USING INFORMATION AND COMMUNICATIONS TECHNOLOGIES IN THE UNIVERSITY OF KWAZULU-NATAL AND UNIVERSITY OF IBADAN LIBRARIES

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ABSTRACT

The use of information and communications technologies (ICTs) for knowledge management (KM) has become a critical success factor in present-day university libraries. University libraries have continued to use ICTs to foster and enhance the operations of information services on a daily basis in the library environment. The use of ICTs requires librarians to have proven knowledge and skills in order to achieve effective and efficient work performance in the libraries. This article focuses on the two research questions, namely: 'What are the skills needed for ICTs by librarians at the university libraries?' and 'What are the challenges faced by librarians in the use of ICTs for KM at the university libraries?' The research specifically targeted the libraries at the University of KwaZulu-Natal (UKZN), South Africa, and the University of Ibadan (UI), Nigeria. Quantitative

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and qualitative research approaches were adopted in order to conduct data collection and data analysis. The research findings were that, when compared, the two university libraries showed a correlation in the skills required by librarians. This is accompanied by knowledge of ICT hardware and software; various subject areas in librarianship; structure and process of cataloguing, and classification, to function better in the library environment. Several challenges, including the high cost of hardware and software; lack of implementation of ICT policies; and inadequate in-depth knowledge of the library holdings were observed. In conclusion, the dynamic information environment requires librarians to be proactive and have enhanced education that would enable them to address change management, leadership roles, and technical information skills. Librarians need to constantly update their knowledge and skill-sets to keep up with current trends of technology in library and information services.

KEYWORDS: information and communications technologies, knowledge management, librarians, university libraries, Nigeria, South Africa

1. INTRODUCTION

The use of information and communications technologies (ICTs) for knowledge management (KM) has become a global phenomenon in libraries in the present-day knowledge economy. This is due to the speed, efficiency, effectiveness and enormous processing ability of these technologies. This transformation has equally affected university libraries in Africa, especially those at the University of KwaZulu-Natal (UKZN), South Africa and the University of Ibadan (UI), Nigeria. The use of ICT tools for KM requires basic knowledge and skills in order to achieve efficient work performance. The assertion above led Chisenga 2004; United Nations ICT Task Force 2005; Islam and Islam 2007; Anunobi, Anyanwu Oga and Benard 2011; and Rastogi and Malhotra 2012 to establish that the use of ICTs from global perspective varied in diversities, purposes, significance and context. The first decade in the 21st century marked an explosion in the development of digital ICTs that have since, become the foundation for economic survival today. The constantly changing global environment has created a host of issues to include reliable infrastructure, cultural, educational, political, socio-economic, capacity building in recent time (Madu 2004).

Librarians' use of ICTs for KM has become more proactive in present-day library organisation. This is so because every library and information services, involves managing knowledge in libraries. The knowledge managed could be in the form of explicit and tacit, or tacit to tacit and explicit to explicit. The constantly changing environment of libraries involves users' information needs and influx of print and electronic resources to be managed on a daily basis. The management of the influx knowledge in the form of print/electronic resources and or tacit and explicit knowledge require the use of ICTs, for easy processing, repackaging, storage,

and dissemination. Therefore, the performance for improved work operations depends largely on librarians' ability to effectively use ICTs to manage the library organisations and on a daily basis.

2. PROBLEM STATEMENT AND PURPOSE OF THE STUDY

The application and utilisation of ICTs in service delivery has become an issue of debate for most academic libraries. The researcher observed that the most frequently used ICTs for KM by librarians have become more difficult to navigate due to evolving phenomena of the tools. This has brought many worries to librarians in trying to render information services to users. These worries have led librarians to embark on training and retraining in the use of ICTs to effectively manage knowledge resources, even in the midst of other challenges witnessed in present-day library services. Among the concerns was the reduction of users, as their expectations were not met. Inadequate knowledge, skills, experience, exposure, and attitude of librarians, which was supposed to help librarians to effectively utilise the tools, were of most concern. Another remark made was the demonstration of the use of the technology as they had claimed. Some of the librarians did not appear to have such knowledge and skills. The interaction had with them during a data collection exercise at the libraries at UKZN and UI substantiated such claims. For example, when the librarians were asked to explain how such tools were being applied in their work environment, their responses were vague.

Several studies have been conducted into the following areas by Yukselturk and Bulut (2009) whose research was on gender differences in an online learning environment; Yildirim's (2007) focused on the utilisation of ICTs in Turkish schools among teacher's ICT use and barriers while Gulbahar's (2007) focused on the access to resources. However, the above-mentioned research did not mention the use of ICTs for KM. The literature reviewed in the article draws on global perspectives. The gap this research fills is in the context and content of ICTs and KM in Nigeria and South Africa, specifically university libraries. The practical application of the use of ICTs to manage knowledge; the use of tacit knowledge and skills to harness and improve services in university libraries; and the e-readiness of librarians was also noticed. This study considered the use of ICTs by librarians at UKZN and UI. The study focused on the following questions:

- What are the skills needed for ICTs by librarians at the university libraries?
- What are the challenges faced by librarians in the use of ICTs for KM at the university libraries?

3. HISTORICAL BACKGROUND OF THE UNIVERSITY OF KWAZULU-NATAL AND UNIVERSITY OF IBADAN LIBRARIES

UKZN was established on 1 January 2004 as a result of the restructuring of the South Africa Higher Education sector that began in the 1990s and merged the University of Durban-Westville and University of Natal into one institution (UKZN n.d.). This new branded university brought together the rich histories of both institutions. It has a multidimensional student population of about 41 762 (HEMIS 2012). The university is committed to the vision of being a premier university of African scholarship, recognised for its academic excellence, innovative research output, critique of society, and demographic representation irrespective of inequalities and disadvantages. UKZN has four established colleges, namely: Humanities; Agricultural, Engineering and Science; Health Sciences; and Law and Management Studies. The UKZN libraries are committed to serving undergraduates and postgraduates (UKZN 2009). These libraries thrive to see that the information needs of users are met on a constant basis. The use of ICTs for KM as applied in the two countries' university libraries cut across the areas of acquisition, processing, re-packaging of knowledge, training of staff and users, and development of the activities of the libraries, collaborations with external colleagues and inter-library loan, just to mention but a few.

The UI library was established in 1948 (Babalola 2007), before Nigeria gained independence in 1960. The university's vision is to be a world-class institution that strives for academic excellence geared towards societal goals (UI n.d.). UI has nine faculties, namely: Arts; Agriculture and Forestry; Education; Law; Science; Social Sciences; Pharmacy; Technology; and Veterinary Medicine. The UI library is established and charged with the responsibility of providing information resources like books, journals, and other resources, in support of the teaching and research mandates of the institution (UI 2015). In order to accomplish this mandate, the library has maintained, and will continue to expand, its collections to over one million volumes (UI 2015). The qualification obtained in any educational system is an indication of the knowledge, skills, competences, and attitudes that the librarian possesses.

The use of ICTs for KM in this context cuts across the acquisition of information resources, processing, storing, retrieving and dissemination on a daily basis (Gbaje 2007; Anunobi et al. 2011; Rastogi and Malhotra 2012). The UKZN and UI libraries are the focus of this article, and have had many challenges and improvements in recent times, especially in the areas of resources, services, staffing and their collections. One of the results is that the UKZN and UI libraries are knowledge-based resource centres in today's knowledge economy and serve as warehouses of knowledge where all kinds of resources are found. These resources have promoted and improved research and collaboration work among colleges. In comparing the

two university libraries, it was established that the UKZN library has five campuses, namely: Howard, Westville, Medical School, Pietermaritzburg and Edgewood colleges. These campuses/colleges are answerable to several unit libraries, namely: EG Halherbe library, Barryn Biermann architecture library, Eleanor Bonnar music library, GMJ Sweeney law library, Main library, Joe Ryan dental library, Medical School library, Victor Daitz library, Information Gateway, Cecil Renaud library, Life Science library, Law library and Edminson Library; while the UI library is answerable to other faculties and departmental libraries, such as the Social Sciences Schools library, Faculty of Science library, Faculty of Engineering library, Medical School library, Systems library and Faculty of Education library.

Table 1: Operations for which ICTs are used at the UKZN and UI libraries

Activities in university library	**UKZN library**	**UI library**
Resources (materials/ collections)	• e-Books • e-Journals • e-Newspapers • Exam papers • Research spaces • UKZN e-theses • Databases A-Z • Databases for subjects • Databases for theses • Databases for trial • Libguides • World cat local • Annual reports • University archive collections	• Online databases • Indexes and abstracts • Electronic resources • e-Manuscripts (books) • e-Journals • Archives collections • Newsletter • Research papers (library publication) • Databases • Theses and dissertations
Staffing	• 33 staff members	• 38 staff members
Services	• Academic reserves • Book orders • Inter-library loan • Information services • Info find at UKZN	• Information service (interlib-loan) • Technical service • Bindery service • Reference • Current awareness • Selective dissemination of information • Indexing and abstracting

Source: *UKZN (2009); UI (n.d.)*

The results in Table 1 indicate lots of variances and differences between the two libraries. The two university libraries are guided by policies with regard to various issues of financial capability of the institutions, support system from external body in terms of funding, vision and goals of the libraries, and the nature of work operations and calibre of staff in the libraries. These factors ensure and enforce the provision of functional university libraries.

As information is increasingly required to meet diverse needs of health, political rights, income, education, development, and training among other disciplines, information seekers continue to participate in planning and decision-making (Mnubi-Mchombu and Ocholla 2014, 26). This would require university libraries to recognise and expand their roles. In their bid to satisfy students' needs, Davies (2007, 788) notes that the resources in institutions are meant for a variety of purposes, including leisure, research and academic careers, among others. This would help to facilitate the acquisition of required resources (human and materials) for effective operations of the libraries. Students' information needs and behaviour towards libraries are diverse in context and varied as well (Shongwe 2005). The resources, staffing, services and collections are represented in Table 2.

Table 2: Similarities observed

Activities in university libraries	UKZN library	UI library
Resources	• e-Books • e-Journals • e-Newspapers • e-theses and dissertations • Databases (online) • University archive collections	
Services	• Information service • Book order	

Source: *UKZN (2009); UI (n.d.)*

As can be observed from Table 2, the two university libraries share almost the same commonalities of goals in resources acquisition and rendering of information services. Present-day libraries have promoted the acquisition of online-based resources for easy access and quick retrieval of information.

Table 3: Differences observed

Activities in university libraries	UKZN library	UI library
Resources	• Exam papers • Research spaces • Lib Guides • World cat local • Annual reports	• Indexes and abstracts • Research papers
Staffing	• 33 staff members	• 38 staff members
Services	• Academic reserves • Information finder at UKZN	• Technical services • Bindery services • References • Current awareness • SDI • Indexing and abstracting

Source: *UKZN (2009); UI (n.d.)*

As indicated in Table 3, very few resources were noticed at the UI library compared to the UKZN library. The UI library still accommodates manual operations for service delivery compared to UKZN where a new approach of information finder has been introduced. The introduction of the information finder, being a new service platform, encourages both old and new users to continue to embrace the use of the services at UKZN. The two libraries have records of over 1.4 million volumes of resources. These include journals, books, theses and dissertations, reports, various print media, and audio-visual collections**.**

4. LITERATURE REVIEW

The use of ICTs has been widely discussed in diverse context and content as earlier mentioned by Rastogi and Malhotra (2012); Anunobi, Anyanwu Oga and Benard (2011); Chisenga (2004); United Nations ICT Task Force (2005); and Islam and Islam 2007. Aina (2004) and Beebe (2004) have argued that the usefulness of ICTs in library practices cannot be under-estimated. Prior to the advent of ICTs, library operations had witnessed many setbacks. This has resulted in under-development of libraries, especially in acquisition of electronic resources, users' information needs not being met and staff development. Presently, libraries have been transformed through proper management of knowledge through various web portals, used to process, store, and make available knowledge to users. Therefore, for librarians to strategically use ICTs, they require participation in programmes that would improve their experience, and exposure to such practices. This has become necessary in order to compete in the globalised world of library services.

Previous studies by Woodhouse and Baigent (2002), Small (2001) and Coulson (2000) established that ICT skills are very essential in present-day library operations. This affects the services carried out by the librarians in the operations of the library organisations. ICT skills are a requirement for librarians to fully use ICTs in any of their activities. These ICT skills are proven through continuous training and re-training while in the job operations. There is no way ICT skills can be acquired when they are not being used. The continuous use of the tools would facilitate the support of KM in varied work operations (Westhuizen and Randall 2005). Westhuizen and Randall (2005) listed a number of ICT skills categorised into specific and generic formats. These are metadata management, research tools, search techniques, communication and evaluation of information, web newsletter support, facilitation processes, current awareness, web product and development, copyright knowledge, e-scholarship, and proficiency in digitisation processes (SkillScan 2012; Westhuizen and Randall 2005). The acquisition of ICT skills relies heavily on librarians' strategic ability to thrive by having the basic knowledge, skills and qualifications necessary to compete better in this present-day knowledge economy (SkillScan 2012). Librarians acquire the neessary knowledge, skills and qualifications through various stages of formal and informal education.

KM which revolves round the activities of library operations in academic libraries has become more fascinating. This is due to increased volume of information, storage, and access in creating value for library organisation (Prusak 2001). The increased knowledge has equally led to a shift in required information, which has enhanced decision making and value for library practices (McInerney 2002). The roles of libraries in managing information and knowledge now comprise a range of strategies and practices, which help to identify, create, represent, distribute and enable the adoption of insights and experiences in most library organisations today (Ajiferuke 2003). KM involves systematic ways of managing and leveraging knowledge and requires the insights and experience of librarians and other staff members in the library environment (Bhatt 2001; Koenig 2002; McInerney 2002).

Krubu (2009, 73) argues that 'KM creates value from tangible to intangible assets in the organization'. The understanding of knowledge gained through experience, reasoning, intuition and constant learning can only be appreciated if properly managed (Bhatt 2002). The process of nurturing, collecting, managing, sharing and updating knowledge resources has led academic libraries to advance in competition with other libraries. The competition with other libraries has helped to foster innovation through sharing of ideas; improve customer service by streamlining response time; and enhance employee retention rates through recognition. The recognition of valued employees' knowledge could lead to rewarding them for the operation of services they have exhibited (Aina, Mutula and Tiamiyu 2008). In recent time, KM has become popularised and essential in organisational productivity

(Alavi and Tiwana 2002). This result to the valuable knowledge found in people, though difficult to capture sometimes (Alavi and Tiwana 2002).

According to Schaub and Zehnke (2000, 316) and Aina et al. (2008), proposition, knowledge and information have been categorised as new economic factors of production in this knowledge economy. Schaub and Zehnke (2000, 316) argue that knowledge acquired through learning processes and social interrelations is most significant. A previous study by Munn (2001, 160) defines knowledge as the capabilities and skills applied to provide solutions to specific problems by an individual. Furthermore, Munn (2001, 160) suggests that managing knowledge is essential for the following reasons in academic libraries: librarians need knowledge to make change happen in every sector; knowledge encourages the cross-fertilisation and collaboration of ideas; knowledge capturing creates institutional memory; knowledge sharing gives people a sense of belonging and motivation; lack of knowledge breeds uncertainty and anxiety, which in turn interferes with focus and productivity; KM is essential for improving competitive advantage in an organisation.

These among others have driven libraries and librarians to continue to thrive in the business of managing and rendering information services to seekers of knowledge. Earlier studies by Nwalo (2003), Edoka (2000) and Prytherch (2000) revealed that writing and graphic materials of papyrus, stone, parchment, vellum and scrolls, Microfilms-Microforms, cassettes, audio tape players, movie card, cable tuner card, video players, among others, are used in managing knowledge in academic libraries. However, there has been a shift in more recent ICTs and KM tools of using computer, CD-ROM, multi-media, scanner, groupware, Internet, artificial intelligence, semantic web, content and database management systems to mention but a few to preserve or manage knowledge in academic libraries (Raja, Ahmad and Sinha 2009; Kaplan and Haenlein 2010; Ofori-Dwumfuo and Kommey 2013, 92).

In applying the recent ICTs and KM tools/technologies mentioned above to manage knowledge, the use of tacit knowledge becomes fundamental. Tacit knowledge is the knowledge found in the human brain (Beesley and Cooper 2008). It helps to manage and transfer explicit knowledge for easy codification, articulation and communicated knowledge (Mansell 2002). Previous studies by Polanyi (1966), and Nonaka and Takeuchi (1995) have shown two types of knowledge, namely explicit and tacit. Explicit knowledge refers to knowledge that is found in books or documents; it is accessed with ease and transferred among individuals. While tacit knowledge is hidden in individual capacities, insights and experiences (Nonaka and Von Krogh 2009).

According to Nonaka and Von Krogh (2009, 636), the two types of knowledge (tacit and explicit) have helped organisations to advance in the creativity, learning, innovation and changes that take place in what they do. Tacit and explicit knowledge are both essential and call for successful usage and management in every organisation, and while a distinction can be drawn between the two types of knowledge (tacit and

explicit), the one complements the other. Tacit knowledge enables people to define, prepare and learn to solve problems which might be difficult ordinarily (Von Krogh, Ichijo and Nonaka 2000); while explicit knowledge only has the characteristics of supporting the capacity to act across contexts. It cannot act on its own unless acted upon through accessibility of consciousness (Nonaka and Von Krogh 2009, 636).

Reflecting on the skills librarians require for the use of ICTs, studies by Petersen et al. (2005), WITSA (2002), Schaub and Zehnke (2000), Dixon (2002) and Castelli (2004), among others, give their comparisons in context and purpose of skills. Skills are perceived as capabilities in an individual's physical or psychological attributes, which are acquired and mastered through activity-related approaches of professional and non-professional training. The usefulness of skills and knowledge required in managing knowledge led to the discussion here. The ability of an individual to use knowledge and skills distinguishes that, the knower has the potential to perform (Hunt 2003, 100). For instance, if a computer analyst is asked about his/her knowledge of the use of computers, his/her answer and self-assessment would provide multidimensional scores about his/her knowledge, revealing whether the answer is correct or erroneous of the knowledge assessment. The knowledge and skills remains hidden until the person uses them to do something, such as: perform some task; understand a situation; make a decision; or solve a problem. Knowledge and skills cannot be articulated and justified through belief and action, until proven in both tacit and explicit format. Their capacity for use and preservation of knowledge in academic libraries depends on the roles of libraries and librarians in operations of services on a daily basis.

5. THEORETICAL BACKGROUND

The research was informed by the Technology Acceptance Model (TAM). This theoretical model was formulated by Davis (1989) in order to address thoughtfulness affecting the acceptance and use of computer technology or ICT facilities in organisations. Davis's TAM of the usefulness and perceived ease of use of ICTs, as discussed and expanded by Johnson (2005), Lee, Kozar and Larsen (2003) and Venkatesh and David (2000), shows significant determinants in the relationship between attitude and the intention to use and not to use systems. The two variables, 'perceived usefulness' and 'perceived ease of use', as employed by the TAM to predict acceptance of the use of technology by different people in an organisation, have external variables that include accessibility, job relevance, compatibility and complexity (Lee et al. 2003).

The formal ('perceived usefulness' and 'perceived ease of use') variables encouraged the author to adopt the TAM in the current research. In their role as intermediaries (librarians) between users and organisations in knowledge repackaging and management in university libraries, librarians continue to strive for excellence

through the use of diverse ICT support systems in this contemporary ICT-based world. The TAM suggests that when librarians are presented with new technology, a number of factors continue to influence their decisions regarding how and when the ICT tools are used. These include: perceived usefulness, ease of use, external variables and intention, and the attitudes of users (Cloete, Courtney and Fintz 2002). Other factors, such as personal control, economic factors, and external influences from suppliers, customers, and competitors were not considered by the TAM (Cloete et al. 2002; Lee et al. 2003). These new ideas suggest many possibilities, which concern organisations, to create environments that would support or enhance librarians' use of technology in order to improve their operations. As librarians continue to learn and work with other colleagues in libraries, they improve their knowledge-basis and skills through interactions within the environment, thus becoming more open to how learning is acquired. Librarians act based on this new knowledge that helps transform the pre-existing experiences and skills that they possess.

6. METHODOLOGY

Both quantitative and qualitative research approaches were adopted for the current research. The quantitative method made use of questionnaires for the collection of data from respondents in the two university libraries. The qualitative method used content analysis for the collection of literature. The study purposively sample 71 librarians from the two university libraries (33 from UKZN and 38 from UI). This was done based on the available professional librarians who worked in each of the libraries. The two study universities were selected purposively for the following reasons: They are well established and ranked among the top universities in their respective countries (University Web Rankings-Africa 2014). The two universities' libraries are well known and have a high calibre of resources across disciplines as well as high visibility of research outputs. The budgetary allocations of the libraries accommodate all their resources, staffing and service needs. Of the 71 sampled librarians across the two university libraries, 57 librarians responded to the questionnaire that was administered, thus a response rate of 80 per cent from the sampled librarians was obtained. The 57 questionnaires collected were analysed using statistical tools of simple percentage. Tables 5, 6, 7 and 8 show the varied results of the research study. The presentation of the demographic distribution is given below.

7. RESEARCH RESULTS

This section addresses the respondents, cross-tabulation between age and education and the two research questions as stated earlier.

Table 4: Distribution of participating university librarians (N = 57)

	UI library		**UKZN library**			
Gender	**F**	**%**	**F**	**%**	**Total**	**%**
Male Female	17 12	29.8 21.1	13 15	22.8 26.3	30 27	52.6 47.4
Age (years)						
20–29 30–39 40–49 50–59 60+	2 14 11 2 0	3.5 24.6 19.3 3.5 0.0	1 8 13 5 1	1.8 14.9 22.8 8.8 1.8	3 22 24 7 1	5.3 38.6 47.4 12.3 1.8
Qualification (degree)						
Bachelor's Honours Master's PhD	8 0 18 3	14.0 0.0 31.6 5.3	7 9 11 1	12.3 15.8 24.6 1.8	15 9 29 4	26.3 15.8 50.9 7.0
Total	**29**	**50.9**	**28**	**49.1**	**57**	**100**

The results in Table 5 reveal that the majority of respondents were male (30; 52.6%), albeit by a small margin. Most of the respondents were between 30–39 years and 40–49 years, and the majority of respondents had attained master's degrees. It may be possible that the two countries' university libraries have a large capacity of users, but the staff strength as demonstrated is very low. It is believed that when this research was carried out, some of the staff members were on leave.

Table 5: Cross-tabulation between age and qualifications (N = 57)

Age (years)	**UI library**				**UKZN library**			
	Educational qualification (degree)				**Educational qualification (degree)**			
	Bachelor's	**Honours**	**Master's**	**PhD**	**Bachelor's**	**Honours**	**Master's**	**PhD**
20–29	2; 3.5%	-	-	-	1; 1.8%	-	-	-
30–39	6; 10.5%	-	7; 12.3%	1; 1.8%	3; 5.3%	1; 1.8%	4; 7.0%	-
40–49	2; 3.5%	-	7; 12.3%	2; 3.5%	2; 3.5%	4; 7.0%	7; 12.3%	-

Age (years)	UI library				UKZN library			
	Educational qualification (degree)				Educational qualification (degree)			
	Bachelor's	Honours	Master's	PhD	Bachelor's	Honours	Master's	PhD
50–59	-	-	2; 3.5%	-	1; 1.8%	2; 3.5%	1; 1.8%	1; 1.8%
60+	-	-	-	-	-	-	1; 1.8%	-

As can be seen from Table 5, there were more bachelor's (6; 10.5% and 2; 3.5%; 3; 5.3% and 2; 3.5%), master's (7; 12.3%; 4; 7.0%) and PhD (1; 1.8% and 2; 3.5%) holders between the ages of 30–39 and 40–49 years in both libraries. Few respondents reported having bachelor's and honours level degrees at the age of 20–29 years. It can be observed from the results that the majority of the respondents attended school at a much older age. This could be as a result of several factors such as background (poor or rich), or environment (urban or rural) amongst others. It can also be seen that many people do not have knowledge of the profession of librarianship as compared to other courses studied at the university.

The respondents' responses regarding the question 'What are the skills needed for ICTs by librarians at the university libraries?' are presented in Table 6.

Table 6: Librarians' ICT skills for the support of KM (N = 57)

ICT skills	Responses	Total	%
Consensus building skills	Strongly agree	30	52.6
	Agree	22	38.6
	Disagree	1	1.8
	Strongly disagree	0	0.0
Negotiating skills	Strongly agree	21	36.8
	Agree	27	47.4
	Disagree	9	15.8
	Strongly disagree	0	0.0
Project management skills	Strongly agree	34	59.6
	Agree	17	29.8
	Disagree	4	7.1
	Strongly disagree	0	0.0

ICT skills	Responses	Total	%
Technical skills	Strongly agree	33	57.9
	Agree	24	42.1
	Disagree	0	0.0
	Strongly disagree	0	0.0
Managerial skills	Strongly agree	31	54.4
	Agree	21	36.8
	Disagree	3	5.3
	Strongly disagree	0	0.0
Change management skills	Strongly agree	29	50.9
	Agree	20	35.1
	Disagree	6	10.5
	Strongly disagree	0	0.0
Facilitation skills	Strongly agree	28	49.1
	Agree	27	7.4
	Disagree	1	1.8
	Strongly disagree	0	0.0
Assessment and evaluation of job performance	Strongly agree	38	66.7
	Agree	17	29.8
	Disagree	2	3.6
	Strongly disagree	0	0.0
Familiarity with online sources, research and publishing skills	Strongly agree	37	64.9
	Agree	18	31.6
	Disagree	2	3.5
	Strongly disagree	0	0.0

The results from Table 6 indicate that consensus building skills (30; 52.6%), project management skills (34; 59.6%), technical skills (33; 57.9%), managerial skills (31; 54.4%), change management skills (29; 50.9%), assessment and evaluation of job performance (38; 66.7%), and familiarity with online sources, research, and publishing skills (37; 64.9%) are the most essential ICT skills required by librarians in the support of KM. However, the skills listed in rows 2 and 8 produced a low response rate. This could be that these skills are not as essential compared to the others. It can be noticed that majority of the ICT skills are very important in today's

KM operations in university libraries. Notably, when the two university libraries are compared, there is a slight difference in the response rate in columns 2 and 7. This indicates there is no correlation in the perceived ICT skills among librarians for the support of KM across the two libraries.

The responses to the question 'What are the challenges faced by librarians in the ability to use ICTs for KM at the two sampled university libraries?' are presented in Table 7.

Table 7: Challenges faced by librarians in the ability to use ICTs (N = 57)

Challenges faced by librarians	Responses	Total	%
Lack of personal computers for convenient usage	Strongly agree	21	36.8
	Agree	23	40.4
	Disagree	10	17.6
	Strongly disagree	3	5.3
High cost of hardware/software needed for the use of ICTs	Strongly agree	25	43.9
	Agree	27	47.4
	Disagree	5	8.8
	Strongly disagree	0	0.0
Lack of implementation of ICT policies for use in KM	Strongly agree	27	47.4
	Agree	22	38.6
	Disagree	6	10.6
	Strongly disagree	0	0.0
Inadequate knowledge of ICT to access the web	Strongly agree	19	33.3
	Agree	29	50.9
	Disagree	9	15.8
	Strongly disagree	0	0.0
Lack of in-depth knowledge of the library holdings and geographical map of the organisation	Strongly agree	19	33.3
	Agree	30	52.7
	Disagree	8	14.0
	Strongly disagree	0	0.0
Inability to understand the graphical user interface of ICTs and their functionalities	Strongly agree	21	36.8
	Agree	32	56.1
	Disagree	4	7.0
	Strongly disagree	0	0.0

Challenges faced by librarians	Responses	Total	%
Lack of ability to work independently without supervision	Strongly agree	16	28.1
	Agree	26	45.6
	Disagree	11	19.3
	Strongly disagree	3	5.3

The results from Table 7 indicate that according to the respondents, the most significant challenges include high cost of hardware and software required for the use of ICTs, the lack of implementation of ICT policies (27; 47.4%), inadequate knowledge of the usage of ICTs to access the web among some librarians (29; 50.9%), and the lack of in-depth knowledge of the library holdings and geographical map of the organisation (30; 52.7%). The ability to use ICTs for KM in the two university libraries depends largely on librarians to harness and improves the challenges mentioned.

8. DISCUSSION OF RESULTS

The discussion segment covers the following areas: demographics of respondents, knowledge required of librarians for effective library operations, ICT skills required of librarians for library operations, and the challenges faced by librarians in the ability to use ICTs for KM in the two university libraries.

8.1. Respondents' demographics

A comparative analysis of the two university libraries revealed that the majority of sampled librarians were male (30; 52.6%). The age groups of the participants ranged between 30–39 years and 40–49 years, and the majority held master's degrees.

8.2. Knowledge required of librarians for effective library operations

Effective library operations require librarians to have a basic knowledge of ICT hardware and software; different subject areas in librarianship; structure and process of cataloguing and classification; as well as policy and procedures. It is important to note that librarians cannot do without this knowledge. The knowledge and skills gained through qualifications, experience, and exposure in the use of ICT tools help librarians to improve and consolidate library operations. It can be noticed that, working together as a team, motivation among colleagues and support systems from the organisation could enhance proper management of knowledge. It is interesting to note that the position an individual occupies in the organisation and his/her areas of specialisation could factor towards having greater knowledge and ICT

skills that would help to support KM in libraries. Vinitha et al. (2006) argue that library operations continue to expand, and as such require more knowledge for the acquisition and processing of information, which is supported with the aid of ICTs used on a daily basis.

Gbaje (2007) asserts that one implication of needing updated knowledge and skills in the library environment is the constant influx of digital information. Tennant (2003) suggests that librarians need to constantly learn and update their knowledge academically if they are to keep up with the shift from traditional to digitised format. Adekunle et al. (2007) assert that in present-day library services, the quality of usage, skills, and knowledge of ICTs in library operations is dependent on librarians' willingness to learn and improve at all times. Knight (2009) argues that since libraries are a dynamic information environment, the need to train librarians with insufficient ICT knowledge becomes paramount. Gutsche (2010) argues that a new breed of librarians, known as Librarian 3.0, is now on the increase in the developed world. This type of librarian possesses diverse skills, knowledge, behaviour and attitudes regarding progressive and emerging ICTs.

8.3. ICT skills required of librarians for library operations

ICT skills are like the oil that helps to lubricate the library engine for proper and better functionality. The respondents attested to varieties of ICT skills, such as evaluation of job performance, familiarity with online sources and research, publishing skills, consensus building skills, project management skills, technical skills, managerial skills, just to mention a few, that are most essential in the support of KM. Woodhouse and Baigent (2002), Small (2001) and Coulson (2000) argue that continuous training of librarians would enhance librarians' ICT skills, specifically, in the context of library operations.

According to Westhuizen and Randall (2005), a number of ICT skills that could facilitate the support of KM vary in work operation. They can be categorised into generic and specific format: facilitation of the learning process; value addition to products, current awareness; web newsletter support, searching techniques; metadata management; business sense; web product development; copyright knowledge; communication and evaluation of information; research tools for e-scholarship; proficiency in digitisation processes, just to mention a few. Akintunde (2006) argues that very few academic libraries in Nigeria have a structure that drives the application of ICTs. The levels of library service provision rely on funding from the Education Trust Fund (government agency) to provide ICT facilities and electronic libraries in the universities. Provision of funds to acquire relevant ICT facilities and embark on training librarians in order to have adequate ICT skills has always been a challenge in the library environment (Akintunde 2006). The author has thus affirmed that lifelong learning is fundamental for organisational growth. This means academic libraries

should encourage continuous updating of new knowledge, skills and capabilities among staff members, rather than the current individualistic pursuit of new methods, competence and expertise.

8.4. Challenges faced by librarians in the ability to use ICTs

The challenges faced by librarians as revealed by the respondents included: requiring one or more knowledge and skill-sets in the use of ICTs for the support of KM; the high cost of hardware/software needed for the use of ICTs; lack of implementation of ICT policies for use in KM; lack of in-depth knowledge of the library holdings and a geographical map of the organisation to mention a few. These challenges are critical and could affect the operations of the library. Elisha (2006) and Ashcroft and Watts (2005, 8) have identified several critical problems that academic libraries are faced with in relation to ICT use and application in Africa. In particular, in Nigerian university libraries, very few people have access to a personal computer (Adomi and Igun 2009). The few Internet service providers are comparatively expensive; electricity power supply is unreliable and even non-existent; and telecommunications are sparse (Adomi and Igun 2009). Adomi and Igun (2009) complain that some librarians' awareness and knowledge of ICTs is very low. However, even with the low level of awareness of some librarians, the country has not kept up with the rapid speed of ICT innovation and development, as well as policy makers' decisions not being sufficiently implemented (Adomi and Igun 2009). Obajemu and Ibegwam (2006) argue that the challenges of ICT use include the lack of library software, technical and organisational obstacles, inadequate funding, inadequate electronic scholarly work, and inadequate infrastructure to provide access to electronic information. The author notes that the growth of academic libraries depends largely on the librarians' mind-set to adapt to changes and decisions made.

9. CONCLUSION AND RECOMMENDATIONS

The study has indicated that librarians and university libraries play a significant role in catering for the information needs of the academic community they serve. Meeting user needs goes a long way in the actualisation of the library's objectives. This actualisation is proven through increased access to information. The use of the Internet, OPAC, electronic/digital resources, and e-mail services has significantly improved the library operations in recent times in the university libraries. The transformation which the use of ICTs has brought to the two libraries means that it has supported increased productivity of librarians; training programmes through workshops, seminars and conferences; and increased preservation of many volumes of documents. The study articulated that service provision offered to users was enabled through the ICT knowledge, skills, and expertise of librarians. The accessibility

to information has led librarians to advance in the continuous acquisition of knowledge and skills required to manage tacit (knowledge in the human brain) and explicit (knowledge in books) knowledge. The author observed that the processes of managing knowledge through the use of ICTs would not have been possible, if librarians did not have the ability to code, organise, and disseminate local collections of information.

It was established that the two countries' academic libraries have not enjoyed the same information service delivery and provision of access as compared to libraries in developed countries. This has resulted in a disparity in the ability of librarians to adopt and use ICTs in service delivery (Chisenga and Rorissa 2001). Elisha (2006) asserts that some academic libraries in African countries, with reference to Nigeria and South Africa, still suffer from poor funding, poor communication systems, and a shortage of qualified ICT librarians. Strategically, academic librarians and university libraries in both countries should continue to plan and execute fixed learning resources and services in order to remain relevant in present-day library standards.

The author recommends that attention be drawn to the acquisition of new ICTs and KM tools, such as computer, CD-ROM, multi-media, scanner, groupware and artificial intelligence to replace old systems. Librarians should continue to strive on a daily basis to acquire current knowledge and skills in the LIS profession. This could enhance the delivery of information services to users within and outside the context of the library. Regular training and development programmes in different subject areas of ICTs, such as text databases, intranet design and innovative, multi-media based OPACs, electronic publishing, and homepage creation should be offered for the sustainability of the library organisation. Librarians should become more involved in the roles of editors, educators, information consultants, and gatekeepers of knowledge since the essence of managing knowledge has drastically changed.

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