy and skills essential for 21st-century classrooms. However, their scope extends beyond mere familiarity with computer books and pamphlets (Pumer, 2011). The effective utilization of ICT and multimedia necessitates a range of skills and competencies, including digital literacy, hardware and software literacy, networking skills, and multimedia systems literacy (Nwabueze and Ibeh, 2016). For example, operating a multimedia projector involves proficiency in computer literacy, as the device integrates various technological components such as computers, digital televisions, radios, and electronic boards. Pumer (2011) emphasizes that multimedia projectors rely on planning sheets that require computer skills for production and use. There are numerous ICT and multimedia resources accessible for teaching and learning, including satellite communication, video

conferencing, the World Wide Web, radio frequency identification technology, and blogs, among others (Ibeh and Ezeabasili, 2024). The availability of these resources enhances teaching by introducing flexibility, increasing engagement, and facilitating clearer understanding of complex concepts.

For instance, during Governor Peter Obi's administration in Anambra State, computers and their accessories were procured in large quantities and presented to higher institutions. Also, lecturers were sent on short-term computer courses (Amedu, 2014). Still, they are being challenged in the use of ICT and multimedia resources in teaching and learning (Ibeh and Ifeka 2024). It is against this background that the present study seeks to ascertain the availability and use of ICT and multimedia resources in teaching and learning in Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus.

## STATEMENT OF THE PROBLEM

Throughout the history of educational expansion in Nigeria, the progress in the quality of education has consistently lagged behind societal expectations and aspirations (Nwabueze, Ibeh and Okoye 2016). This deficiency can be attributed to the dearth of laudable curricular visions, which suffered from epileptic implementation of educational programs in our higher institutions. Addressing this challenge necessitates a focus on comprehensive capacity building for lecturers, equipping them adequately to meet the demands of contemporary education and technological advancement.

Currently, reliance on traditional pedagogical approaches has led to a disconnect between what is delivered in classrooms and the skills required by the industry (Das, 2016). Consequently, many institutions are adopting problem-based learning strategies as a solution to produce graduates who are not only creative but also capable of critical and analytical thinking and adept at solving real-world problems (Okoye, 2024). Furthermore, as knowledge explorers, lecturers must remain actively engaged with current research trends, networking, and innovations in the educational sphere. Such

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engagement can only be sustained through the adequate availability and effective use of ICT and multimedia resources, which are vital for delivering high-quality instruction and enriching the teaching and learning process (Das, 2016).

The core focus of this study, therefore, is to examine the ICT-related courses offered within the Department of Library and Information Science (LIS) at COOU, to assess the availability of ICT and multimedia resources in teaching and learning within the department, to analyze the extent of utilization of these resources, and to identify the challenges faced in employing ICT and multimedia tools for instructional purposes in the Department of LIS at COOU.

### **Purpose of the Study**

Specifically, the study seeks to ascertain the:

1. Available ICT and multimedia resources in teaching and learning in the department of LIS, COOU;
2. Use of ICT and multimedia resources in teaching and learning in LIS, COOU;
3. Challenges encountered on the use of ICT and multimedia resources in teaching and learning in LIS, COOU.

### **Research Questions**

The researcher intends to find answer to the following research questions;

1. What are the available ICT and multimedia resources in teaching and learning in the department of LIS, COOU?
2. To what extent do you use ICT and multimedia resources in teaching and learning in LIS COOU?
3. What are the Challenges encountered on the use of ICT and multimedia resources in teaching and learning in LIS, COOU?

## **REVIEW OF RELATED LITERATURE**

### **Cognitive Theory of Multimedia Learning**

The present study employs Richard Mayer's Cognitive Theory of Multimedia Learning, originally proposed by Mayer in 1997, as a

foundational framework. This theory is grounded in three core assumptions derived from cognitive science research concerning human learning processes—namely, the dual channel assumption, the limited capacity assumption, and the active learning assumption. The dual channel assumption posits that humans possess separate information processing systems for visual and verbal stimuli; for instance, animations are processed through the visual/pictorial channel, while spoken words or narrations are processed via the auditory/verbal channel.

The limited capacity assumption highlights that each processing channel has a restricted capacity, meaning learners must consciously select relevant stimuli for further processing. Learners may convert spoken words into verbal representations and animations into visual images, focusing their attention on pertinent aspects of the incoming information. The second process involves constructing coherent mental models of the verbal and visual materials—referred to as organizing—and the third entails establishing connections between these models and prior knowledge—termed integrating.

These processes—selecting, organizing, and integrating—do not occur consecutively in a rigid sequence but rather in an iterative manner, culminating in stored long-term memory for future retrieval. According to the theory, meaningful learning hinges on the occurrence of these processes across both visual and verbal domains, emphasizing that active engagement—such as selecting, organizing, and integrating information—is essential even when physical interaction with media is limited, as in printed texts or narrated animations. The core challenge for multimedia instructional design is thus to stimulate and guide these cognitive processes, enabling learners to build rich, internal representations of the material.

Applying this theory to the current study highlights the crucial role of integrating multiple sensory modalities—hearing, seeing, and reading—to promote more effective learning experiences. When these modalities are combined within an educational setting, they create a multisensory environment that enhances



comprehension, retention, and learner engagement. This approach aligns with the premise that the incorporation of Information and Communication Technology (ICT) and multimedia resources into teaching strategies fosters improved educational outcomes by catering to diverse learning preferences and reinforcing information through varied channels.

Educators who view themselves as proficient in technology are more inclined to adopt such tools rapidly, recognizing their potential to make lessons more engaging and interactive. For instance, Mayer emphasizes that video content provides supplementary stimulation that captures learners' attention, promotes understanding of complex concepts, and sustains interest. Similarly, devices like photocopiers facilitate quick reproduction and dissemination of learning materials, ensuring accessibility and convenience for students and teachers alike.

Empirical studies corroborate that ICT and computer-based multimedia significantly enhance both learning and retention when compared to traditional instructional methods that lack technological components. This evidential support underpins the pedagogical rationale for employing multimedia in education, which can be summarized through three core benefits:

1. **Increasing Student Interest:** Introducing diverse media formats—such as videos, animations, and interactive simulations—makes learning more appealing and motivates students to participate actively.
2. **Enhancing Understanding:** Multimedia tools are particularly effective in illustrating dynamic or complex concepts that evolve over time, facilitating comprehension through visual and auditory representations.
3. **Improving Memorability:** By engaging multiple senses simultaneously, multimedia fosters better encoding of information, leading to easier retrieval and longer-lasting learning.

This synthesis underscores the vital role of multimedia in language teaching and broader

educational contexts, aligning with the principles of cognitive multimedia theory. Such a framework suggests that the integration of multiple modalities not only supports the acquisition of knowledge but also optimizes cognitive processing, leading to more meaningful and durable learning outcomes

### Empirical Reviews

As a scholar in the field of librarianship, the researchers find it imperative to contextualize the integration and utilization of ICT resources within educational institutions through the lens of empirical scholarly work. The studies conducted by Nwana et al. (2017), Ferdinand (2019), Wisdom et al. (2012), Sudipta (2015), Simhachalam (2015), Nannim (2018), and Stella (2016) provide insightful perspectives on the pervasive challenges and opportunities associated with ICT deployment in Nigerian educational settings.

Nwana et al. (2017) critically examined the availability and utilization of ICT resources for teaching computer education in secondary schools in Anambra State, Nigeria. Their methodological reliance on the reliability coefficient revealed a disconcerting deficiency in the availability of essential ICT infrastructure, which consequently hampers effective pedagogical delivery. This aligns with Orakpor (2006), whose case study on resource sharing in Anambra State libraries highlighted systemic gaps in digital infrastructure that hinder collaborative learning. The study's conclusion underscores the urgent need for government intervention in providing adequate ICT resources and establishing ongoing capacity-building programmes for lecturers through targeted training, seminars, and workshops.

Similarly, Ferdinand (2019) investigated ICT resource utilization within university libraries, revealing that despite some resources—computers, printers, scanners, photocopiers, internet connectivity—being available, their utilization is constrained by infrastructural inadequacies, lack of user knowledge, and limited access points. This corroborates findings by Orakpor and Anyaoku (2012), who emphasized that librarians' limited knowledge of Web 2.0 tools



further exacerbates underutilization. The study advocates for strategic expansion of ICT facilities, reliable power supply, and professional staffing to optimize student research and instructional activities.

Orakpor (2007), who stressed the internet's role as a catalyst for 21st-century library development. Wisdom et al. (2012) extended this discourse to college educators, evidencing a significant gap in the availability of ICT tools necessary for instructional development at COE Katsina-Ala. Their findings advocate for institutional investment in ICT infrastructure. On a broader national scale, Sudipta (2015) and Simhachalam (2015) highlight the disparities in ICT application within educational systems. While developed nations exhibit advanced integration, developing countries like India and Nigeria still grapple with infrastructural deficits, a challenge also noted in Nannim (2018) provides a thematic review indicating underutilization of ICT facilities in Nigerian universities from 2004 to 2008. He advocates for research focus shifting toward pressing educational issues—especially teaching, learning, and assessment—to leverage ICT more effectively, a perspective supported by Okeke-John et al. (2013), who positioned libraries as change agents for knowledge societies.

Lastly, Stella (2016) emphasizes the transformative potential of ICT for enhancing teaching and learning processes globally. Her findings reveal that, when effectively integrated, ICT enriches access to diverse information sources and pedagogical tools, thus serving as an indispensable instrument for educational improvement. In summation, these scholarly works collectively accentuate a recurring theme: the underutilization of ICT resources attributable to infrastructural, technical, and capacity-related challenges. Addressing these requires a coordinated policy approach emphasizing infrastructural investment, professional development, and strategic integration into pedagogical frameworks—an imperative also echoed by Orakpor (2020) in her analysis of librarians' perceptions on restructuring, underscoring the need for ICT-driven reforms to

realize the transformative potential of education in Nigeria.

## METHODOLOGY

The researchers adopted a survey design, which, according to Nworgu (2015), is characterized by several distinctive qualities, including uniqueness, probability sampling, standardization of measurement, and the need for systematic analysis. Hale (2011) further describes the survey as a methodological approach that allows for the study of a group of people or subjects by collecting and analyzing data from a sample that is representative of the entire population. In this particular study, the population comprised thirteen lecturers and one hundred and four regular students within the Department of Library and Information Science (LIS) at Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus, totaling one hundred and seventeen individuals. Given this total population, there was no need for sampling; thus, the entire population of 117 was utilized as the sample.

The instrument employed for data collection was a structured questionnaire. According to Hale (2011), a questionnaire is a set of questions distributed to respondents—either on the spot or at an arranged time—that they fill out and return to the researcher. The questionnaire was divided into five sections: A, B, C, D, and E. Section A solicited demographic information from respondents, while Sections B through E gathered data on respondents' awareness and utilization of ICT and multimedia resources in teaching and learning within the department. The items were carefully constructed to directly address the research questions, ensuring relevance and clarity.

Consequently, all 117 copies of the questionnaire were distributed among staff and students of LIS at COOU. The data analysis involved presenting demographic information in frequency and simple percentage tables in Section A. For Sections B, C, D, and E, descriptive statistics—specifically means and standard deviations—were employed to interpret the data. This approach facilitated a clear presentation of the findings, with frequencies and percentages



tabulated to illustrate the distribution of responses. The analysis was guided by the principle that descriptive statistics effectively summarize the data and highlight pertinent patterns related to the study's objectives.

The formula states that:

$$\frac{f}{n} \times \frac{100}{1}$$

Where; f = frequency of response  
n = number of respondents

A cut off was determined by finding the mean of the nominal values assigned to the options in each questionnaire item using the formula.  $X = \frac{\sum fx}{N}$

Where

$\bar{X}$  = mean score

X = the score

N = number of items

Thus;

$$\bar{X} = \frac{4+3+2+1}{4} = \frac{10}{4} = 2.50$$

The decision rule would be responses with mean score of 2.50 and above was regarded as accepted while responses below 2.50 was regarded rejected.

## RESULTS

**Purpose one:** Availability of ICT and multimedia resources in teaching and learning in LIS, COOU  
n = 100; VHE= Very High Extent, HE= High Extent, VLE = Very Low Extent, LE=Low Extent

S/N	ICT and Multimedia Resources	Available	Percentage %	Not available	Percentage %	Decision
1	Electronic Board	60	60	40	40	Available
2	Overhead Projector	39	39	61	61	Not available
3	Opaque Projector	28	28	72	72	Not available
4	Slide Projector	34	34	66	66	Not available
5	Filmstrip	20	20	80	80	Not available
6	PC Projector	22	22	78	78	Not available
7	Multimedia Computer	70	70	30	30	Available
8	Computer System	60	60	40	40	Available
9	Internet/Web Environment	23	23	77	77	Not available
10	Television	11	11	89	89	Not available
11	Video	15	15	85	85	Not available
12	Radio	80	80	20	20	Available
13	Cassette Recorder/Player	18	18	82	82	Not available
14	Video Camera/Still Camera	35	35	65	65	Not available
15	Microphone/Speaker system	66	66	34	34	Available
16	Telephone	80	80	20	20	Available
17	Fax Machines	19	19	81	81	Not available
18	Google map	28	28	72	72	Not available
19	Google earth	10	10	90	90	Not available
20	Email	80	80	20	20	Available
21	Smart Board	70	70	30	30	Available
22	Social Networks	86	86	14	14	Available

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Cluster %	43.4%	56.6%
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Based on the data presented in the table above, it is evident that only a limited number of ICT and multimedia resources are available for teaching and learning within the Department of Library and Information Science (LIS) at Chukwuemeka Odumegwu Ojukwu University (COOU). The respondents indicated that resources such as items 1, 7, 8, 12, 15, 16, 20, 21, and 22 are accessible, suggesting that these particular ICT and multimedia tools are present and potentially utilized in instructional activities. Conversely, the other items listed in the table were

reported as being unavailable for teaching and learning purposes, highlighting a significant gap in resource provision within the department.

**Purpose 2:** The extent of the use of ICT and multimedia resources in teaching and learning in the Department of Library and Information Science (LIS)

n = 100; VHE= Very High Extent, HE= High Extent, VLE = Very Low Extent, LE=Low Extent

S/N	ICT and Multimedia Resources	VHE	HE	VLE	LE	Mean	Standard Deviation	Decision
1	Electronic Board	5	25	20	50	1.8	0.018	Not in use
2	Overhead Projector	5	25	20	50	1.8	0.018	Not in use
3	Opaque Projector	20	5	50	25	2.2	0.022	Not in use
4	Slide Projector	15	10	25	50	1.9	0.019	Not in use
5	Filmstrip	5	25	20	50	1.8	0.018	Not in use
6	PC Projector	55	15	20	10	3.1	0.031	In use
7	Multimedia Computer	40	30	25	5	3.0	0.035	In use
8	Computer System	55	15	20	10	3.1	0.031	In use
9	Internet/Web Environment	5	25	20	50	1.8	0.018	Not in use
10	Television	5	25	20	50	1.8	0.018	Not in use
11	Video	5	25	20	50	1.8	0.018	Not in use
12	Radio	42	28	20	10	3.0	0.039	In use
13	Cassette Recorder/Player	5	25	20	50	1.8	0.018	Not in use
14	Video Camera/Still Camera	5	25	20	50	1.8	0.018	Not in use
15	Microphone/Speaker system	50	20	25	5	3.1	0.031	In use
16	Telephone	55	15	20	10	3.1	0.003	In use
17	Fax Machines	5	25	20	50	1.8	0.003	Not in use
18	Google map	5	25	20	50	1.8	0.018	Not in use
19	Google earth	5	25	20	50	1.8	0.018	Not in use
20	Email	40	30	25	5	3.0	0.032	In use
21	Smart Board	60	15	15	10	3.2	0.032	In use
22	Social Networks	40	35	20	5	3.1	0.031	In use

Furthermore, an analysis of resource utilization reveals that only a few of these ICT and multimedia tools are actively used by educators and students in the teaching and learning process. Respondents notably affirmed the usage of items 6, 7, 8, 12, 15, 16, 20, 21, and 22, indicating some level of engagement with these resources. However, the majority of the ICT and multimedia resources listed were reported as not being in use,

implying that despite their availability, their integration into daily pedagogical activities remains minimal or inconsistent.

**Purpose 3:** Challenges encountered on the use of ICT and multimedia resources in teaching and learning in LIS, COOU.

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n=100; SA= Strongly Agree, A= Agreed, SD= Strongly Disagree, D= Disagree, U= Undecided

Challenges	SA	A	SD	D	U	Mean	Standard Deviation	Decision
Lack of computers	5	10	40	10	5	1.45	0.29	Not A challenge
Lack of qualified personnel	10	40	20	25	5	3.2	0.64	A challenge
Lack of electricity	5	10	40	10	5	1.45	0.29	Not A challenge
Lack of internet or slow connectivity	40	10	5	20	25	3.2	0.64	A challenge
Burglary	5	10	40	10	5	1.45	0.29	Not A challenge
Lack of finance	40	10	25	20	5	3.2	0.64	A challenge
Lack technical know-how	10	40	20	25	5	3.2	0.64	A challenge
Lack of expert technicians	40	10	25	20	5	3.2	0.64	A challenge

The respondents also collectively identified several challenges impeding the effective deployment of ICT and multimedia resources in the department. They strongly agreed that issues such as the lack of qualified personnel, inadequate internet connectivity or slow network speeds, security breaches like burglary, insufficient funding, limited technical know-how, and the absence of expert technicians are significant obstacles. These challenges hamper the seamless integration and utilization of ICT and multimedia tools in the department's teaching and learning activities, thereby affecting the overall educational process. Addressing these challenges is crucial for enhancing the innovative use of ICT resources in support of academic excellence within the department.

## DISCUSSION OF FINDINGS

### Available ICT and Multimedia Resources in Teaching and Learning in the Department of LIS, COOU

The findings pertaining to the first research question indicate that the availability of ICT and multimedia resources within the Department of Library and Information Science (LIS) at Chukwuemeka Odumegwu Ojukwu University (COOU) is notably limited. The specific resources identified include electronic boards, multimedia computers, standard computer systems, radios, microphone and speaker systems, telephones, email facilities, smart boards, and social networks. This enumeration

aligns with the conclusions of Ferdinand (2019), who observed a paucity of ICT resources in similar higher education contexts. The scarcity of such tools constrains the department's ability to leverage technology effectively in pedagogical processes and hampers the overall quality of instruction.

### The Use of ICT and Multimedia Resources in Teaching and Learning in LIS, COOU

Analysis of the second research question reveals that, despite the presence of some ICT and multimedia resources, their utilization for instructional purposes remains minimal. Data shows that only a limited subset of the available tools, such as multimedia computers, computer systems, radios, microphones and speakers, telephones, email, electronic boards, smart boards, and social networks, are employed in teaching activities. The majority of the identified resources are underutilized or not used at all. This situation corroborates the findings of Nannim (2018), who highlighted that ICT facilities in Nigerian universities are not being exploited optimally for educational objectives. The underutilization reflects gaps not only in resource availability but also in their integration into pedagogical practices.

### ICT-Related Courses Taught in the Department of LIS, COOU

The study further indicates that the department offers a variety of ICT-related courses, suggesting institutional recognition of the

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importance of ICT skills in LIS education. However, there is a disconnect between curriculum content and practical application; the actual deployment and effective use of ICT and multimedia resources within teaching and learning processes are disappointingly poor. These findings are consistent with the work of Nwana, Ofeogbu, and Egbe (2017), who documented limited integration of ICT resources in Nigerian educational institutions, leading to suboptimal pedagogical outcomes.

### Challenges Encountered in the Use of ICT and Multimedia Resources in LIS, COOU

The research identifies several significant challenges impeding the effective deployment of ICT and multimedia resources. These challenges include a dearth of qualified technical personnel, unreliable or slow internet connectivity, threats of theft and burglary, inadequate funding, limited technical expertise among staff, and the absence of proficient technician support. These constraints are well documented by Ferdinand (2019), who noted that infrastructural inadequacies, insufficient ICT literacy among students and staff, limited access to workstations, and poor service delivery collectively hinder the full exploitation of ICT potential for educational enhancement.

### CONCLUSION AND RECOMMENDATIONS

Synthesizing the findings, it is evident that the Department of LIS at COOU possesses only a limited range of ICT and multimedia resources, and their usage remains suboptimal. Although some ICT-based courses are offered, there is a marked deficiency in the practical application and integration of these resources within instructional methodologies. The pervasive challenges—such as inadequate technical support, infrastructural deficits, and financial constraints—further exacerbate the situation. To address these issues, the following recommendations are proposed:

1. The government, in collaboration with the university administration, should prioritize the provision of adequate ICT and multimedia

facilities within the department to facilitate effective teaching and learning.

2. Continuous capacity-building programs, including short-term courses, seminars, workshops, and conferences, should be organized to equip lecturers with the requisite skills for leveraging ICT in pedagogical practices.
3. Investment in infrastructural facilities—such as a comprehensive computer laboratory and a fully computerized library—should be prioritized to support ICT integration.
4. More qualified technicians should be employed and retained to ensure proper maintenance, repair, and technical support for ICT resources.

### IMPLICATIONS OF THE STUDY

This investigation underscores that, although ICT and multimedia resources are present in Nigerian tertiary institutions, their utilization remains limited, thereby constraining the potential for innovative and effective teaching methodologies. Specifically, the study reveals that out of twenty-two ICT and multimedia tools identified; only nine are actively used within the Department of LIS at COOU, indicating a significant gap in resource integration. Moreover, the operational challenges identified suggest that infrastructural, technical, and human factors need urgent attention to optimize ICT deployment in higher education. Such insights necessitate policymakers, educational administrators, and stakeholders to develop strategic interventions aimed at enhancing ICT capacity, infrastructure, and skills, thereby fostering an environment conducive to modern, technology-driven education.

### REFERENCES

- Amedu, S.O. (2014). Assessment of the use of e-learning facilities by teachers in Delta state, Nigeria. *Journal of Education Practice*, 5(16), 207-212.
- Das, B.C. (2016). *Educational Technology*. New Delhi. Kalyani Publishers.
- Fakeye, D. O. (2010). *Assessment of English Language Teachers' Knowledge and Use of Information and Communication*

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- Technology (ICT) in Ibadan Southwest Local Government of Oyo State. *American-Eurasian Journal of Scientific Research*, 5 (4), 56-59.
- Federal Republic of Nigeria (2014). *National Policy on education*. Lagos: NERDC Press.
- Ferdinand, A. E. (2019). Availability and utilization of information and communication technology resources by undergraduate library users in Anambra State University libraries, Nigeria. *Library Philosophy and Practice (e-journal)*, Vol 8(2), 2473.
- Hale, J. (2011). The three basic types of research methods. *Psychology Central*. Retrieved from <http://www.psychcentral.org> on December 20, 2020. humanities reviews (IJSSHR), 11(1), 210-216. <https://www.ijsshr.com/journal/index.php/IJSSHR/article/view/689/591>
- Ibeh, O. B and Ezeabasili, A.C (2024). Electronic records management skills requirements by librarians for effective job performance in federal university libraries in south east Nigeria. *African journal of educational management, teaching and entrepreneurship studies*, 11(2), 155-166. <https://ajemates.org/index.php/ajemates/article/view/431>
- Ibeh, O.B. and Ifeka E.O. (2024). Electronic records preservation and librarians job performance in university libraries in south south Nigeria. *Journal of Library Services and Technologies*, 6(2), 229 – 237. <https://credence-publishing.com/journal/uploads/archive/202417278609776717326078.pdf>
- Ibeh, O.B. and Ifeka E.O. (2024). Relationship between electronic records creation and librarians job performance in university libraries in south south Nigeria. *Library and Information Perspectives and Research*, 6(2), 106 – 115, <https://credencepublishing.com/journal/uploads/archive/202417303508788820654397.pdf>
- Krubu, D., and Osawaru, K. (2010). The impact of information and communication technology (ICT) in Nigerian University libraries. *Library Philosophy and Practice*, Vol 4(3), 515.
- Madu, E. C., and Pam, L. A. (2011). Learning electronically in Nigeria universities: The example of federal university of technology Minna, Nigeria. *Journal of Emerging Trends in Computing and Information Sciences*, 2(12), 696-700.
- Nannim, F. (2018). ICT Facilities and their Utilization for Educational Purpose in Nigerian Universities: A Review of Literature from 2004 to 2018. *Journal of Science, Technology & Education (JOSTE)*, Vol 6 (1), 44-50.
- National Information and Communication Technology (ICT) Policy. (2012). *The Ministry of Communication Technology*. Federal Republic of Nigeria.
- Nwabueze, A.U and Ibeh, B.O (2016). Extent of ICT Literacy Possessed by Librarians in Federal University Libraries in South East Nigeria. *International Journal of Digital Literacy and Digital Competency (IJDLDC)*, 7(3), 13-22. <https://doi.org/104018/IJDLDC.2016070102>
- Nwabueze, A.U and Ibeh, B.O (2016). Extent of ICT Literacy Possessed by Librarians in Federal University Libraries in South East Nigeria. *International Journal of Digital Literacy and Digital Competency (IJDLDC)*, 7(3), 13 - 22.
- Nwabueze, A.U, Ibeh, B.O, and Okoye, C.O. (2016). Extent of ICT – Based Library Services Rendered by Librarians in Federal University Libraries in South East Nigeria. *International Journal of Science and Technology*, 3(1), 134-143. <https://www.researchgate.net/publication/391277632>
- Nwafor-Orizu, O.E, Ezejiofor, V. O Ibeh, O.B. and Okonkwo, I (2024). Use of Mobile Devices in Academic Libraries in Nigeria: are Students Distracted? *Communicate: Journal of Library and Information Science*, Vol 26(1). <https://www.cjolis.org/index.php/cjolis/article/download/75/65>
- Nwana, S.E, Ofoegbu, T.O and Egbe, C.I. (2017). Availability and utilization of ICT resources in teaching computer education in secondary schools in

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- Anambra state, Nigeria. *Journal of Social Science*, Vol 8(5), 111-116.
- Nwana, S.E. (2012). Challenges in the application of e-learning by secondary school teachers in Anambra State, Nigeria. *African Journal of Teacher Education (AJOTE)*, 2(1), 14 – 22.
- Nworgu, B.G. (2015). *Educational research: Basic issues and methodology*. Nsukka: University Trust Pub.
- Okeke-John, R; Ibegbulam, I ; Orakpor, A.M and Asom, F ( 2013). Libraries as Change Agent for Promoting Knowledge Society for Sustainable Development. *Global Review of Library and Information Science*.(9): 1 – 10
- Okoye, C.O. (2024). Collaboration between libraries and industries in enhancing artificial intelligence education. *Unizik journal of educational research and policy studies*. 17(1) 208.
- Olelewe, C. J., and Okwor, A. N. (2017). Lecturers' perception of interactive whiteboard for instructional delivery in tertiary institutions in Enugu State, Nigeria. *Journal of Computers in Education*, 4(2), 171-196.
- Opati, O. D. (2013). *The use of ICT in teaching and learning at Makerere University: The case of College of Education and External Studies* (Master's thesis), University of Oslo. Retrieved from <https://www.duo.uio.no/bitstream/handle/10852/36807/ICT%40MUKOnop.pdf?sequence=1> on December 20, 2020.
- Orakpor, A.M. (2020). Libraries and Restructuring Questions in Nigeria: The South Eastern Librarians' Perception. *Library and Philosophy and Practice e- journal* 4616. <https://digitalcommons.unl.edu/libphilprac/4616>
- Orakpor, A.M.& Anyaoku, Ebere (2012). Knowledge and use of web 2.0 by Librarians. *African Journal of Library Archives and Information Science*. <https://www.semanticscholar.org/Orakpor>
- Orakpor, A.M; Ezejiifo, V.O. and Nwana, REA (2010). Information and Communication Technology in Library School Education in Anambra State. *Anambra State Library and Information Digest: Journal of the Nigerian Library Association*. 4 (1): 23 – 34 .<https://AdaoraOrakpor<scholar.google.com>
- Orakpor, Adaora M. (2007). The Internet and Information Resources for State and Public Library Development in the 21<sup>st</sup> Century. *Anambra State Library and Information Digest: Journal of the Nigerian Library Association*. 1 (1): 37-42.<https://AdaoraOrakpor<scholar.google.com>
- Orakpor, Adaora.M (2006). Resource sharing in the digital age: a case study of Libraries in Anambra State. In Ndibe, Frank (ed). *Journal of Business Studies and Research*. Enugu: Fins and Associates.
- Oshinaike, A.S., and Adekunmisi, S.R. (2012). Use of Multimedia for Teaching in Nigerian University System: A Case Study of University of Ibadan. *Library Philosophy and Practice (e-journal)*, Vol 3(4), 682.
- Pelgrum, W.J. (2012). *The effectiveness of ICT in schools: current trends and future prospects*. Paper presented at the OECD Japan Seminar.
- Pumer, M.C. (2011). New technologies and teaching. *Journal of Innovations in Education and Teaching*, 29 (2), 105-117.
- Simhachalam, T. (2015). *Use of ICT Advancements and Multimedia Application Tools in Teaching English Language Skills*. Retrieved from <https://www.researchgate.net/publication/284347446> on December, 19 2020.
- Stella Nwigbo1, Dr. Madhu B. K (2016). Impact of ICT on the Teaching and Learning Process. *Journal of Mobile Computing & Application*, 3(2), Studies. Vol. 1(7), 72-84.
- Sudipta, D. R. (2015). Application of ICTs in Teaching-Learning Process. *International Research Journal of Interdisciplinary & Multidisciplinary*
- Wisdom, I.J., and Terumbur, D. (2012). ICT Resource Utilization, Availability and Accessibility by Teacher Educators for Instructional Development in College of Education katsina-Ala. *New Media and Mass Communication*, 3(2), 13-15