



# Influence of Information and Communication Technology in the Dissemination of Information at the University College Hospital Library, Ibadan

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## Abstract

*Background:* Information and communication technology (ICT) has transformed information dissemination in medical libraries, enhancing service delivery and supporting clinical, educational, and research activities. *Objective:* To evaluate the influence of ICT on information dissemination at the University College Hospital (UCH) Library, Ibadan.

*Methods:* A descriptive cross-sectional survey was conducted among 20 senior library staff at Odeku Library, UCH. Data were collected using a validated structured questionnaire and analyzed using descriptive and inferential statistics.

*Results:* All respondents reported familiarity with ICT tools. ICT significantly enhanced cataloguing, circulation, selective dissemination of information, and remote access. Chi-square tests revealed significant associations between ICT use and perceived improvement in dissemination ( $\chi^2 = 12.80, p < 0.001$ ), perceived efficiency of ICT over traditional methods ( $\chi^2 = 9.80, p = 0.002$ ), and the impact of ICT challenges on use ( $\chi^2 = 12.80, p < 0.001$ ). Key challenges included inadequate funding, unreliable power supply, and inconsistent ICT literacy levels. *Conclusion:* ICT substantially improves information dissemination in medical libraries. Addressing infrastructural and capacity-building challenges is essential for maximizing ICT's potential in supporting healthcare delivery and research in developing countries.

**Keywords:** Information dissemination, ICT, medical library, health informatics, Nigeria

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## I. Introduction

Medical libraries play a vital role in supporting health professionals, researchers, and students by providing timely access to information. Traditionally, these libraries relied on manual cataloguing, card indexes, and physical circulation systems, which often proved inadequate in meeting the demands of modern healthcare environments. With the advent of ICT, libraries globally have transformed their services, enabling automation, digital repositories, remote access, and seamless dissemination of medical knowledge. In Nigeria, despite substantial progress in ICT adoption, medical libraries face challenges such as funding limitations, infrastructural gaps, and varying levels of ICT literacy among staff. This study aims to examine the influence of ICT on information dissemination at the UCH Library, Ibadan, highlighting the opportunities and challenges within the local context.

Information dissemination is the core purpose of any library, regardless of its type—be it school, academic, private, public, special, or research—or its size, whether small, medium, or large. Information acquired and stored must ultimately reach the end users, who are the primary reason the information is acquired in the first place.

Traditionally, the dissemination of information involved the processing, cataloguing, and classification of library materials. This process allowed libraries to display newly acquired materials on display racks, publish tables of contents on notice boards in strategic locations, or arrange newspaper clippings in albums or file them in office cabinets (Ashikuzzaman, 2017).

Ashikuzzaman (2018) further reported that traditional methods of information dissemination are inadequate and cannot keep up with the pace of the 21st century. As a result, libraries today are increasingly adopting the powerful capabilities of Information and Communication Technology (ICT) to provide better and more efficient services to users. He emphasized that "the library is an important component of any educational institution or university, serving as the hub of teaching, learning, and research activities where students, researchers, and teachers can explore the vast resources of information. In traditional libraries, users spent significant time searching for information and relied heavily on library staff. However, with the adoption of ICT, tasks like housekeeping and information retrieval have become faster and more efficient, saving time and avoiding duplication of effort.

According to Eguavoen and Adeyemi (2012), Nigerian libraries—especially those in Ibadan—should adopt ICT to improve information dissemination. This shift would help Nigerian libraries align with global standards and fulfill their goals more effectively.

ICT has become essential in every organization, including libraries. It has enabled improved services such as, Selective Dissemination of Information (SDI), Electronic mailing (E-MAIL), Database searches among others. These advancements help meet users' needs more efficiently.

Information and Communication Technology (ICT) has significantly transformed the landscape of modern libraries, particularly in universities. Ashikuzzaman (2018) notes that traditional libraries have evolved into hybrid, digital, and virtual libraries, driven by the adoption of ICT. Consequently, librarians' roles have shifted from mere custodians of books to dynamic information officers, navigators, and cybrarians, dedicated to meeting users' demands for information at any time, in any format, and from any location. This transformation has enabled university libraries to deliver quicker, user-oriented services.

The concept of information technology (IT), which underpins ICT, emerged in the 1970s but has origins in the World War II collaboration between the military and industry for developing electronics, computers, and information theory. Since the 1950s, computers have evolved through several generations — from vacuum tubes and transistors to integrated circuits and microchips — leading towards experimental systems based on artificial intelligence aimed at simplifying complex programming (books.google.com).

Murray (2011) defines ICT as an extension of IT that emphasizes unified communications, integrating telecommunications, computing, enterprise software, storage, and audiovisual systems to facilitate the access, storage, transmission, and manipulation of information.

ICT is a broad subject and the concepts are evolving. It covers any product that will store, retrieve, manipulate, transmit, or receive information electronically in a digital form (e.g. personal computers, digital television, email etc.)

The term ICT is also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives (huge cost savings due to the elimination of the telephone network) to merge the telephone network with the computer network system using a single unified system of cabling, signal distribution, and management. (FOLDOC, 2008)

ICT has had its effect in the economic, social, cultural, political, and even individual sphere of life. It has dramatically transformed the society's world over. Proper use of ICT may even transform the country from developing to a developed one in just a few years from now. The transformation ICT has brought to aid the functions of library is crystal clear. The core functions of the library are: acquisition, cataloguing, classification, serial control (including inter library loan, collection management and delivery of information for both traditional and electronic users). These functions are better done this day using the merits of ICT in librarianship.

As information and communication technology is becoming the cornerstone of every organization, it is bringing great changes in the organization's structure and management and delivery practices. Information and communication technology (ICT) and development in modern technology especially in the field of electronic communication and computer science and technology influenced the traditional libraries. It is bringing out the fundamental change in the process of selection, acquisition, processing, storing, retrieving and delivering the information generated constantly across the globe in the universe of knowledge over multidisciplinary fields of subjects.

The influence of ICT in the dissemination of information to users can never be over emphasized. This is as a result of wide gap service provision when comparing it to the traditional method of satisfying user's request/need. ICT has help in storage of more knowledge in terms of capacity and space compare to traditional methods which as a result facilitates wider access to information. It facilitates wider dissemination of library information products and services as remote users can possibly access libraries. It provide access to knowledge in different format at a go (i.e. visual, audio, audio-visuals, CD ROMS, flash, etc.).

Development in information and communication technology (ICT) have offered Academic Libraries exciting and challenging opportunities that require them to respond positively in all facet of their services and functions if they are to remain relevant in the 21st century. ICT has catapulted the world into an information-driven society that relies on ideas and information. As a result of the use of ICT, Librarianship is purported to

have changed more over the last few decades than its entire previous history. The wide spread use of ICT in libraries, and especially the development and access to digital information resources via the internet, has given dissemination of information an edge in academic library service delivery.

Abubakar (2011) noted that Academic Libraries are the forefront of providing information services to members of the user community which comprise of student, lecturers, and researchers in order to support their learning, teaching, and research needs respectively. Scholars have emphasized on the crucial role of academic libraries in research and scholarship in institution of higher learning. Academic libraries are libraries found in institution of higher learning such as University, Polytechnic, Monotechnic, and Colleges.

Academic libraries are established to cater for their individual parent bodies (Isebe, 2015). It is the type of library that exist in higher institution of learning such as Polytechnic, Monotechnic, College of education, University, and serves the student body and the faculty members.

Academic libraries usually have rich collections of various information material (Journals, Magazines, Books, Reference Works, Newspapers, Government Publications, Reports, Thesis/Dissertations, Database, CD ROMS, Artworks, Photos, Manuscripts, etc.) covering array of subjects to serves its academic communities, which include lecturers, students, non-teaching staff and researchers. It plays an important role in the life of the library users to a large extent, guiding student and faculty at the reference desk, instructing library research sessions, and developing library collections (Eruvwe, Akpojotor, and Okonoko, 2015).

## **II. Literature Review**

ICT has redefined library practices worldwide, with medical libraries leading innovations in health information access. In high-income countries, medical libraries leverage digital platforms, integrated health information systems, and advanced search tools to support evidence-based practice. In developing nations, ICT adoption in medical libraries is evolving, but constrained by infrastructural, economic, and human resource challenges. Nigerian studies have highlighted significant gaps in ICT infrastructure, with intermittent power supply and limited internet access undermining efficiency. Despite these challenges, institutions such as UCH have introduced automation systems, digital repositories, and online services to improve user satisfaction.

Libraries have existed long before the advent of information and communication technology and as such, has its way of disseminating information to its intended users. Libraries have adopted the form of catalogue in the dissemination of information prior the introduction of ICT. There are many forms of catalogue but the most adopted forms prior the advent of ICT are: card catalogue, book catalogue, and sheaf catalogue (these are the conventional means of disseminating knowledge). Meanwhile, machine readable catalogue (MARC), microform catalogue (MC), and visible index catalogue are advanced form of the forms of catalogue and yet partially ICT inclined. The earlier are the adopted method of library means of disseminating information to their users prior ICT. These methods today are however going into extinction as a result of ICT (Sood, 2016).

Saleem and Batcha (2013) reported that there are several information and communication technology for various housekeeping, management and administrative functions of the library, different electronic and digital media, computer aided electronic equipment and networks, and internet which has provided significant role in retrieval and dissemination of information whereby playing a vital role for modernization of libraries. Some of which are: Library automation, Library networking, Library management, Digital library and Technical communication.

Omeluzor and Oyovwe-Tinuoye (2017) found that the integration of ICT features in the library services for the delivery of CAS and SDI has been a challenge in university libraries in South-West Nigeria.

Similarly, Friedberg (2003) observed that impending retirement, age differences as regard ICT use, and skills, may influence ICT literacy level, as such, young people are more likely to be ICT users and more ICT literate than older age groups because older individuals are slower to respond to rapid change in technology and increased reliance on computers than younger individuals.

The role of librarians is continuing to evolve with the adoption of internet and World Wide Web into the profession of librarianship. Therefore, librarians need to play active role in this evolving scenario. This can only be possible through the proper acquisition of ICT literacy skills which in turn influence how librarians can use these new platforms to effectively meet the information needs and services of their clientele (Ugwuanyi, 2016).

However, the report of Oguche (2017) on a research “assessment of staff ICT literacy competence in Nigeria federal university libraries” was of the view that ICT literacy competence on the duties of library staff in the Nigerian federal university libraries studied is on the average. The influx of smart phones and other mobile device technologies such as iPad and tablets may have also impacted the ICT literacy of the library staff. However, the level of their ICT competence can be improved upon if necessary measures such as regular ICT capacity building among others are taken. This will no doubt reduce rather than widen the digital divide between the developed and the developing countries which Nigeria is one.

Saleem and Batcha (2013) is of the opinion that ICT has influenced information dissemination and as such to the library and information usage. In libraries, information technology has assisted library professionals to

provide value added quality information service and give more remote access to the inter-nationally available information resources. Today's highly sophisticated information technology as facilitate the storage of huge amounts of data or information in a very compact space. Information technologies promise fast retrieval of stored information and revolutionize our concept of the functions of a traditional library and a modern information centre. Recently technological developments have dramatically changed the mode of library operations and services.

The fourth law of Dr. S. R. Ranganathan postulated in "1931" say "do not waste the time of a user". The law will only exist in paper and not be put into practice going by what the traditional library service have to offer. In this 21st century, there is proliferation of information and no user is ready to waste his time over an information he could get elsewhere. Libraries have come to realization that they need to upgrade their services if they are to remain relevant in the provision of these services. To meet up with this are reasons for the acquisition of some ICT facilities that can facilitate smooth, easy, and faster dissemination of informational materials. These facilities includes but not limited to: computer, printer, scanner, photocopy machine, smart phones, and digital camera.

### III. Methods

A descriptive cross-sectional survey was employed. The study population included 20 senior staff of the Odeku Medical Library, UCH. A total enumeration sampling strategy was adopted due to the small population size. Data were collected using a structured questionnaire, validated through expert review and a pilot test to ensure reliability. Ethical approval was obtained from the UCH Research Ethics Committee. Descriptive statistics and chi-square goodness-of-fit tests were used for analysis.

### IV. Results

Figures 1 to 5 present data on ICT familiarization, usage, and impact. Statistical testing was performed using chi-square goodness-of-fit tests to assess significance.

Perceived ICT improvement:  $\chi^2 = 12.80$ ,  $p < 0.001$  (significant)

ICT vs traditional efficiency:  $\chi^2 = 9.80$ ,  $p = 0.002$  (significant)

Impact of ICT challenges:  $\chi^2 = 12.80$ ,  $p < 0.001$  (significant)

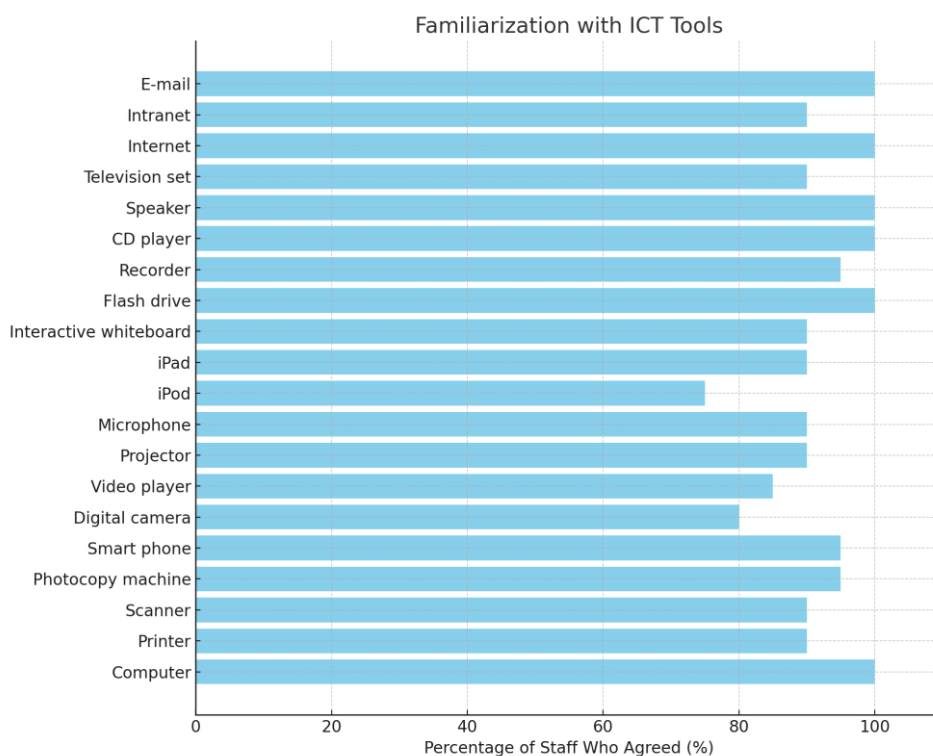


Figure 1: Familiarization with ICT Tools

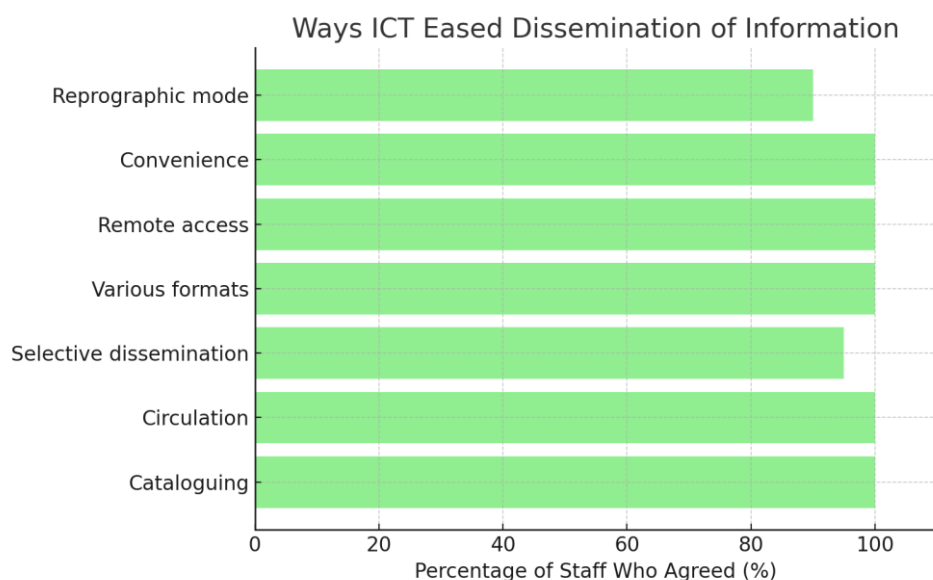


Figure 2: Ways ICT Eased Dissemination

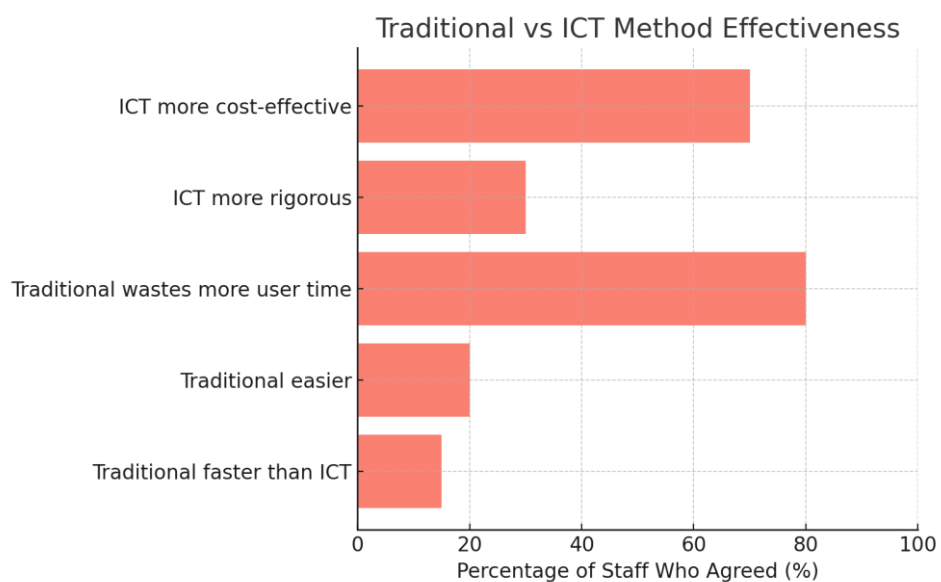


Figure 3: Traditional vs ICT Method Effectiveness

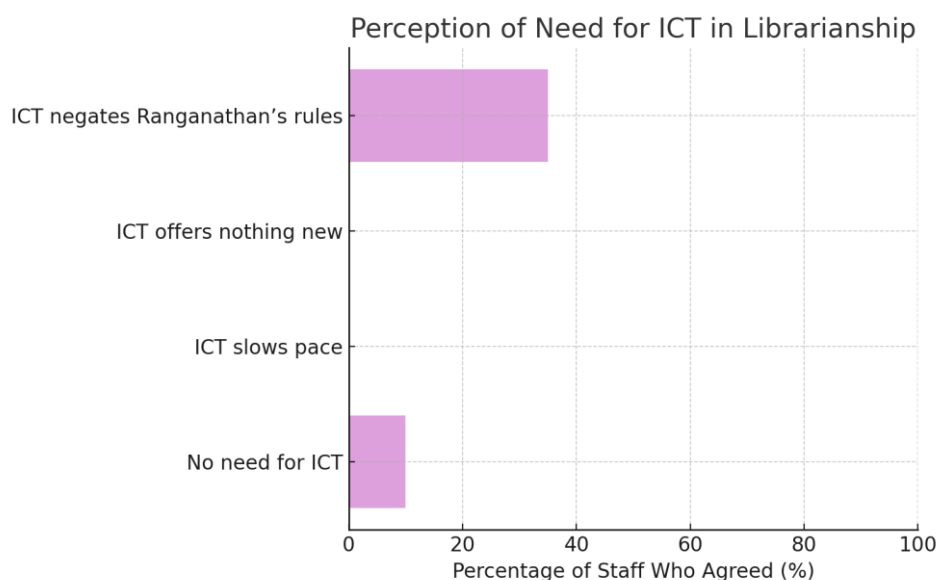


Figure 4: Perception of Need for ICT in Librarianship

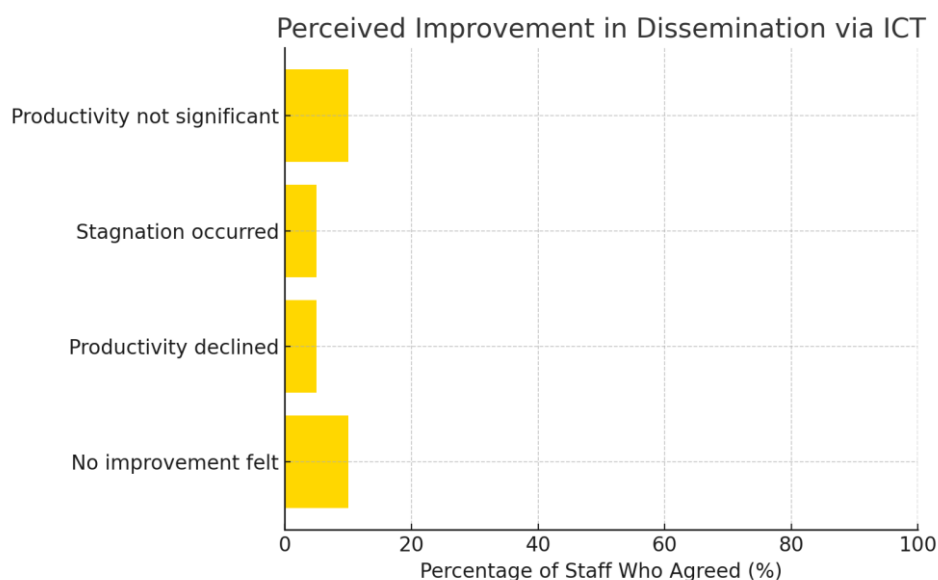


Figure 5: Perceived Improvement in Dissemination via ICT

## V. Discussion

The findings confirm that ICT significantly improves information dissemination at UCH Library. Statistical testing further supports the significant association between ICT use and perceived improvement, as well as the efficiency of ICT over traditional methods. These results align with prior studies. The significant impact of infrastructural and funding challenges underscores the need for systemic interventions, as similarly reported in other Nigerian and African studies.

## VI. Conclusion

ICT has transformed medical library services at UCH by improving access, efficiency, and user satisfaction. Targeted investments in infrastructure, funding, and staff training are critical to sustain and expand these improvements.

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