

Employees' perception of knowledge management in academic libraries in the digital age

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The 21st century is associated with change in the business, education, and information environments due to the digital age paradigm shift. In the digital age, knowledge management has become essential for academic libraries that want to accelerate their performance in this time of change. The research objective was to evaluate academic library employees' perceptions of knowledge management in the digital age. The research was guided by pragmatism through incorporating the mixed methods research approach where qualitative and quantitative methods were applied to ensure that the research questions were addressed. The research strategy was a case study. The study collected empirical data on cases of four campus libraries. This study applied the exploratory method to evaluate employees' perceptions on knowledge management roles, skills, and technologies. Interviews and a survey were used as data collection methods. A purposive sample of the library management team and library employees from a South African higher education institution was carried out. The reliability of the questionnaire was tested that showed a high Cronbach's alpha. The findings produced employees' radar maps and concluded that knowledge management is not something to be neglected in the digital age that is associated with continuous change primarily because it ensures that knowledge is created, shared, retained, and disseminated in the library. Librarians are encouraged to use technologies such as social media, big data, and virtual reality in their day-to-day work to sustain the library's relevance in the digital age.

Keywords: Knowledge management, academic libraries, digital age, paradigm shift

1 Introduction

Abnormal realities brought about by the Covid19 pandemic have elevated libraries' need to change into this "strange new world" (Bosch, Albee & Romaine 2021:24). Thus, the higher education landscape and academic libraries are experiencing a paradigm shift to align with the changing knowledge environment, postmodern ideas, changes in teaching and learning practices, and foundational blockchain technology for interpreting library collections (Sukovic, Litting & England 2011:70; Banks 2013:185; Charlton 2021:27). Librarians are reframing their collective thinking on information literacy to prevent professional obsolescence. Charney (2014:20) argues that the paradigm shift enables librarians to use new technologies to promote sustainability of their roles such as online LibGuides to remotely facilitate information literacy to library clients. Remote facilitation has accelerated during the Covid19 pandemic and has changed libraries' knowledge sharing and exchange (Barlow & Bocko 2020; Morehart 2021).

Library employees must understand knowledge exchange, sharing, creation, dissemination, and other knowledge management (KM) skills and practices (Mavodza & Ngulube 2011a; Mavodza & Ngulube 2011b). Through KM, employees can get a sense of the vision of their organisation through value sharing, collaboration, and value creation. KM plays an important role in managing change. Knowledge is a core resource in the knowledge economy and a prerequisite for global competitiveness (Du Plessis & Mabunda 2016; Mavodza & Ngulube 2012). Therefore, KM enables library managers and employees to share and access knowledge during the paradigm shift. Furthermore, KM enables employees to network and connect with experts, which assist them in overcoming the challenges that they experience (Merat & Bo 2013:4).

This paper presents the research findings of a study that was aimed at evaluating academic library employees' perceptions of KM in the digital age.

2 Problem statement

Bawack (2020) identified employees' lack of understanding or misunderstanding of KM concepts as one of the reasons for delayed KM implementation in academic libraries in developing countries. Knowledge is created when there is a flow of information as well as commitment to share and receive information (Koloniari & Fassoulis 2017:135). Academic libraries,

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therefore, should develop a mechanism for knowledge creation. Academic library employees can transmit and share accumulated experience and knowledge among themselves to come up with insights that will lead to new knowledge essential for supporting change initiation and change decision-making processes (Shohan & Perry 2009:241). Some information is missing concerning academic library employees' perception of KM to guide the research problem. The research problem is that employees' perception on the role of KM in the academic library in the digital age has not yet been evaluated.

The aim of the study was to evaluate the academic libraries' employees' perception on the role of KM in the academic library in the digital age.

3 Research questions

The research questions had three components:

- What are employees' perceptions on the role of KM in the academic library?
- What are employees' perceptions on the skills associated with KM practice?
- What are employees' perceptions on technologies for knowledge creation and sharing in the digital age?

4 Research objectives

- To determine employees' perceptions on the role of KM in the academic library.
- To explore employees' perceptions on the skills associated with KM practice.
- To ascertain employees' perception on technologies for knowledge creation and sharing in the digital age.

The research questions were operationalised by means of conducting literature review for theoretical grounding to evaluate employees' perceptions of KM in academic libraries in the digital age.

5 Literature review

Academic libraries and their parent organisations, Higher Education Institutions (HEIs), are knowledge centred organisations and knowledge repositories since they produce, curate, organise, and share knowledge (Akosile & Olatokun 2019; Enakrire & Onyanha 2020). Knowledge is a key resource in the knowledge economy and digital age for organisational success (Chigada & Ngulube 2016:221). Knowledge as a resource enables organisations to actively act, adapt, and respond to the ever-changing clients' needs and effectively achieve competitive advantage (Zelenkov 2016). Knowledge sharing, communication and collaboration can enable academic libraries to manage change during a paradigm shift so that all the stakeholders buy-in into the new paradigm (Shupe & Pung 2011:409; Raju 2014:163).

5.1 Knowledge management in academic libraries' context

Mavondza and Ngulube (2011:15), and Rao (2016:410), ascertained that KM was mainly practised in corporate and business organisations to improve their operation and production processes and to achieve competitive intelligence and financial gain. However, universities and their libraries have begun incorporating KM in their organisational processes due to the changing information environment (Musangi 2020). According to Chew and Gottschalk (2009:392), the success of the organisation is driven by its ability to identify, collect, analyse and utilise external knowledge for the strategic decision making. Kaivo-oja, Virtanen, Jalonen, Stenvall and Wallin (2016:1) posited that during change planning and implementation for best practice, KM has been used as an important element and prerequisite.

KM is increasingly becoming a prerequisite in the academic library context (Barlow & Bocko 2020). In the recent past the instability in the business environment compelled organisations to constantly review their short- and long-term strategies in order to remain relevant, productive and competitive; and today, organisations still face instability only of a different kind (Bloodgood & Salisbury 2001:55; Barlow & Bocko 2020; Bosch et al, 2021). Change is inevitable and the paradigm shift has positively influenced organisations to recognise and value knowledge as one of the key competitive assets (Solli-Saether, Karlsen & Oorschot 2015:49). Zelenkov (2016:1) argued that organisations use KM to increase their client satisfaction, reduce costs, and increase innovation capacity. If this is the case for organisations, then academic libraries need to define KM in the academic library context.

5.2 Defining knowledge management

KM is about people, processes, culture, structure, and technology (Ebisi & Arua 2018:74). Shah and Mahmood (2013:620) defined KM as a practice, strategy, and process for identifying, creating, storing, and applying the knowledge or lessons learned from the individual experience in a particular organisation. KM in the library context seeks to enhance knowledge processing through creating and retaining value from knowledge (Ebisi & Arua 2018). Chew and Gottschalk (2009:392),

and Rao (2016:405), asserted that KM leverage internal and external knowledge as intangible assets of the organisation to ensure that value is created, and objectives are achieved. New knowledge gathered in the organisation gets integrated with the existing knowledge to generate new insights and create more value. KM is defined as the practice whereby experiences, lessons learned, and challenges that employees within the library have experienced during a certain project is created and stored, so that it can be easily accessible when it is needed for reference and for sharing with other important stakeholders (De Bem, Coelho & Dandolini 2016:223), Knowledge exchange tends to help in future library projects for employees to learn from the mistakes that happened in the past projects (Barlow & Bocko 2020). During library projects, it is important that relevant knowledge is collected and shared to all employees.

5.3 Knowledge sharing

Knowledge sharing requires both extrinsic and intrinsic motivation (Olatokun & Nwafor 2012:218). Knowledge sharing is the social interaction among people through the exchange of skills, experience, and knowledge (Ebisi & Arua 2018). Motivation is needed to promote knowledge sharing culture in organisations, among other; motivation, training, and development of employees are important and should involve incentives, rewards, and performance feedback (Olatokun & Nwafor 2012:218). For example, Akosile and Olatokun (2019:13) recommended that universities should have a knowledge sharing policy that includes rewards allocation to motivate and encourage those who share knowledge.

Knowledge sharing enables employees and groups in the organisation to exploit, capitalise and build knowledge-based resources and expertise databases (Agresti 2000). Moreover, team performance gets enhanced and production cost gets reduced through the application of shared knowledge in a particular change initiative or project (Razmerita, Kirchner & Nielsen 2016). Knowledge sharing enables the library to meet its needs through facilitating the generation of possible solutions (Marouf 2016:102). Razmerita et al (2016:1229) asserted that friendly relationships among employees must be nurtured and organisations should have an organisational culture where knowledge sharing is encouraged and supported.

5.4 Developing knowledge sharing culture

Academic libraries must have an organisational culture characterised by respect and trust in order to motivate employees to share knowledge (Bratianu 2015:263). Without unlocking the intangibles stored in employees' minds, the library's valuable resources are likely to be in jeopardy. According to Pawlowski (2016), and Roseline (2020), libraries that lack knowledge sharing culture generally do not have good performance incentives; instead, they lack training, top management support, guiding policies, change strategies, and technological infrastructure support. Employees need to be motivated to adapt to the desirable behaviour or culture of knowledge sharing (Stenius, Hankonen, Ravaja & Haukkala 2016). Individual knowledge is not relevant to the organisation unless it is shared at the collective level whereby it is recognised by the organisation (Swart, Kinnie, Van Rossenberg & Yalabik 2014:269).

The academic library as a collaborative space for the researchers, should accommodate internal collaboration among employees within the library especially when they have a project. Moreover, knowledge sharing should be seen as a mutual exchange of existing knowledge to jointly create new knowledge. To achieve this, teamwork, interpersonal relationships, and trustworthiness should be encouraged by the employees in the library to foster knowledge sharing (Solli-Saether, Karlsen & Oorschot 2015:50; Zhang & Cheng 2015:112).

5.5 Knowledge repository and retention

KM ensures that knowledge retention strategies are in place to mitigate risk of knowledge assets loss (Chigada & Ngulube, 2016:222). It is important that new knowledge that is created is stored in the organisational memory in order to be accessible and easily retrievable when needed. The library needs to have database management systems as a library corporate memory to store explicit knowledge such as documents and experts' contact details (Ebisi & Arua 2018; Agresti 2000). Since knowledge application is the source for competitive advantage, during strategic decision making, the knowledge stored in the databases is then retrieved in order to be used and applied in the decision making by the top management (Chew & Gottschalk 2009:420). Organisational knowledge can only be applied and used effectively and efficiently when it is easily understandable, accessible, and retrievable (Botha, Kourie & Snyman 2008:55).

Library employees should continuously seek new knowledge and insights from both its colleagues and organisational memory to improve the products and services that the library is offering (Barlow & Bocko 2020; Bawack 2020). Knowledge stored in the library intranet and repository should be accessible to all employees to enhance their awareness and creativity (Chiganda & Ngulube 2016:222). According to Rowe and Leuzinger (2017:10), "research unveiled that there is need for libraries to urgently implement succession planning, due to the aging demographic managers and librarians". Rowe and Leuzinger (2017:9) posited that the library management should have open discussions with employees whereby skills gaps are discussed as well as the need for succession planning so that some employees as mentees can be willing to be coached

by their senior employees or mentors. The challenge of succession planning is when an organisation waits until the last few minutes and then start realising the need when knowledgeable employees or experts are about to retire or resign.

5.6 Embedding knowledge management in an academic library's culture

KM promotes a knowledge sharing culture and improves communication about library employees and library clients (Islam et al, 2017:267). According to Balague, Duren and Saarti (2016:182), KM is currently taken and valued as a possible practice by which academic libraries can apply to respond to numerous challenges that they are facing in their changing information environment. KM can be used to eliminate redundant procedures by getting new insights from the library users and employees.

Jain (2014:9) argued that “knowledge makes the person more knowledgeable to act more effectively”. The statement above validates the fact that KM is a key to the academic library's success because it acts as an on-going activity aimed to improve institutional performance by gathering, preserving, storing, sharing, using, and re-using knowledge. Koloniari and Fassoulis (2017:135) explained that KM improves the operational activities of the library through improved access to library resources and leverages knowledge sharing that facilitate service innovation. Furthermore, they believed that librarians have been moving slowly and some are not preparing to adopt KM in their work environment.

KM should be practised in relation to the strategic objectives of the library, so that it brings knowledge and intelligence that is in alignment with strategic objectives (Farrell, 2017:675). KM practice in the academic library should be in line with its vision, mission, and strategic objectives so that it can add value and improve performance. For the integration between KM and library strategies to take place, there should be an organisational culture that enables collection, storage, analysis, and transfer of knowledge among employees. The organisational culture should be the one element that promotes organisational learning that enables employees to improve their skills and knowledge, which will lead to new knowledge creation and innovation for better quality products and services in the future of academic libraries (Ceptureanu, Ceptureanu & Tudorache 2015:462; Ceptureanu, Ceptureanu, Popescu & Vlad 2017:2).

5.7 The future of academic libraries

The future of academic libraries is unfolding as new information and communication technology (ICT) is being developed. ICT is a “diverse set of technological tools and resources that can be used to communicate, create, disseminate, store and manage information and knowledge in the global context” (Enakrire & Ocholla 2017:1). Library employees are expected to adapt to these new technologies and integrate them into their products, services, space, and training. However, there are challenges associated with technological development, but there are more opportunities than challenges that need to be noted (Pawlowsky & Ryan 2016:39). For example, there will be more publishing models, journals may be replaced by single article publication known as nono-publication, open access publishing will increase, and institutional repositories and resource sharing should be leading in future. Allison (2013:45) posits that libraries are becoming publishers of scholarly information in the digital age. The librarians should develop skills in these developing areas of librarianship, such as research data management. Additionally, librarians assisting the researchers in developing data management plans will be highly valued in the future (Ketchum 2017).

In the digital age, the academic libraries are doing more than housing collections of books and journals by becoming dynamic spaces, knowledge commons, and collaborative spaces that facilitate and stimulate teaching, learning and research (Barlow & Bocko 2020; Breeding 2021). Although many of the academic libraries are on the shift from print to digital collection, interestingly, students still preferred the hard copy books to e-books (Allison 2013:43). Academic libraries of the future should expand their expert networks where employees with a personalised knowledge or expertise can easily be found (Brajer-Marczak 2016:249). In addition, Barlow and Bonko (2020), Bawack (2020), as well as Breeding (2021) described future library systems and innovation that accelerate the development of new knowledge and increase retention systems of valuable knowledge.

The literature review presented KM in the context of academic libraries. The next section presents the research methodology developed for this study to evaluate employees' perceptions of KM in academic libraries in the digital age.

6 Research methodology

The research philosophy was pragmatism, and the approach was mixed methods research. Pragmatism enabled the researcher to interpret the world of academic libraries while focusing on multiple realities (Saunders, Lewis & Thornhill 2012). Mixed methods research is a third methodological movement that uses both qualitative and quantitative approaches in a single study (Ngulube & Ngulube 2015). The research strategy of this study was case study research. The study collected empirical data on cases of a decentralised academic library in which four campus libraries participated. The choice of case study strategy enabled the researchers to obtain in-depth knowledge and explore a contemporary phenomenon

within the real-life context (Yin 2009:18; Yin 2012:4; Collis & Hussey 2014:68). The University of Johannesburg (UJ) library was purposefully selected for this study since it has a history of change and is preparing for the 4IR as driven by its parent university's vision (UJ 2018:1).

Purposive sampling was used in this study as part of the non-probability sampling to decide which participants to select for the study based on their role and experience in the library and information service profession. In non-probability sampling, subjective judgement is necessary to decide on which participants and respondents would be able to supply relevant data to answer the research question (Kumar 2005:179; Creswell & Plano Clark 2011:173; Saunders, Lewis & Thornhill 2012:287;). In this research, library employees who have experienced change in the library and participated in KM activities were selected following purposive sampling. The researchers' methodological choices were guided by the report by the Committee of Higher Education Libraries of South Africa (CHELSA 2016); acknowledging the different paces of digital transformation of South African libraries.

A semi-structured interview was conducted with twelve library managers/directors and nine faculty librarians. The questionnaire with a different set of questions was used during the interviews; and as a second method for collecting data. The link to the online questionnaire was sent to 65 participants, that is the total number of employees eligible based on the criteria for inclusion.

7 Research findings and analysis

In this section, the qualitative and quantitative findings collected using interview first, and questionnaire second, get reported separately. The analysis was performed separately, and this section interprets the findings separately. Thereafter an integrated discussion follows.

7.1 Findings from the interview

The interview component of empirical research was aimed at collecting data on employees' perception of the role of KM in academic libraries in the digital age. The researchers utilised ATLAS.ti software for qualitative analysis of 21 interview transcripts. Data was coded, categorised, and group codes were assigned for thematic analysis. The researchers used MS Excel spreadsheet for creating a chart of employees' perception of the role of KM in academic libraries. Seven themes emerged as the main perceived roles of KM, illustrated in Figure 1.

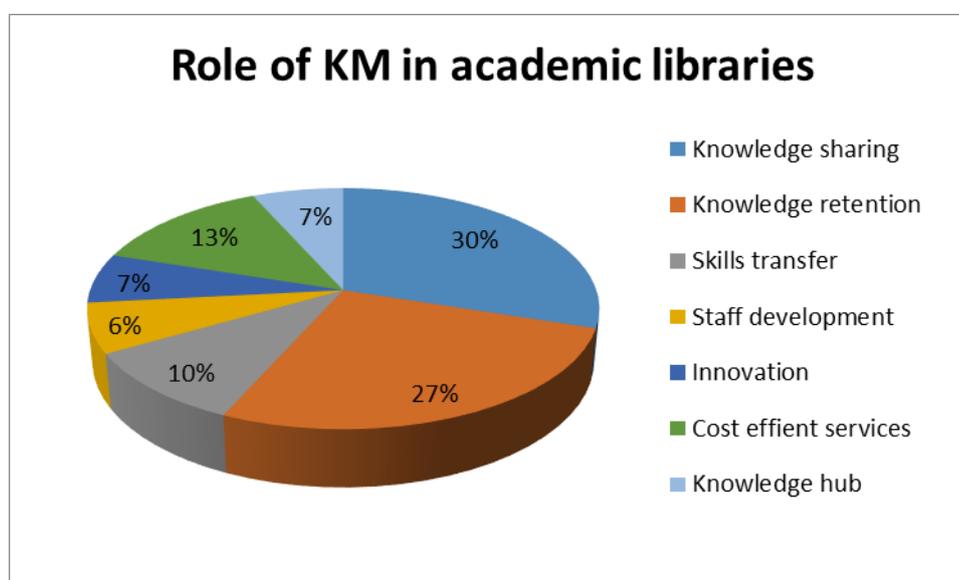


Figure 1: KM outstanding roles to the library (own source)

Figure 1 illustrates the most outstanding roles of KM in academic libraries. Participants with no doubt perceived that knowledge sharing (30%), and knowledge retention (27%), are KM's two most important roles in the library. KM ensures that when knowledgeable employees leave the library, valuable information is captured or transferred to other employees. Majority of the participants talked about succession planning as part of the knowledge retention mechanism and suggested that if there is proper KM in place there would be better succession planning and not reliance on the universities' human resources department. When new employees enter the library, they have a base knowledge to start from when there is explicit knowledge in place. Some participants said that libraries are the custodian of information and knowledge that support

the academia; meaning that the library should take cognisance of preserving employees' knowledge to enhance services in the future when that knowledge is needed. Participants indicated that the academic libraries are the hub of information in the university, and if they don't practice KM, they will lose knowledge and not be able to support the university clients.

Participants mentioned that KM ensures that employees do not repeat the same mistakes through learning from others. Participants perceived the role of KM is cost effective (13%) to the organisation due to its likelihood of saving time and money by not reinventing the wheel, especially when employees learn and relearn from each other's experiences and build up on those experiences. Participants perceived that due to the current challenge of budget, sharing knowledge resources and databases will help the library with access, and reduce cost. Participants perceived KM's role is skills transfer (10%) from those who know others who do not know. Some of the participants perceived KM's role is to manage the transfer of both tacit and explicit knowledge in the organisation. Participants' view of KM is that it enables the library to reflect on what they have done and deliver effective and efficient services to clients. Participants added that timely access to knowledge could assist employees in day-to-day challenges. Participants perceived KM's role in innovation (7%), and staff development (7%), asserting that productivity and performance increase when employees are knowledgeable through knowledge creation and sharing; and productivity tends to increase when creativity and innovation efforts are in place. Participants said that when the employees exchange their tacit knowledge and come up with innovative ideas on how to service the library clients better it puts the library in a competitive advantage of performance excellence.

Participants perceived KM's role is the knowledge hub (7%) if the library wants to be the largest academic library in Africa with e-books collections, perceiving that without sharing knowledge and collaboration with other universities, that may be impossible. Participants discussed the institutional repository retains, preserves, disseminates, and shares the university's research output to all people around the world. Participants perceived that KM ensures good business principles since there will be existing information and knowledge in place because people in the workplace come and go.

7.2 Interpretation of interview data

Knowledge sharing and knowledge retention were the key components of participants' perception of the role of KM in the academic libraries. It was important to gather insight on how employees view KM. Few participants viewed KM as the higher level of information management in the work environment. Most participants' perception of KM was the process of sharing and retaining knowledge and perceiving the cost saving role of KM of a particular organisation. Very few participants saw KM as a management practice that involves the effectiveness and efficiency of creating, storing, and disseminating information and knowledge as a strategic asset for business continuity.

A single participant argued that KM is both a science and a process and indicated that if the library had a policy for KM, it was going to be easy for the employees to start sharing knowledge and shift their focus, which will lead to more employees embracing change, meaning that the academic libraries should begin by having a strategy and a policy that will guide the KM implementation. Bolisani and Bratianu (2017:242) indicated that the KM strategy of the library should stipulate resources, tools and processes needed to manage knowledge effectively. The findings illustrate employees' perception of the role of KM in the academic library. KM is not something to be neglected, especially in the digital era that is associated with lots of change, primarily because KM ensures that knowledge is shared and retained.

7.3 Findings from the questionnaire

As a sequential mixed method study, the questionnaire was developed to collect quantitative data to supplement the qualitative data. Elliott and Woodward (2007), and Nithya and Anjani (2021) describe quantitative data as numeric data such as measurements or counts presented in charts presenting a radar view of elements such as perceptions or competencies. A reliability test was performed to ensure that there is consistency of scores from the respondents (Creswell & Plano Clark 2011:211). Cronbach's Alpha was used to estimate the internal consistency of the questionnaire. The result is measured by a number from 0.00 to 1.00; in which a number that is 0.70 and above is considered high in reliability (Johnson, 2018:1416). Table 1 shows the reliability statistics.

Table 1: Reliability statistics (own source)

Reliability Statistics		
<i>Cronbach's Alpha Based on</i>		
<i>Cronbach's Alpha</i>	<i>Standardized Items</i>	<i>N of Items</i>
.877	.882	36

From Table 1, Cronbach Alpha for all considered variables in the dataset was 0.887, indicating a strong reliability value. The cut-off minimum value is 0.7, which means that the analysis of the variable will not be reliable. To answer the research

questions and fulfil the objectives of this research, a quantitative analysis of data was carried out, which involved descriptive statistics.

To determine respondents' perception of what KM entails, the respondents were asked to complete a four-point Likert scale type question by selecting whether they agree, strongly agree, disagree, or strongly disagree with perception statements illustrated in Figure 2.

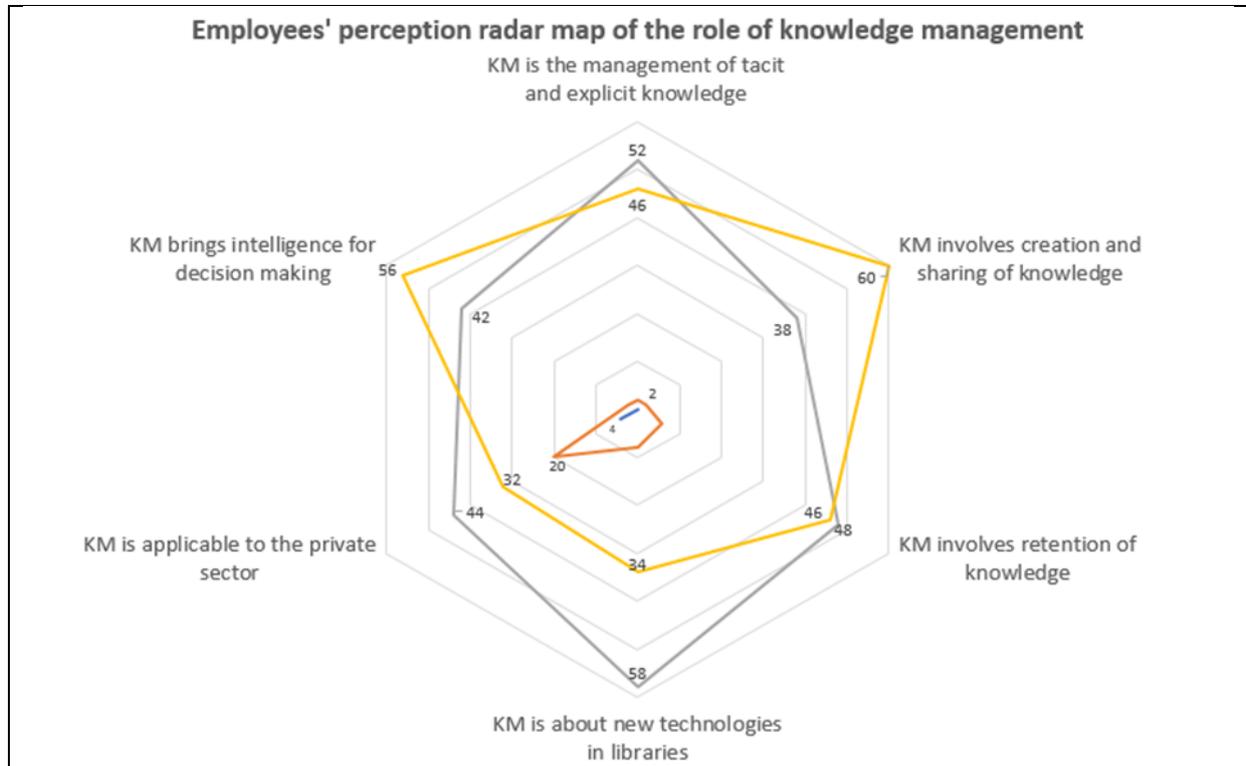


Figure 2 Employees' perception of the role of Knowledge Management (own source)

Figure 2 presents the radar map of respondents' perception of the role of KM. Most prevalent was the perception that KM involves creation and sharing of knowledge (60%), and KM brings intelligence for decision making (56%). Second most prevalent perception was KM is about new technologies in libraries (58%), and KM is the management of tacit and explicit knowledge (52%), KM involves retention of knowledge (48%), and KM is applicable to the private sector (44%).

Next, respondents were asked to respond to a four-point Likert scale question by selecting the KM skills they perceived as important, very important, unimportant, or totally unimportant. Figure 3 presents the radar map of skills when practicing KM.

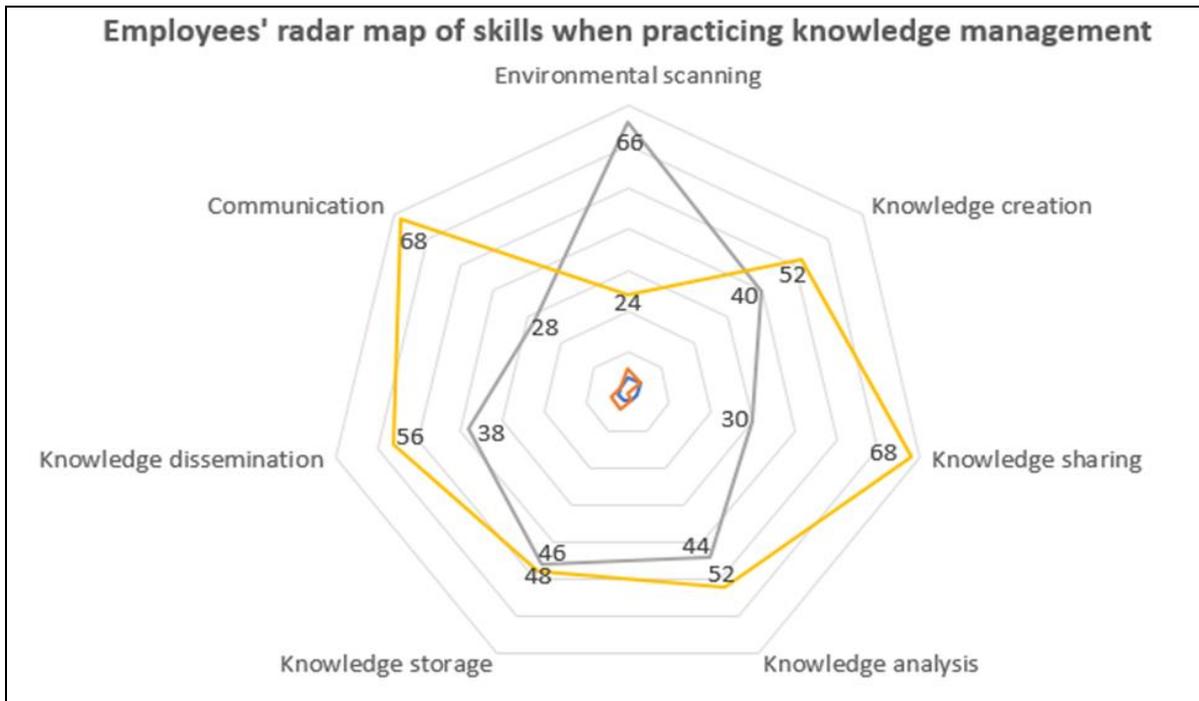


Figure 3: Skills when practicing Knowledge Management (own source)

Findings in Figure 3 illustrate the KM skills respondents perceived were most important skills, namely, communication (68%), knowledge sharing (68%), knowledge dissemination (56%), knowledge creation (52%), knowledge analysis (52%), and knowledge storage (48%). At the second level of perceived importance was environmental scanning (66%), knowledge sharing (46%), and knowledge analysis (44%).

Figure 2 and Figure 3 radar maps presented the findings of the first and second elements of the research questions. The third radar map illustrates the finding to the last research sub question, namely, respondents' perception of technologies for knowledge creation and sharing in the digital age (Figure 4).

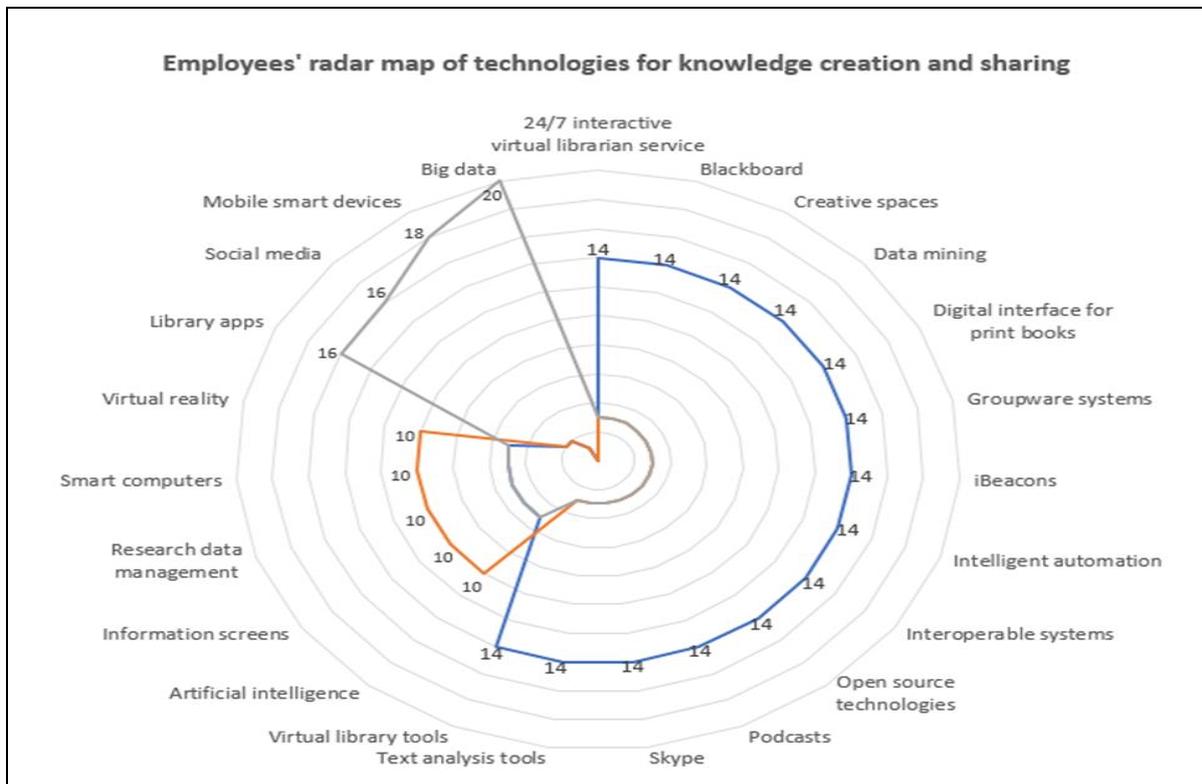


Figure 4: Technologies for knowledge creation and sharing in the digital age (own source)

The radar map in Figure 4 illustrates the technologies respondents perceived as highly conducive for knowledge creation and sharing in the digital age are big data, mobile smart devices, social media, and library apps. At the second level, respondents perceived 24/7 interactive virtual librarian service, Blackboard, creative spaces, data mining, digital interface for print books, groupware systems, iBeacons, intelligent automation, interoperable systems, open source technologies, podcasts, Skype, text analysis tools, and virtual library tools as conducive for knowledge creation and sharing. At the third level, respondents perceived smart computers, research data management, information screens, and artificial intelligence as the technologies that are conducive for creating and sharing knowledge in the digital age.

Lastly, the respondents were asked to indicate if their library has an expert database in place. The researchers included this question to determine respondents' engagement with KM at a practical level. The results showed an equal number of respondents who responded yes, it is in place (44%), and those who were not sure (44%). The respondents who had indicated that there is no expert database in place in their library were 12%. For these findings to have meaning, further analysis and interpretation follow next.

7.4 Interpretation of quantitative data from the questionnaire

Radar maps are useful tools for visualising two or more items on their various levels of perception. The most prevalent perception was that KM involves knowledge creation, knowledge sharing, and it brings intelligence for decision making. The second most prevalent perception was that KM is about new technologies in libraries, managing tacit and explicit knowledge, and knowledge retention. Prominent KM skills include communication, knowledge sharing, knowledge dissemination, knowledge creation, knowledge analysis, and knowledge storage.

The second level of prominent skill was environmental scanning and knowledge analysis, which also included knowledge sharing. Technologies for knowledge sharing and creation in the digital age were perceived as big data, mobile smart devices, social media, and library apps. A gap is presented in the equal number of respondents with knowledge of their libraries' expert database and without knowledge of an expert database. The integrations and discussion of these findings follow in the next section.

7.5 Integration and discussions

The reliability of data was measured by testing for both consistency and stability. Convergent validity was used to validate both the quantitative data and qualitative data where possible through the "correlation between two different sources responding to the same measure" (Sekaran & Bougie 2013:295).

This section integrates the findings of the qualitative and quantitative analyses to collectively address the research problem and achieve the research objectives. The results for this study of academic library employees' perception of the role of KM in the digital age were most prevalent at communication and knowledge sharing during change. Knowledge sharing was mostly perceived as it facilitated communication with all the relevant staff members so that everyone can understand and be on the same page.

There should be an effective transfer of knowledge between the experts and novices, through enhancing communication channels and creating collaboration opportunities. It is imperative that the tacit knowledge of employees is captured as part of the knowledge retention mechanism of an academic library. Expert databases, subject matter experts' forums, and communities of practice are important and should be practised in academic libraries to ensure that good knowledge is created and collected. Knowledge and skills of librarians who work in the digital environment have changed to be more literate with the latest technologies and applications that can be of benefit to university students, researchers, and academics.

7.6 Research limitations

Case study strategy has limitations such as limiting the findings to one case institution. However, the use and analysis of data from more than one campus library enabled the researchers to generalise the findings. From this study, it has emerged that employees perceived the role of KM practice, skills, and technologies in the academic libraries in the digital age as a prominent role.

8 Conclusion

The findings of this study indicate that KM must not be neglected especially in the digital age that is associated with continuous change. KM ensures that knowledge is created, shared, retained, and disseminated in the library. Knowledge creation, sharing, retention, and dissemination form the key components of KM in the academic library.

Since a KM policy is required, there should be a KM plan in an academic library aligned with the university strategy, to promote the culture of knowledge creation, sharing, retention, and dissemination. Knowledge retention should be formalised

and should not be practiced in an inconsistent manner or outsourced solely to the human resources department even though the human resources department is responsible for succession planning activities. It is strongly recommended that academic libraries must capture and retain their valuable explicit knowledge to assist them when new employees come and when faced with similar change projects in the future. KM policy should be the starting point that will formalise the implementation and execution process.

Future research is needed in terms of employees' perception of KM as a management science, specifically aimed at the skill of developing expert databases for the academic libraries. In conclusion, employees' perception of KM in academic libraries in the digital age is centred on knowledge sharing and communication. Employees' perception of technologies is relevant to the digital age paradigm shift.

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