INFORMATION COMMUNICATIONS TECHNOLOGIES AND ACADEMIC LIBRARIES IN THE KNOWLEDGE ECONOMY

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ABSTRACT

Using a case study of a library in Zimbabwe, the purpose of the research was to establish how Information Communication Technologies (ICTs) were being used to enhance Knowledge Management practices at the library. This included establishing the perceptions of the library staff concerning KM and knowledge sharing practices prevalent at the library. The ICT infrastructure in place was assessed in terms of adequacy, information literacy skills and provision of information and internet services to users. The research revealed that KM was a concept not well understood at the library. Participants are open to the idea of sharing knowledge but cited lack of trust concerning other people's knowledge, lack of motivation to support knowledge sharing initiatives and lack of proper organizational guidelines on sharing as challenges affecting knowledge sharing initiatives. The ICT infrastructure was deemed not adequate and problems to do with bandwidth were cited. It is recommended that KM workshops and seminars be conducted to enlighten members on the idea, an incentive system should be put in place to motivate members to share knowledge and a separate bandwidth be dedicated specifically for the library.

KEYWORDS: Academic Libraries, Icts, Knowledge Management, Knowledge Sharing, Zimbabwe

1. INTRODUCTION

The knowledge economy is founded on the production, distribution and application of knowledge to human production and economic activities (Vaile 2000 cited in Paterson 2002). Knowledge defined as "the management of creating, sustaining, applying and renewing knowledge resources of an organization including its relationship with seeker and service provider" has become a key resource within organizations (Rajurkar 2011:6; Kude et al. 2012:226). With the emergence of the knowledge-based economy where knowledge, competence and related intangibles are the key drivers of competitive advantage in achieving

611

goals, many changes are being witnessed in the delivery of higher education as well as on the demands placed on Higher Education Institutions (HEIs) so that they become storehouses of innovation where wellsprings of talents are nourished and sustained (Seleim et al. 2004).

The role of HEIs within the context of knowledge based economies and globalization is to give individuals the ability to transform information into socially beneficial knowledge, skills and values; modernize societies and improve the standards of living and prepare a skilled workforce (Shaikh & Khoja 2011; Shaikh 2009). Within these HEIs are academic libraries which are information centres established in support of the mission of their parent institutions to generate knowledge and people equipped with knowledge in order to serve the society and advance the well beings of mankind (Rajurkar 2011).

Information Communication Technologies (ICTs) are considered a basic requirement of the knowledge society for which universities now prepare their students (Paterson 2002; Czerniewicz & Brown 2009). Technology or ICT is seen as an indispensable tool to fully participate in the knowledge society (Sarkar 2012). The rapid growth of ICTs have changed the way academic libraries operate and academic libraries should offer user friendly ICT oriented facilities, analyze the changing user needs and give support to users in the new academic environments (Maponya 2004).

Using a case study of a library in Zimbabwe, the purpose of the research was to establish how ICTs were being used to enhance KM practices at the library. This included establishing the perceptions of the library staff concerning KM and knowledge sharing practices prevalent at the library. The ICT infrastructure in place was assessed in terms of adequacy, information literacy skills and provision of information and internet services to users.

1.   Literature Review

1.1   Role of the Universities in the Knowledge Economy

Universities are made part of society through teaching, research and community service therefore the knowledge they create should be relevant to the labour market. Research produces knowledge to conceptualise and develop frameworks in which development happens whilst teaching prepares skilled manpower that can link and implement development goals through appropriate activities (Ng'ambi 2006).

The focus of universities is on making individual knowledge reusable for the achievement of the missions of the university and in order to achieve the institutional mission, the universities need to be consciously and explicitly managing the processes associated with the

creation of knowledge (Maponya 2004). Alzoubi and Alanajjar 2010 cited in Ekpoh (2011) insist that if educational organizations are to succeed in today's competitive market place, there is need to place emphasis on the quality of knowledge learnt, built, modified, improved and applied plus the management of this knowledge.

Knowledge management must be established in the education sector as society moves from the industrial to the knowledge age to improve teaching and learning and to provide a strong knowledge base for research based practices and strategies (Ramachandran et al. 2009). Knowledge management is a process which deals with knowledge creation, acquisition, packaging and application or reuse of knowledge (Kude et al. 2012). It consists of four steps namely (a) knowledge collection, (b) organization, (c) data protection and presentation and (d) dissemination of knowledge information. It is seen as a task which promotes an integrated approach to identifying, capturing, retrieving, sharing and evaluating and enterprise's information assets.

1.2   Role of Academic Libraries and Librarians in the Knowledge Economy

The conventional function of academic libraries is to collect, process, disseminate, store and utilize information to provide service to the user community but the environment in which libraries are operating has changed greatly (Kude et al. 2012). The academic environment has been affected by the great pool of information and knowledge available through the wires connecting them to the cloudy network (Mottaghi-Far 2012).

Academic libraries are the treasure house of knowledge which cater to the needs of scholars, scientists, students and others who are in the mainstream of higher education (Mottaghi-Far 2012). A library is a dynamic system or organism in which the process of information and knowledge acquisition, collection and leverage is dynamic implying that in the libraries knowledge should not only be gathered, stored and disseminated but also new knowledge should be created (Daneshgar & Parirokh 2007). Libraries are now expected to build and maintain knowledge gateways (Ravi 2008) and in the process pull together a range of information resources and sources that address the research needs of their user communities (Mavodza & Ngulube 2011).

The success of academic libraries depends on their ability to utilise information and knowledge of its staff to better serve the needs of the academic community (Maponya 2004; Rajurkar 2011). The emerging field of knowledge management offers academic libraries the opportunity to create knowledge to improve organizational effectiveness for both themselves and their institutions (Townley 2001). In libraries KM aims to provide good quality

613

information services each tailored to each user's needs in order to improve knowledge communication, application and generation (Madge n.d.). The basic goal of KM within libraries is to leverage the available knowledge that may help academic libraries to carry out their tasks more efficiently and effectively (Maponya 2004; Kude et al. 2012).

The idea behind KM is to create a knowledge sharing environment whereby sharing knowledge is power as opposed to the old adage that simply says knowledge is power (Rajurkar 2011). Knowledge is needed about how the library operates, library users and their needs, library collection available and knowledge about library facilities and technologies available (Kude et al. 2012). This not only fulfils information needs but also increases the knowledge of the university members about information, knowledge and the library and their importance for their professional success (Mottaghi-Far 2012).

Librarians can be a good support for teaching, learning and research (Mottaghi-Far 2012). They need to understand the information and knowledge needs of users and be in a position to map internal and external knowledge that would assist them in increasing their efficiency (Maponya 2004). It therefore becomes imperative for academic libraries to encourage librarians to constantly update their skills and competencies in the changing environment so that they can cope intelligently and objectively with the effective and efficient KM in academic libraries (Rajurkar 2011). Librarians need to reappraise their functions, expand their roles and responsibilities to effectively contribute and meet the needs of a large and diverse university community (Maponya 2004).

Librarians should have skills that are vital in KM and there is need for them to widen their skills set in order to understand the changing information environment (Mavodza & Ngulube 2011). They should train themselves and their staff to develop the appropriate KM systems and use ITs to equip libraries to provide better, faster and pinpointed services to its clients or users (Raja et al. 2009). As knowledge managers librarians need to play active roles in searching for innovative solutions to the issues involved in adapting to the new environment.

1.3   Use of ICTs in the Academic Libraries to enhance Knowledge Management

ICTs are speeding up the global flow of information and facilitating the creation of libraries of world knowledges that represent different ways of seeing and knowing the world (Hooker 2010). The internet is an indispensable tool for teaching, learning and research in the present globalised world (Echezona & Ugwuanyi 2010). It is the main medium for the knowledge economy (Oye et al. 2011). Thus there is need to pay attention to the way Information

Technology has revolutionized the educational sector through ICT principally the internet (Olawale 2012).

IT can support KM by providing the means to organize, store, retrieve, disseminate and share explicit knowledge and information rapidly around the organization and the world and by connecting people with people through collaborative tools to capture and share tacit knowledge (Jain 2007). For the purpose of this research, the researcher will adopt the definition by Raja et al (2009) who defined the use of IT in KM as the process of capturing value, knowledge and understanding of corporate information using IT systems in order to maintain, re-use and re-deploy that knowledge.

2. Methodology

The main paradigm used for this research was the mixed methods approach. Johnson & Onwuegbuzie(2004) define it as 'a class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study'. According to Burke Johnson et al. (2007) it is a type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches for the broad purposes of breadth and depth of understanding and corroboration.

An inductive approach was used but deductive and abductive approaches were used to validate findings. The inductive approach is concerned with the contexts in which events are taking place (Saunders et al. 2012). Using the inductive approach the researchers asked the staff members within the library their ideas and definitions of KM and established their perceptions concerning knowledge sharing. The deductive approach was used to deduce relationships between variables in the research such as: (1) the ICT infrastructure versus KM (2) user perceptions versus knowledge sharing. The abductive approach was used to determine technological and information literacy gaps amongst users within and outside the library and determine what needed to be done to reduce these gaps.

The research was done using a case study. The case study referred to as the "**library**" consists of a network of individual libraries and electronic resource centres. Through this network, the library is able to provide resources that fully support the teaching, learning and research needs of its community taking a discipline based approach. It has one library at the main campus and two other libraries at other university campuses to serve the student

615

community. Within the main library there are five departments namely the Client Services, Research Services, Systems Services, Special Collections Services and Acquisition Services.

To collect data, closed-ended and open-ended questionnaires and both semi-structured and in-depth interviews were used. Stratified purposive sampling was used to select the number of research participants. It is advantageous because it allows the researchers to discover and describe in detail characteristics that are similar or different across the strata/subgroups (Teddlie & Yu 2007). Interviews were conducted with the members in charge of the Systems Services department, the Research Services department and a member from the Deputy Librarian's office.

2. Results and Discussion

2.1   Questionnaire responses

10 open ended and 10 close ended questionnaires were distributed to each head librarian in charge of the campus libraries, the deputy librarian and sub-librarians in charge of the departments within the library. Of these 7 close ended questionnaires were returned giving a 70% return rate. All open ended questionnaires were returned giving a 100% return rate.

2.2   Perceptions on Knowledge Management

The first step was to establish the perceptions of members within the library on KM. When asked whether they could clearly articulate the concept of KM, 42% of the respondents agreed that it was difficult to explain what the concept entailed, 29% were neutral whilst the other 29% said they understood the concept. Findings confirm the results of the study by Nazim & Mukherjee (2011) who concluded that the misunderstanding of KM concepts was a major challenge faced by library professionals when incorporating KM into library practices. Mavodza's 2011 study also concluded that KM concepts were not universally understood at the library.

The environment in which libraries are operating in has changed greatly. 83% of the respondents cited that they were not satisfied with the knowledge that was available in their departments for use and knowledge stored in the library databases could not be applied without any modifications since the library operated in a fast paced dynamic environment. This is why they constantly sought new knowledge not directly available in the library's databases or on shared computer drives to carry out their tasks. 17% said they had sufficient knowledge to enable them to do their tasks though they did seek out new knowledge when

616

need arose to carry out their tasks. Seeking out new knowledge is necessary because the changes that are occurring in technology, in research, teaching and learning have created a very different context for the missions of the academic and research libraries. Opportunities arise for libraries and librarians that can respond to change in proactive and visionary ways.

2.3 Perceptions on Knowledge Sharing

Knowledge sharing is the corner stone of many organizations' KM strategy (Riege 2005). When asked on whether they thought members in their department(s) were open to the idea of sharing knowledge amongst themselves or with others in different departments, 67% of the respondents cited that members supported knowledge sharing and creation initiatives, 17% were neutral and one participant did not respond to the question. On whether members were willing to collaborate across organizational units, 83% said they were willing to collaborate across organizational units to enhance their performance and were satisfied with collaboration to accomplish tasks. However one participant did not respond to the question.

Concerning their perceptions on the environment for sharing of knowledge within the library departments, 83% cited it facilitated knowledge creation, knowledge storage and knowledge retrieval. All respondents agreed that through the sharing of knowledge, they were able to accomplish their tasks quickly and it helped improve their job performance. A study by Jain (2007) concluded that KM was adopted in the libraries because it helped improve library services and productivity. Libraries were able to manage information effectively and efficiently as they could make informed decisions and avoided duplication of efforts.

2.3.1 Challenges to Knowledge Sharing

Challenges to knowledge sharing identified were grouped into either personal or organizational factors. 83% of the respondents agreed that they (including colleagues) did not seem to perceive that there was an urgent need to share information. This they attributed to the fact that their tasks did not require cross department information sharing. Also the lack of motivation to support knowledge sharing activities was attributed to the fact that there is no recognition of members for supporting the initiatives. Respondents felt that there was need to have a reward system for contributing to a library or collection of reusable knowledge resources. 17% disagreed with this notion.

83% of the respondents cited lack of trust concerning other people's knowledge as a challenge and 17% said trust was not an issue. On organizational factors, 83% of the respondents cited that there were no proper organizational guidelines on sharing and there

were a number of bureaucratic procedures involved in the sharing of knowledge and this tended to complicate things. 17% of the respondents disagreed with this notion.

Barriers identified are similar to those cited by Riege(2005) who identified barriers such as low awareness and realisation of the value and benefit of possessed knowledge to others and lack of trust in people because they may misuse knowledge or take unjust credit for it among others as factors that prohibit knowledge sharing. Vajjhala & Hassan(2013) also concluded in their study that if employees feel that they are not recognised for actively participating in knowledge sharing, they tend to react negatively to any knowledge sharing initiatives implemented in an organization. In the same study they also identified lack of monetary incentives and benefits as an inhibiting factor for participating in knowledge sharing. Wen (n.d.) concluded that staff members may not want to share their knowledge for fear that once the knowledge is shared they might not longer be valued. He advocated the use of an incentive or reward system to encourage staff to contribute their knowledge.

2.4   ICT infrastructure in place

The library has 14 Electronic Resource Centres with a sitting capacity of 1720. To compliment the Electronic Resource Centres, the university has a wireless network installed to cater for users on laptops or any mobile gadgets anywhere around the campus. Wireless access to the university's online resources is widely available across the campus including most academic and administrative buildings, hostels and any area surrounding the wireless access range. The ICT infrastructure is deemed not adequate in terms of providing library services to the large student population (which is in excess of 12 000 students).

2.4.1   ICT related problems

ICT related problems cited included the lack of power connection points within the electronic resource centres for students to plug in their laptops, unavailability of internet connection and difficulties with logins due to internet connectivity problems. Findings are similar to those presented by Nazim & Mukherjee (2011) who cited lack of a proper and well connected IT infrastructure as a major challenge faced by library professionals to incorporate KM into library practices. Kude et al (2012) goes on to say that if libraries want to successfully implement KM there is need to ensure that the library is equipped with new technologies with a network facility that is easily accessible and available.

When asked on technological gaps that needed to be addressed for the library to fulfil its vision and mission, respondents cited that there was need for the library to have its own dedicated server for the library management server and a dedicated bandwidth for allowing

clients to quickly access electronic resources. A study by Haliso (2011) discovered that the libraries did not have a separate bandwidth connection to provide internet services to their clientele. He concluded that owning a dedicated bandwidth would enhance effective job performance of the academic librarians giving them the liberty to use it any time they wanted. It would also enable them to get direct access to other databases where document delivery would be made easier.

Some users wishing to access e-resources from the library lack adequate information literacy skills as they were constantly making enquiries from the library with help on searching information. This is besides the fact that the library has introduced an Information Literacy Skills (ILS) training programme for both staff and students. ILS is being taught as a compulsory module to all level 1.1 students.

Information literacy has become an important element in education (Shyh-mee & Singh 2008). A study by Ranaweera (2008) cited lack of information literacy skills as a challenge for users and advocated that there was need to commence on information literacy projects.

2.4.2 Presence of ICT budget

Asked whether the library had an ICT budget to cater for its ICT related needs, the respondents cited that the library did not have such a budget. The budget for the library is done within the overall budget of the university. The library is allocated a percentage of the university's recurrent budget as determined by the budget committee. Also every student pays a library levy as determined by the Fees Revision Committee. In cases where the library needs to buy ICT related items their requests go to the Information Technology Services (ITS) department or the Information Communication Technology (ICT) Purchasing Committee.

Kude et al (2012) in his study concluded that for better implementation of KM in the libraries, there is need for a sufficient budget specifically dedicated for library functions and a special fund needs to be established to purchase new technologies. A problem prevalent in most libraries is the lack of funds. Haliso (2011) identified the lack of adequate funds as a cause for the poor use of ICTs by academic libraries. Ghuloum & Ahmed in their 2011 study found out that the budget allocated to the libraries were very low and did not meet the ICT requirements and concluded that there was need to increase the budget.

2.5 Provision of services to library users

Users should be informed about the available information and information services. When asked on how staff members and students are informed of new resources and developments

619

within the library, respondents indicated that they used leaflets, posters, targeted e-mails and memos and presented reports in committee meetings such as the Library Committee. The library also has a website informing users about the services it offers such as e-resources, journals and past examination papers. Through the e-learning portals (for students) and staff portals users can interact with the library.

To aid in the access of e-resources the library has compiled a Basic E-Resources User Guide that is intended to guide students and staff on the use of all Library electronic resources. The user guides are tied to all the computers in the electronic resources centres. Such an initiative is commendable as academic libraries have to provide information services for users acting in an academic environment (Bentum & Braaksma 1999). Librarians should be able to select and organize resources and instruct patrons on how to locate and use the resources (Thamaraiselvi 2009).

3. Conclusion

KM is a concept not well understood at the library. Respondents could not clearly explain what it entailed. There is need to educate members within the library on what KM entails including detailing the benefits that it would offer to members. Workshops and seminars can be organised to address this area. Members are open to the idea of sharing knowledge and are willing to collaborate as they believe it will enhance their job performance. However there are some personal and organizational factors which make them sceptical and less receptive to the idea. The most common reasons being lack of trust and lack of an incentive or reward system to show appreciation if they share knowledge. Though the library is operating in a harsh economic environment were the country is faced with liquidity problems, it should try to put in place an incentive or reward system (without necessarily having a monetary benefit) to motivate members within and outside the university library to share knowledge.

Lack of proper ILS was cited as a challenge. Though the library does provide orientation to staff and students on how they can access e-resources, there is need to conduct refresher courses so that their ILS are enhanced. Faculties and the library can collaborate on when this can be done. Also the refresher courses can be used to determine ILS gaps among students and members. The use of ICT within the library is well supported. Many initiatives have been taken by the library to take advantage of the benefits brought about by the use of ICTs. Bandwidth management is a challenge at the university as a whole. Any individual can access

620

the bandwidth irregardless of whether they are students or staff members as long as they are within the range. This increases the number of users accessing the bandwidth leading to congestion within the network and ultimately resulting in internet connectivity problems. Having a dedicated bandwidth for the library can ease the pressure as only registered students and bona fide staff members will be able to access the network and one is assured that congestion will be reduced.

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