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IMPACTS OF INFOMATION AND COMMUNICATION TECHNOLOGY (ICT) IN KNOWLEDGE MANAGEMENT PRACTICES IN LIBRARIES: A REVIEW

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ABSTRACT

The practice of managing knowledge in academic library is aimed at improving services to users and quality in administration. Knowledge management practices entails generation, acquisition, organization, sharing, mapping, audit, packaging and preservation among others. To facilitate the processes involved in managing knowledge in academic libraries, information and communication technology facilities and tools become necessary as enabler. This paper discussed

INTRODUCTION

Information and communication technologies (ICT's) are an important element that is required to promote social capital in the creation of new knowledge. The emergence of repository today enables mass organization and storage of knowledge due to advance in technology (Chua, 2004). Chua further stressed that ICT infrastructure is tangible, and it acts as enabler in enhancing the adoption of knowledge management activities in organizations. Therefore the use of ICTs in organization institutions, libraries and information services enhance realization of knowledge management.

Today, information and communication technology (ICT) plays a key role in the successful knowledge management practices. Daneshgar and Parirokh (2012) observed that advancement in ICT and its application in university libraries has facilitated and changed the operation and services of libraries. In support of this assertion, Mavodza and Nguebe (2011) recommended the use of information technology (IT) based identification mechanism with techniques for the adoption of knowledge management practices in libraries. They stressed that ICT facilities are often used to facilitate knowledge generation, organization, dissemination, sharing and preservation in providing effective and efficient library services. From this citation, knowledge management should be a success story in libraries and other organizations.

the conceptual meaning of knowledge in different perspectives. The paper also explained the types of library services available in academic libraries. Knowledge management stages was also discussed and the application of ICT in KM for effective services delivery was equally reviewed. The article conclude Information and communication technology (ICT) played a vital role in the managing knowledge in academic libraries through th use of facilities and tools such as computer systems, software, internet network among others. Academic libraries need to invest heavily in information technology literacy for both staff and library users.

One of the bases of knowledge management practice is knowledge acquisition practices. According to Uriarte (2008), knowledge acquisition involve acquiring different types of knowledge in an organization through various sources such as documents, training, mentoring, conferences, interactions, experts and the use of information and communication technology facilities among others.

In a study by Jain (2009) on knowledge management in academic libraries in East and South Africa, she was of the view that adoption of knowledge management should be a mandatory discipline for all types of the library if they are to remain relevant and survive the digital era of information and communication technology (ICT). She further stressed that KM was no longer an optional luxury of the 21st-century librarian. On his part, Kumar (2010) that the growing need for the adoption of knowledge management has changed the operations of libraries and their services. He added that the adoption of KM in libraries was a major part of libraries' knowledge strategies in providing effective service delivery.

Academic Library Services

In Nigeria, libraries are the most efficient vehicle for information services which can't be overemphasized as regards to overall national development in Nigeria. Study by Shah, (2012) described development as the process of transformation of a country's social, political, economic, educational, and cultural value towards improvement in general well-being of its peoples (citizens), high productivity, as well as better quality of life for present and future generations. Study by Ebiwolate (2017) observed that, effective library and information services in Nigeria can ensure high productivity and improve quality and better human living standard. This is because the library can handle virtually all the activities that can enhance the development of the people including:- preservation of cultural heritage, knowledge and histories of the past and tourist centre, promotion, collaboration and scholarship thereby sustaining readership, research, and publishing output, promotion, creation and publishing of digital content through electronic databases, digital commons, repositories, which can enhances sustainability of education, science, public health and environmental issues in any

nation. And enhancing access to information and sharing of ideas, content through online system like digital library, online public catalogue, portals etc.

However, libraries are key determinants for national developmental activities since it engages training citizens in various capacities to enable them become critical thinkers, problem solvers, lifelong learner and independent information seekers. Ahmed and Umar (2020) identified some of major and vital library services that improves productivity for better service delivery in Nigerian libraries as follows:

- Reference and information services (RIS)
- Circulation services (CS)
- Current awareness services (CAS)
- Selection dissemination of information (SDI)
- Indexing and abstracting services
- Inter-library loan services
- Users education
- Internet services
- Social media services

These services played a vital role in achieving successful knowledge management practices in libraries. The services not only provide the quality of services but equally developed individual capacity building leading to high productivity in job performance. The relevance of librarians in national development depends on the ability to provide effective services and being productive.

Knowledge Management Practices in Libraries

Knowledge management practices involves some basic stages such as knowledge generation/construction, acquisition, organisation, sharing, packaging, audit, and mapping.

Knowledge Generation/creation: This is the first stage in knowledge management processes that concern with the origination of useful ideas, skills and techniques. Osogwa (2012) described this stage as a vital process in knowledge management that focus on development of new skills, products, better ideas and more efficient processes. In academic libraries and other bibliographic agencies generate new knowledge , more often than not, results in innovation and improvement. Knowledge generation leads to the improvement in functions and development of quality service delivery to users in academic libraries. Academic libraries generate knowledge through understanding users' needs and requirements, as well as understanding the institution curricula (Maponya, 2004). Librarians in academic libraries participate in knowledge creation or generation process through involvement in research , teaching , survey and publishing among others.

Knowledge Acquisition: Knowledge acquisition in libraries is another important aspect of knowledge management processes. It involves the identification and procurement of knowledge from human gatekeepers. knowledge capturing or acquisition includes writing

and recording knowledge while to refine it has to do with verifying, correcting, augmenting clarifying and generalizing knowledge (Ofori Duamfuo & Kommy, 2013). Other sources through which academic libraries acquire knowledge were identified by Shanhung (2000) as follows: establishing knowledge links or networking with other librarians or sisters institutions, attending training programmes, seminars, conference and workshops, subscribing virtual communities of practices and uying knowledge products or resources in the form of manuals, blueprints, conference reports and research outcome.

Acquisition of information/knowledge processes in libraries improves library services and productivity. This is because acquisition is done using acquisition policy which is a guideline rules on how information resources are acquired. This policy guide the librarians and the acquisition team to avoid duplications, save time, improve quality assurance and maintain standards.

Knowledge Organisation: Knowledge organisation or classification is an aspect of knowledge management processes that facilitates the systematic arrangement of recorded knowledge or experience for easy access, retrieval, reference and application. Knowledge organisation is not new in librarianship and it has become more institutionalized in libraries and information centres. It value have become more pronounced among the following: organisation and retrieval of knowledge, facilitates search and knowledge retrieval in databases, facilitates the sharing of common language of classifying knowledge, ave or minimize the problem of access within specified time and making knowledge more manageable and accessible

Organisation of knowledge is a technical activity performed in the library to improve accessibility of the available resources. Quality in service and high productivity is achieved when information/knowledge are systematically organize. Organisation stage involves cataloguing and classification of knowledge using Anglo American Cataloguing rules (AACR) and Library of Congress classification scheme. The technical work improve service and improve professional competence of librarians.

Knowledge Sharing: Knowledge sharing is the transfer or dissemination of knowledge from one place to another or form one person to another. Knowledge sharing has to do with the process of transferring the dispersed know-how of the organisational members more effectively (Akparobore, 2015). The knowledge acquired by individual in an organisation needs to be shared bearing in mind that such sharing makes other members of the organisation benefits in terms of positive learning outcome and more interaction. Knowledge sharing in academic libraries take place at formal and informal levels. The nature and practice of knowledge sharing in academic library should be based on the capability to identify and integrate external knowledge in respect of library practices, users and operational capabilities (Nnadozie, 2015). Knowledge can be share through the following: mentorship, on-the Job training (In-house routines and mobility of labour, formal training (additional qualifications), conference, seminars, workshops and meetings among others

Knowledge sharing encourage collaboration among librarian which in turn improves their competence in providing services to users. Dissemination of knowledge is effective when the

available knowledge is properly shared. This also lead to effective service delivery and efficient in productivity. .

Knowledge Packaging: Knowledge packaging exist i stages and the dimension for packaging knowledge differs between and among libraries. Knowledge packaging start with the gathering of bits and pieces of intelligence which is accumulated in the process to linked into tacit or implicit knowledge because it is un-codified and much later transformed into more codified (explicit) knowledge through developing process, generating documents, making drawings databases, websites and publication among others (Nnadozie, Emerole, Igwe and Nnadozie, 2015).

In academic libraries, knowledge whether tacit or explicit can be package in different formats to facilitates communication and use. Knowledge packing in academic libraries include bibliographies, indexes, books, catalogues, brochures, bulletins, diaries, blogs, databases, journals, annotations, pamphlets, posters, among others (Mutula and Mooko, 2008).

Knowledge Mapping: Knowledge mapping is commonly found in automated information system where the routine chores have been considerably computerized. . According to Nnadozie, Emerole, Igwe and Nnadozie (2015, knowledge mapping is the one of those highly technical processes and routines in knowledge management practices. .Knowledge mapping contributes a lot to the knowledge management in libraries especially in an automated library system. Alegbeleye (2010) observed that a good knowledge map gives access to resources that would otherwise be difficult or impossible to locate, It helps to identify knowledge networks and communities of practice. Other benefits of knowledge mapping by Mutula and Mooko(2008) include the following: it helps to understand how knowledge is built, maintained and sued, knowledge mapping helps in understanding the flows and what blocks or enable the flow of information, its encourages the re-use and prevents the re-invention of information and knowledge mapping helps in identifying knowledge sources, expertise and ways generating bridges to increase knowledge sharing

Knowledge Auditing: Knowledge audit is the system of examining both tacit and explicit knowledge and knowledge audit gives a clear indication of how well organisational knowledge is being exploited in business activities and in alignment with the goals and mission of the organisation. Knowledge audit is an aspect of knowledge management that provides answers to such technical questions as what knowledge exists, how it is created/generated, who owns such knowledge and where it is.

Knowledge audit enables libraries to design strategies for implementing knowledge management initiatives, processes and projects. The development of these initiatives according to Mutula and Mooka, (2008); Nnadozie, (2015) are based on the following: an assessment and prioritization of the requirements of the intended users, the expectations and objectives of stakeholders, a clearly defined statement of the value and potential benefits for investing in knowledge management, an assessment of the resources and services currently provided and the identification of gaps between resources/services available

Uses of ICT to Enhance Knowledge Management Practices in Libraries

Information and communication technologies (ICT's) remain important elements that are required to promote social capital in the creation of new knowledge. The emergence of repository today enables mass organization and storage of knowledge due to advance in technology (Chua, 2004). Chua further stressed that ICT infrastructure is tangible, and it acts as enabler in enhancing the adoption of knowledge management activities in organizations. Therefore the use of ICTs in organization institutions, libraries and information services enhance realization of knowledge management.

Today, information and communication technology (ICT) plays a key role in the successful knowledge management practices in libraries. Daneshgar and Parirokh (2012) observed that advancement in ICT and its application in university libraries has facilitated and changed the operation and services in libraries. Mavodza and Nguebe (2011) recommended the use of information technology (IT) based identification mechanism with techniques for knowledge management practices in libraries. They stressed that ICT facilities are often used to facilitate knowledge generation, organization, dissemination, sharing and preservation in providing effective and efficient library service delivery.

The application of ICT is found to be a very vital tool that facilitates the creation of knowledge that transforms innovation in any organization. Lamporoulis (2007) is of the view that IT enhances the efforts of the employees to create knowledge that leads to innovation. ICT made staff to see technology in a positive way which can benefit them when productizing knowledge in their daily routines. The scholar concluded that employees consider ICT relevant when facilitating knowledge processes. Charles and Katherine (2002) on information technology for knowledge management: their usage and effectiveness revealed that information technologies were essential consideration for knowledge management practices in business organizations highlighted some of its strengths specifically in knowledge management processes which includes accuracy, time saving, efficiency, save space, large storage capacity and quality service delivery. The study also established that technologies such as telephone are used to manage knowledge frequently compare to other technologies like groupware and video conference. They suggested for adequate training and education for organizational staff. However, this study argues that the above study failed to establish how often ICT facilities were used which was one of the interested parts in this study.

Impacts of ICT Application in Knowledge Management Practices

Subashini, Rita and Vivek (2012) study on the role of ICTs in knowledge management for organizational effectiveness asserted that Information and Communication Technologies (ICT's) which consist of enormous diversity of heterogeneous technologies were used to facilitate the organizational knowledge. Majchrzaket. al. (2013) confirmed that these technologies (ICT) facilitate KM and equally involve more people to collaborate in knowledge creation when identifying knowledge. Information and communication technology (ICT)

facilitate KM processes (knowledge acquisition, organization, sharing, application, and re-using). It also facilitates knowledge mapping, knowledge repackaging among others.

Gandhi (2004) identified information technology (IT) as a powerful enabler that provides effective tools for the practices of knowledge management including acquiring, sharing, organizing and applying knowledge. Roknuzzaman and Umemoto (2009) corroborated that the new technology can transform the library world today and support knowledge sharing by facilitating people to locate and communicated with each other which is information and communication technology (ICT). Thus, the ICT facilities are a reliable enabler for the adoption of knowledge management activities in organizations. The use of ICT gadgets such as flash drive, CD Rom, hand-set (mobile phones), laptops, palmtops, signifies that people can store and equally share vast amount of information and documented knowledge.

Subashini, Rita and Vivek (2012) study on the significant role of ICTs in knowledge management initiatives that lead to organizational effectiveness established that ICTs play a significant role in knowledge management practices that pave the way for achieving organizational effectiveness. Sajjad (2005) on integration of knowledge transfer and knowledge storage: a holistic approach shows that Web based technology is a powerful method that members in an organization used to communicate in order to transfer knowledge from different areas. The finding also revealed that the same technology is used to store knowledge from various locations. In the light of the above this studies, it becomes clear that the current ICT platform can be applied to good use in enabling successful adoption of knowledge management in academic libraries and other organizations.

Knowledge sharing is facilitated through information and communication technologies (ICT) such as computers, e-mails, databases telephones, search engines, data-mining systems, video-conferencing equipment among others (Nnadi, 2012). This is an encouraging situation because ICT helps employees make the effective use of organizational resources by strengthening their actions. The importance of knowledge management is more when made available to the right beneficiaries at the right time. From the study above, application of ICT is very important in knowledge management practices. In light of the above, this study sought to investigate the extent to which ICT facilities were applied to enhance the adoption of KM practices in university libraries.

The application of ICT is found to be a very vital tool that facilitates the creation of knowledge that transforms innovation in any organization. Lamporoulis (2007) is of the view that IT enhances the efforts of the employees to create knowledge that leads to innovation. The study equally showed that the relevance of ICT made staff to see technology in a positive way which can benefit them when productizing knowledge in their daily routines. The scholar concluded that employees consider ICT relevant when facilitating knowledge processes. These findings show the value of ICT in supporting KM practices.

Charles and Katherine (2002) on information technology for knowledge management: their usage and effectiveness revealed that information technologies were essential consideration for knowledge management practices in business organizations highlighted some of its

strengths specifically for the adoption of knowledge management which includes accuracy, time saving, efficiency, save space and large storage capacity. The study also established that technologies such as telephone are used to manage knowledge frequently compare to other technologies like groupware and video conference. They suggested for adequate training and education for organizational staff. However, this study argues that the above study failed to establish how often ICT facilities were used which was one of the interested parts in this study. It is in view of the above that this research study sought to shed more light on how often ICTs facilities are used in performing duties at the university libraries.

Despite the positive role played by information and communication technology (ICT) in the adoption of knowledge management practices, other authors are of the view that ICT has no impacts in knowledge management practices. Holsapple (2005) study on inseparability of modern knowledge management and computer-based technology argued that knowledge management is all about human relationships, processes, interpretation and culture. He stressed that knowledge management had nothing or little to do with ICT. He based his argument on the facts that ICT is only concerned with information data. Similarly, Newell (2003) in his study reported that ICT is not recognized in the area of knowledge generation, storage and application. This is contrary to other scholars' views (Nnadi, 2012; Charles and Katherine, 2002: Lamporoulis, 2007), who acknowledged that ICT enhances the activities involved in the adoption of successful knowledge management practices.

In a study by Karoline (2014) on information and communication technology (ICT) and knowledge management at World Agro-forestry center (ICRAF) in Kenya, the study revealed that ICT had a positive influence on the adoption of KM practices in any well integrated organizational system. The study revealed some challenges militating against KM such as insufficient training for staff, ineffective use of IT facilities, a lack of awareness, poor organization structure, inadequate organization learning and poor incentive for staff compensation among others. The current study established the extent of using Information and communication technology (ICT) in enhancing library activities.

Ujunju and Wanyembi (2012) on the role of ICT support towards knowledge management process in institutions of higher learning showed that the use of ICT in the adoption of knowledge management is embraced which enhance knowledge management practices. Furthermore, ICT was positively accepted by staff in performing their duties

Study by Gichuhi (2014) in Kenya on determinants of effective knowledge management practices in selected university libraries in Kenya established libraries had adequate computers which were networked and different ICT tools were available for online conversation. The study conclude that the university libraries were well endowed in as far as ICT infrastructure was concerned. With such a good ICT infrastructure the identification, capture, acquisition, storage and dissemination of both tacit and explicit knowledge could be enhanced and appropriately utilized. Coupled with an appropriate budget, an implementation plan and adequate job training in appropriate knowledge management systems, the libraries could easily incorporate KM practices as part and parcel of their normal day to day operations for service delivery.

Study by Odongo (2013) on comparing knowledge management practice in the rural agricultural setting in Kenya revealed that face to face interactions was used more than using telephone or radio to transfer or shared knowledge. The study identified information needs and infrastructure as vital elements in enhancing the use of ICT for KM practices for small-

scale farmers. This therefore means that both employees and employers confirmed the positive impacts of ICT in their job performance. Although the above studies failed to show how ICT positively affect the customers, users and their immediate community. This research adds that the use of ICT facilities like the internet enables communities and individuals from rural and urban area to freely access information and knowledge. This was possible today due to the fundamental human right and freedom of information/access globally.

Choy (2005) study on addressing critical success factors for knowledge management implementation identified information technology (IT) as one factor and observed that scholars and researchers have supported the notion that effective and efficient implementation of KM is unthinkable without information systems infrastructure which provides an edge in harvesting knowledge. In the same vein, Debowski (2006) advocates that efficient and effective communication is key to encouraging and enabling knowledge sharing across the knowledge society whether electronic based, personal or written communication. The preceding paragraph indicates that various organizations have knowledge on the importance of ICT in the adoption of knowledge management practices. Perception on the use of ICT by organizations in this 21st century cannot be overemphasized as stated by Debowski (2006). Today, libraries are part of the beneficiary of ICT facilities application in information services delivery.

According to Kolawale (2015), the benefits of institutional repository in organizations and libraries were as a result of information and communication technology (ICT) advancement. He further stressed that researchers found it easy to carry out studies with the use of ICT facilities and their findings can easily be shared globally. According to this study, it is an encouraging situation; as such, there is the need to also establish the relevance of ICT facilities in enhancing the adoption of knowledge management (KM) practices in university libraries.

Conclusion

Information and communication technology (ICT) played a vital role in the managing knowledge in academic libraries. Knowledge generation is facilitated using computer systems and soft which requires internet to access and subscribe. Knowledge organization in academic library can be achieve through automation which is an IT based facilities. Knowledge sharing is equally enhance using facilities like skype, teleconferencing, emails, telephone calls and messages among others. Today, knowledge can be preserved and repackage using computer systems to stored large amount of information and knowledge and also preserve for future uses. Knowledge can be package and repackage using soft ware application. This will facilitate knowledge management processes in libraries and improve the service delivery. Academic libraries need to invest heavily in information technology literacy for both staff and library users. Lack of ICT application might pose a challenge in the adoption of knowledge management practices and it will affect library services.

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