Influence of Information and Communication Technology (ICT) Skills on Knowledge Sharing among Librarians in Federal University Libraries in South-West Nigeria

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ABSTRACT

The aim of the study is to investigate the influence of Information and Communication Technology (ICT) skills on knowledge sharing among librarians in federal university libraries in South-West Nigeria. Using the Unified Theory of Acceptance and Use of Technology (UTAUT), the study will adopt post-positivism research method. Survey research method design will be employed. The census research method will be adopted for the study. Data will be collected using quantitative and qualitative (Questionnaire and Interview). The questionnaire will be administered to librarians while the interview schedule will be conducted with the university librarians. SPSS will be used to analyze quantitative data, while thematic content analysis using NVivo to analyze the qualitative data. The scope of the study will be federal university libraries in South-West Nigeria.

The researcher believes that the results of this study would help university librarians to improve their ICT skills level in other to share knowledge among professional colleagues both locally and internationally as well as the library users via social media platform, share net, cloud computing, On-line discussion group, audio and video conferencing etcetera which in turn enhances job productivity. More so, the study is expected to proffer solution to problems associated with ICT skills on knowledge sharing among librarians in federal university libraries studied. In addition, the study will contribute to the existing literature on technology acceptance and adoption in university libraries from a developing nation context.

Keywords

ICT, ICT Skills, Knowledge Sharing, University Libraries.

1. RESEARCH QUESTIONS

The following research questions will guide the study:

1. What is the level of ICT skills among librarians in federal university libraries in Southwest Nigeria?
2. What are the perceived effects of ICT skills on knowledge sharing among librarians in federal university libraries in Southwest Nigeria?
3. What is the level of knowledge sharing among librarians in the federal university libraries in Southwest Nigeria?
4. What are the methods of knowledge sharing among librarians in federal university libraries in Southwest Nigeria?
5. What are the factors affecting knowledge sharing among librarians in federal university libraries in Southwest Nigeria.

2. INTRODUCTION

Universities worldwide are established to produce highly skilled people that will contribute to the economy and socio-economic growth of the nation and Nigeria is no exception. The development of social-economic growth has four major contributors: building on knowledge bases (through knowledge development and research), the formation of human capital, use of knowledge and dissemination (interactions with knowledge users) as well as knowledge maintenance (format to store and channel of transmitting knowledge) [1].

Nigerian university education began with the establishment of the Yaba High College by the colonial government in 1934. The University College Ibadan was established in 1948 and changed its name to the University of Ibadan in 1962. Currently, there are 152 universities in Nigeria, of which 44 are state-owned, 68 are private universities while 40 are run by the federal government [2]. The state-owned universities are being run by the

state government in which the university is located. Private universities are managed and controlled by private individuals and organizations who own such universities while federal universities are maintained and managed by the federal government of Nigeria. It must be noted that all universities in Nigeria have to pass through an accreditation process before operation and this is the responsibility of the National Universities Commission (NUC) which oversees this accreditation. In addition, accreditation can be declined if the requirements of the commission are not met by the prospective university [2].

University library is regarded as a library that is attached to an institution of learning in order to support the teaching, learning and research needs of the entire university community [3]. Academic libraries are libraries ranging from University, Polytechnic and College and school library, university library and academic library are used interchangeably [4]. The primary role and function of a university library is to contribute and assist realization of institutional mission and vision and objectives. This institution is important in satisfying the interest of its parent institution owing to the intellectual activities turn around it [3]. University libraries in Nigeria offer various services such as lending, bindery, inter-library loan, user education, short-term loans, information resources, reference, library orientation, photocopying, consultancy services and current awareness services (CAS) [5]. The fast development of Information and Communication Technologies (ICTs) is changing the way university libraries currently perform their routine functions [6].

ICTs encompasses all communication tools that includes device or applications, such as: radio, smart phones, android phones, printers, scanners, television, cellular phones, computer and network hardware

and software, satellite systems and so on, as well as the various services and applications associated with them, these include video conferencing and distance learning [7]. ICTs are often regarded in a particular context, such as ICTs in education, health care, or libraries [8]. ICT skills include the familiarity with mobile phones, key boards, mouse, e-mails, databases, software and hardware, personal computers, the intranet and internet as well as other ICT tools, competence to use ICT applications and the skills to use ICTs effectively to share knowledge and to work as an individual and as a team [9]. This study will adopt [7] definition of ICT as an "electronic device used for processing and managing information through software and hardware to store, convert, protect, manipulate, manage, transmit, control, disseminate and retrieve information for the improvement, enhancement and productivity of personal, organizational and institutional activities". As a result of these emerging growths, library services have moved from the traditional way of routine operation to a vibrant and challenging one.

Sharing is common in everyday human activities; however, knowledge sharing is a complex issue within an organization and higher institution of learning [10]. According to [11], knowledge sharing is the process in which various individuals equally exchange and share tacit and explicit knowledge as well as creating new knowledge. It is therefore relevant for librarians to share knowledge since it will make them more useful and productive; the competence of librarians to share knowledge with one another and professional colleagues depends on the productivity of the knowledge [12]. Web 2.0 tools now provide platforms for collaboration, interaction, knowledge sharing and construction with peers, expert, information professionals and community. Librarians need to embrace these environments and also ensure that they acquire required ICT skills so as to maximally use the tools for knowledge sharing [13; 14; 15 in 16].

[17] affirmed that incompatible ICTs are a major challenge to knowledge sharing. Resistance of librarians in ICT usage to accelerate knowledge sharing in university libraries is a major contribution to inadequate library services delivery and team work [18, 19]. Low level of ICT skills, lack of ICT policy, funding, ICT infrastructure, resistance to change in technology, low capacity of communication facility, absence of digital/electronic libraries except in South Africa, lack of development of manpower policy etcetera, are common barriers mentioned as factors undermining the use of ICTs on knowledge sharing by librarians [20]. [21] stressed that librarians are now being expected to acquire skills and expertise that will complement the traditional library and information management skills especially in the use of ICT, institutional repository, electronic publishing, database management, digital information management and knowledge management. In order for librarians to perform their functions efficiently in such demanding electronic environments, they will need to possess the required ICT and knowledge skills and therefore will have to be computer literate. Thus, they can share knowledge and impart ICT skills to their library users [21].

Globally, the use of ICTs on knowledge sharing by librarians is recorded. [20] makes reference to a report prepared by the Canadian Association of Research Libraries (CARL) which revealed that in the year 2000/2001, university libraries subscribed to 436,731 electronic journals. It was also stated in the report that librarians are leaders in using technology to transfer and share knowledge as well as transform traditional library resources and services to meet the challenge of the 21st Century [20]. [22] reported that in Singapore, the government set up a committee and mandated it to design an information technology plan for the country. The National Library of Singapore (NLS) on its part took the initiative in ensuring that all libraries especially university libraries are ICT based. [23] carried out a study in Saudi Arabia on the use of ICT skills on knowledge sharing in university libraries and one of the findings revealed that out of the six universities surveyed, the majority of the librarians use internet, CD-ROM facility, and E-mail to share knowledge in libraries. [24] carried out a study on ICT use among information professionals (librarian inclusive) in Finland and reported that more than 95% had good ICT skills in word processing and a little more than half could manage some advanced operating system functions.

University libraries in Africa do not enjoy the same benefits as their counterparts in developed countries. In Kenya, [25] stated that university libraries in Kenya suffer from poor funding, poor communication systems and librarians lack ICT skills. In Uganda, [26] opined that unreliable power supply, management attitudes and poor ICT skills of librarians affect knowledge sharing in the library. [20] identified that in Botswana, inadequate computerization, infrastructure as well as human capacity are the major challenges towards knowledge sharing and ICT use.

In Nigeria, a number of studies have been done on ICT and knowledge sharing. [27] and [28] in their studies on ICT and knowledge sharing among information professionals, revealed that the Internet was seen as the major way in which knowledge is shared with the outside world. With the emergence of personal computers and modem, informational professionals can now access and share information globally. [29] stressed that librarians and other information professionals face many challenges specifically when using ICT tools to share knowledge among postgraduate students and library staff in Nigeria. The challenges are as follows: poor internet connectivity, erratic power supply, high cost of access to IT facilities, insufficient ICT competencies among professional librarians as well as fear (Technophobia) in the use of technology. [30] indicated various challenges encountered by librarians when sharing knowledge via ICTs as including: insufficient number of computers, librarian's lack of ICT skills, not enough simultaneous access as well as lack of technical know-how. [31] supported this statement by affirming barriers to ICT use on knowledge sharing such as limited equipment, inadequate skills, minimal support, time constraints, technophobia and librarians' lack of interest on knowledge about computers. In summary, librarians with little or no competence in ICT skills will find it difficult and challenging to share their knowledge via the use of technology. Investigating the influence of ICT skills in knowledge sharing in university libraries is therefore relevant to all librarians in universities.

3. STATEMENT OF THE PROBLEM

Existing literature have shown that the ICTs is changing the way university libraries currently perform their routine functions in developed countries [6] which has gone a long way in enhancing knowledge sharing but the reverse is the case in Africa and most especially in Nigeria. Therefore, university libraries in developing countries must take a cue from their counterparts abroad of Nigeria is not an exception

[45] noted that university libraries in Nigeria are still experiencing some hindrances in effective use of ICT tools for knowledge sharing to improve job productivity. However, instant literature shows that there is paucity of study on influence of ICT skill on knowledge sharing among librarians in Nigeria. It has been indicated in the literature that majority of studies conducted in South-West Nigeria are on knowledge sharing among librarians neglecting ICT skills on knowledge sharing [28]. Furthermore, literature has shown that librarians are faced with myriad of challenges when sharing knowledge via technology, these include: lack of understanding of the technology, technical support, erratic power supply, poor internet connectivity, ergonomics, lack of ICT skills in technology usage. These corroborate the findings of Anasi, Akpan and Adedokun (2014)

who found out that lack of competence on ICT skills, technophobia, conducive technology environment are problem encountered when librarians are sharing their knowledge via technology. Hence, the problem this present study intends to fill.

4. LITERATURE REVIEW

ICT is regarded as an important and easier key to knowledge sharing among librarians and other information professionals with myriad benefits. Modern ICT enabled platforms are great motivators that encourage efficient knowledge sharing as compared to traditional methods. They improve and enhance knowledge sharing by alleviating temporal and spatial hindrances between knowledge personnel thereby enhancing access to information pertaining to knowledge [32]. This is particularly true as ICT has the capability of reaching a wide coverage and scope when sharing information among librarians.

[33]; [34] and [35] reported low levels of ICT skills (46.3%) and lack of adequate training programmes among academic librarians which affected knowledge transfer in Chandigarh city libraries in India, as well as in Isfahan, Iran and Bangladesh. It is evident from the above findings that low level of ICT skills and inadequate training programmes is impediment to knowledge sharing among academic librarians in the libraries studied (India, Iran and Bangladesh). [36] undertook a study on perceptions and levels of ICT competencies by librarians at public sector universities in Khyber Pakhtunkhwa, Pakistan. The findings of the study revealed that the majority of the librarians possessed good ICT skills and were knowledgeable in operating the Windows system, whereas there was limited skills and knowledge about MS-Dos while a few of them possessed no knowledge of the UNIX operating system. Also, it was indicated that most of the respondents possessed good ICT skills in knowledge sharing with the use of E-mail and the internet while there were fair ICT skills in sharing knowledge via the use of social media such as Facebook, My Space, Wikis, Blogs and video conferencing such as Flicker, Skype, Imo and YouTube. However, lack of sufficient staff in the library to promote ICT competencies (86% of respondents), lack of written policies (77%), lack of attending ICT training (76%), lack of interest of librarians to update their ICT skills (32%), and fear of ICT applications were the challenges encountered by librarians particularly when sharing knowledge. Based on these findings, ICT is increasingly becoming popular and relevant among information professionals across the globe for effective knowledge sharing activities. This is more evident in the use of social media platforms by libraries and librarians.

[37] submitted a moderate level of ICT skills in a study of 244 library professionals in Pakistan. [37] further concluded that proper application of ICT resources and librarian competencies to use them will improve the attitude of library professionals towards knowledge sharing as well as boost their horizons towards modern technologies in libraries. The findings of the study implies that librarians attitude and competencies in the use of ICT resources will inturn enhance the way librarians share their knowledge and also boost their quest for emerging technologies. [21] studied subject librarians at the University of Kwazulu-Natal with regards to their ICT knowledge and skills. The study revealed that the majority (about 93.5%) of the librarians used a computer in performing their daily tasks at work. Also, subject librarians generally do not have the knowledge to explore the opportunities and advantages that technology creates, nor have the skills to perform the application functions and operating system. The study concluded that major problems faced by subject librarians especially in knowledge sharing are lack of understanding of the technology, knowledge and skills as well as lack of training as indicated from the findings. Although the librarians use ICT for task performance on daily basis, yet not very many of these librarians possess the adequate and real-time knowledge to effectively explore the full benefits of the new technology for knowledge sharing. This, therefore, negatively affects the knowledge sharing competencies of the librarian especially in this region as compared to what was recently reported by [38] on high competencies of librarians in using ICTs for knowledge sharing. [38] conducted a study on challenges to effective utilization of ICT by academic staff in teaching and learning of agricultural education. The findings of the study indicated that there is a low level of ICT tools usage to promote and share knowledge among academics staff in agricultural education in the South-East geo political zone of Nigeria. This study corroborates the findings of [39] and [40] of a low level usage of ICT equipment and facilities in selected secondary schools in Nigeria. [38] lamented that academic staff in agricultural education in Nigerian universities faced a myriad of challenges in terms of sharing knowledge via technology among the academic staff. The study showed that low level use of ICT tools, equipments and facilities affects knowledge sharing among academic staff in agricultural education. Apart from these, inadequate time for training in ICT, technical support, age, erratic power supply, poor internet connectivity and lack of ICT skills in technology usage were impediment to knowledge sharing among academic staff in agricultural education in Nigeria. However, if this trend continues, librarians and information professionals in Nigeria might find it difficult to effectively share knowledge among themselves with the aid of ICTs.

[41] conducted a study on knowledge sharing among academic staff (librarian inclusive) in the Nigerian University of Agriculture. The findings revealed that 73(27.3%) of respondents indicated that knowledge sharing assisted the academic staff to keep abreast of updated information in their chosen professions in particular. Also, a majority, 251(89.1%) of the respondents submitted that the internet service is the major medium used to share knowledge with the outside world and 247(89.2%) confirmed that attending conferences has helped in sharing knowledge. However, inadequate awareness about the importance of knowledge sharing, poor attitude to knowledge sharing among librarians, reluctance to share knowledge owing to prejudice, and lack of adequate ICT facilities were some of the problems faced by the staff as noted by [41]. It is evident from the above findings that knowledge sharing has assisted academic staff including librarians to keep abreast with updated information while the internet has provided a major avenue for knowledge sharing. However, lack of awareness of the importance of knowledge sharing, poor attitude to knowledge sharing among librarians, and others were impediments to knowledge sharing and unless these are resolved, effective knowledge sharing might just be a mirage among the professionals. [42] opined that librarians were not highly computer literate when it comes to knowledge sharing; this is because computers in libraries were not readily available in Nigeria. [43] complimented the above submission, noting a low level of ICT skills (51.6%) among academic librarians in Nigerian university libraries. The above findings affirmed that librarians were not highly computer literate especially in knowledge sharing. The reviewed literature shows that most of the studies done are on knowledge sharing among librarians in Nigeria neglecting ICT skills [44; 45; 46; 41; 42 and 43]. There is a paucity study on ICT skills on knowledge sharing among librarians in the South-West Nigeria [28]. No study has been conducted on the influence of ICT skills on knowledge sharing among librarians in South-West University libraries in Nigeria. Consequently, the literature review shows that there are limited empirical studies that have applied theories to underpin research problems [45]. Hence, the lacuna this study intends to fill.

5. THEORETICAL FRAMEWORK

There are several theories of technology adoption and knowledge sharing. These include but are not limited to: Technology Acceptance Model (TAM) [47], Theory of Planned Behaviour [48], Theory of Reasoned Action [49,50], Diffusion of Innovation Theory [51], Combination of Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) Model (C-TPB-TAM), Motivational Model (TM), Model of PC Utilization (MPCU), Social Cognitive Theory [52], and Unified Theory of Acceptance and Use of Technology (UTAUT) [53]. The UTUAT will underpin this study. The UTAUT was formulated by [53]. The theory was developed through a review and consolidation of the constructs of eight models that earlier research had adopted to describe technology acceptance and usage behaviour. It has been established by several studies that UTAUT model contributes to superior understanding about the drivers of behaviour acceptance and use of emerging technologies than other related theories and models.

The choice of UTUAT model for this study was inspired by its richness, currency and high descriptive features as likened to other technology acceptance and use and knowledge sharing theories. [53] stressed that previous models were able to describe approximately 40 percent of technology acceptance, whilst on the contrary the UTAUT was able to explain 70 percent of the intention to use technology. The UTAUT model has been noted to be applicable to people irrespective of gender, extents of information technology competency, culture as well as to a large variety of available technologies, therefore showing its richness and reliability [62].

The UTAUT has basically four constructs that determines technology acceptance and use, these constructs are:

1. Effort Expectancy (EE): this refers to the degree of ease associated with the use of the system;
2. Performance Expectancy (PE): this is described as the degree to which an individual believes that using the system will help him/her to attain gains in job performance;
3. Social Influence (SI): this is the degree to which an individual perceives that important others believe he or she should use the new system; and
4. Facilitating Conditions (FC): this is described as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system [53].

[53] also identified four other mediating factors that influenced the aforementioned constructs above, these are:

1. Age: this is the degree to which the age of an individual influences their use a new system;
2. Gender: this refers to the extent to which if being a male or female makes it easy to use a new system;
3. Experience: this is the degree of use over time with gaining experience in the use of a system; and
4. Voluntariness: this refers to the degree that the system is used voluntarily.

Effort expectancy and performance expectancy are used to combine ease of use and perceived usefulness variables. UTAUT model proposed that effort expectancy construct can be significant in formative user's acceptance of technology. UTAUT elucidates technology use is influenced by individual differences. The model was developed to elucidate user's behavioural intention to use a technology or system and boost usage behaviour [54].

The researcher will use all the four constructs aforementioned above to answer the research questions as shown in the table 1 below.

Table 1: Research questions and UTAUT variables.

S/N	Research questions	UTAUT Variables
1.	What is the level of ICT skills among librarians in the federal university libraries in South-West Nigeria?	Performance Expectance (PE)
2.	What are the effects of ICT skills on knowledge sharing among librarians in the federal university libraries in South-West Nigeria?	Performance Expectancy (PE)
3	What is the level of knowledge sharing among librarians in the federal university libraries in South-West Nigeria?	Social Influence
4.	What are the methods of knowledge sharing among librarians in the federal university libraries in South-West Nigeria?	Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI)
5.	What are the factors affecting knowledge sharing among librarians in the federal university libraries in South-West Nigeria?	Social Influence (SI) Facilitating conditions (FC)

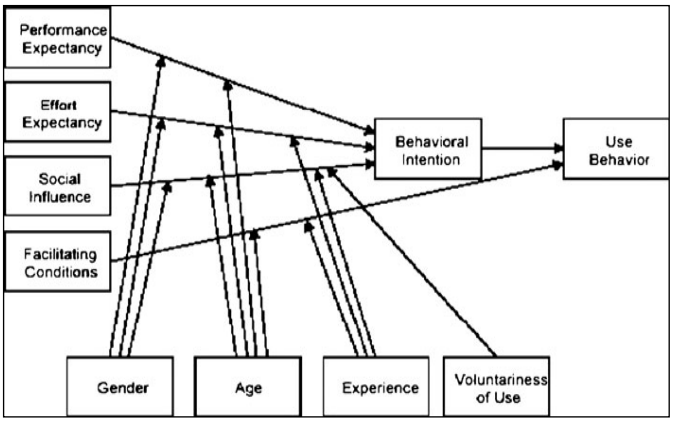

Figure. 1: UTAUT Model [53].

6. RESEARCH METHODOLOGY

The research intends to use post-positivism that is, the use of quantitative and qualitative method. Post-positivism is a philosophical view that holds the idea that knowledge discovery is not only by science way [55]. Post-positivism is an extension of positivism and also represents the thinking after positivism, the challenging traditional idea of the objective truth and reality of knowledge in the social science as submitted by [56]. Post-positivism research uses both quantitative and qualitative approaches and results from these approaches complement each other when comparing the findings.

The target population of this study will consist of librarians in Federal University of Agriculture, Federal University Oye, Federal University of Technology, University of Ibadan, University of Lagos and

Obafemi Awolowo University all in South-West Nigeria. All the librarians will be selected for the study, which makes a total of 114 librarians. This total was got through personal contact (phone calls) and through Nigeria Library Online Forum (NLOF) [57]. This group was created by librarians in Nigerian to interact and communicate with one another on professionally related matters and opportunities in the field of librarianship and information studies. This is presented in Table 2.

Table 2: Target population of the study.

S/N	Federal University in South-West Nigeria	Number of Librarians
1.	University of Ibadan	30
2.	University of Lagos	21
3.	Federal University of Agriculture, Abeokuta	23
4.	Federal University of Technology, Akura	12
5.	Federal University of Oye, Ekiti	5
6.	Obafemi Awolowo University, Ile-Ife.	23
	Total	114

The survey research design will be adopted in this study. The census research method will be adopted in this study. [58] submitted that a census eliminates sampling error and provides data on all the individuals in the population. Though cost considerations make census impossible for large populations, a census is more attractive when population is small for example 200 or less).

The method of data collection that is, questionnaires and interviews help in getting qualitative, descriptive and in-depth specific data as well as able to reach large population when using questionnaire [59]. The questionnaire will be self-administered with the assistance of research assistants while the structured interview will be conducted with the heads of the libraries (University Librarians) of the six federal university libraries in South-West, Nigeria.

Statistical Package for the Social Sciences (SPSS) software allows for large data processing and the organization as well as interpretation of such data [60]. SPSS will be adopted for analysis of quantitative data. The choice of SPSS lies in its good statistical practices and its outstanding data presentation capabilities. The qualitative data will be analyzed using thematic content analysis.

Reliability of pre-test quantitative instrument will be measured using the alpha Cronbach's correlation coefficient. The Alpha Cronbach's correlation coefficient ranges from 0-1 items with high Cronbach value that is 0.7 and above will be retained and items with low Cronbach coefficient will be reformulated. This approach will also be based on the average correlation between all the items of a test which is an indication of the degree to which items measure the attribute continuously [61].

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