

**THE 21ST CENTURY ACADEMIC LIBRARY: THE CASE OF THREE STATE
UNIVERSITIES IN ZIMBABWE**

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in the Department of Library & Information Studies at the University of the Western
Cape, Bellville, South Africa**



Supervisor: PROFESSOR SANDY ZINN

Submitted: 28 May 2018

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ABSTRACT

The advent of the 21st century and its dynamic information environment have changed higher education considerably including the library spaces. Library patrons, namely undergraduates, postgraduates, and academics are placing heavy demands on academic libraries requiring support in research, teaching and learning. As a result, academic librarians globally have undertaken major re-evaluations of what they do and how they do it, to ensure relevance amongst their diverse user communities. The new information landscape is fraught with controversies that prompt opposing perspectives towards change acceptance amongst librarians. In Zimbabwe, academic libraries seemed to be lagging behind regarding changes presented by this information landscape. Given this context, the study sought to understand how librarians are adjusting to the 21st century environment against the expectations of the students and academics. The Diffusion of Innovation Theory crafted by Rogers (2003) and the McKinsey 7S model propounded by Waterman, Peters and Phillips (1982) were used as theoretical and conceptual frameworks. The research further applied a conceptual framework from the literature to determine the expectations of students and academics of the academic library in the 21st century. For data collection, the study adopted a case study design and a mixed methods approach using Web-based questionnaires, follow-up interviews and website content analysis. Data was collected from students, academics and librarians at three selected Zimbabwean universities. All data collecting tools were pre-tested amongst librarians, academics, postgraduate and undergraduate students prior to collecting data. Data collected using questionnaires was analysed using Statistical Package for the Social Sciences (SPSS) and Microsoft Excel while interview data was analysed using thematic text analysis. Findings of this study revealed that the Midlands State University Library had to a larger extent embraced new trends which are in-line with the 21st century environment compared to the National University of Science and Technology and Lupane State University libraries. The Library and Information Science qualification remains important in service delivery among academic librarians. Inadequate funding, limited time due to multitasking, slow uptake of new concepts and limited knowledge and skills were barriers to keeping up with new trends amongst librarians. Academic librarians collaborated with academics in collection development, Information Literacy Skills (ILS) teaching and uploading theses and research papers into the Institution Repository (IR).

Keywords: 21st century academic libraries, postgraduates, undergraduates, academics, librarian attitudes, Zimbabwe, Diffusion of Innovation theory, McKinsey 7S model.



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My sincere gratitude goes to all academics, librarians and students at NUST, MSU and LSU who participated in this study. This study would have never been a success without your contributions.

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Lastly, I would like to thank all my fellow PhD colleagues for their continual sharpening of my perceptions through informed discussions.

DEDICATION

I would like to dedicate this research to my loving family, my parents (Smart Snr Mabweazara and Judith Enita Mabweazara) and my brothers (Dr. Hayes Mabweazara; Dr. Smart Jnr Mabweazara and Gerald Mabweazara).



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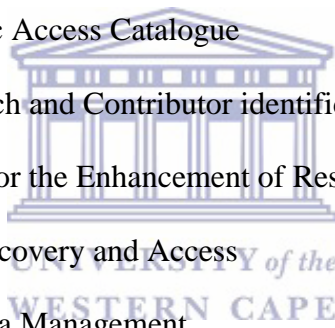
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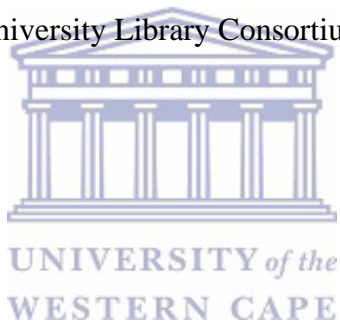
LIST OF ABBREVIATIONS AND ACRONYMS

ACRL	Association of College and Research Libraries
ADSL	Asymmetric Digital Subscriber Line
ALIA	Australian Library and Information Association
BMO	Bandwidth Management Optimization
BYOD	Bring Your Own Device
CARL	Canadian Association of Research Libraries
CHET	Centre for Higher Education Transformation
CLIR	Council on Library and Information Resources
COP	Community of Practice
DMPs	Data Management Plans
DOAJ	Directory of Open Access Journals
DOI	Diffusion of Innovations (theory)
DoI	Digital object Identifier
DRM	Digital Rights Management
EIFL	Electronic Information for Libraries
GIS	Geographic Information Services
ICTs	Information Communication Technologies
ICU	Institute of Commonwealth Universities
IFLA	International Federation of Library Associations and Institutions
IL	Information Literacy
ILS	Information Literacy Skills
INASP	International Network for the Availability of Scientific Publications

IRs	Institutional Repositories
ISP	Internet Service Provider
LMS	Learning Management Systems
LSU	Lupane State University
MOOCs	Massive Open Online Courses
MSU	Midlands State University
NUST	National University of Science and Technology
OA	Open Access
OERs	Open Educational Resources
OPAC	Online Public Access Catalogue
ORCID	Open Research and Contributor identification
PERI	Programme for the Enhancement of Research Information
RDA	Resource Discovery and Access
RDM	Research Data Management
RIO	Research and Innovation Office
RISO	Research Information Services Office
RPO	Research and Postgraduate Office
SADC	Southern African Development Community
SARUA	Southern African Regional Universities Association
SPSS	Statistical Package for the Social Sciences
SSRN	Social Science Research Network
TAM	Technology Acceptance Model
tDAR	the Digital Archaeologist Record



TOE	Technology Organisation Environment Framework
TPB	Theory of Planned Behaviour
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UPS	Uninterrupted Power Supply
UTAUT	Unified Theory of Acceptance and Use of Technology
UZ	University of Zimbabwe
ZESA	Zimbabwe Electricity Supply Authority
ZIBF	Zimbabwe International Book Fair
ZIMCHE	Zimbabwe Council for Higher Education
ZULC	Zimbabwe University Library Consortium



CHAPTER 1

INTRODUCTION

1.1. Introduction

The information age is transforming academic libraries with a rising need for library staff to adapt to this dynamic environment. Internal and external forces of the academic library environment such as technology, users (Net generation, the faculty, researchers and administrators) and internal library processes are pressurizing librarians to change. Given the researcher's experience as a student in Library and Information Science, she is concerned about the status and extent to which academic libraries in Zimbabwe are responding to the 21st century information landscape (defined as a higher education environment "characterised by ubiquitous, digitized, and indexed online access to content" (Council on Library and Information Resources (CLIR), 2008:1). The following are key research objectives of this study:

- To determine the 21st century information landscape for academic libraries worldwide from a literature review.
- To examine the extent to which the 21st century information landscape has shaped the Zimbabwean academic library.
- To identify academic librarians' skills and competencies in the 21st century academic library.
- To identify academic librarians' attitudes towards the demands of the academic library in the 21st century.
- To determine needs and expectations of students and academics of the academic library in the 21st century.

1.2. Background and rationale of the study

The 21st century has witnessed an increased demand in the creation and use of information. Various digital technologies are gradually invading all sectors of the global society. In the light of this development, technology has been viewed as a major catalyst for improving, supporting, extending

teaching and creative learning in higher education across the globe (Bell, Dempsey & Fister, 2015; Brown & Malenfant, 2015; Horizon Report, 2015).

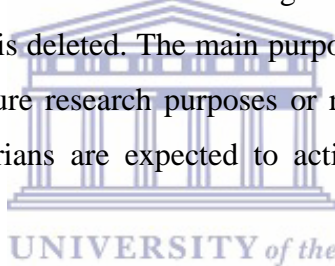
Major shifts in education (learning, teaching and research practices) have resulted in the revitalization of higher education through the rapid incorporation of new innovations and ideas. Consequently, higher education institutions are reshaping their activities by introducing innovations such as blended learning and flipped classrooms, encouraging an increase in the research output, open educational resources and digital scholarship (Bell, Dempsey & Fister, 2015; Brown & Malenfant, 2015; Horizon Report, 2015; International Federation of Library Associations (IFLA) Trend Report, 2015). A farsighted prediction was made by CLIR (2008: v) that this is “not a passing phase in higher education but it is a transformational period that requires innovation and risks”.

Universities are incubators for new discoveries and innovations that directly impact their local communities and the global information society. To wholly serve their communities and the global landscape they require full support from their institutional libraries. However, it is true to state that every wave that hits the universities can never spare academic libraries. Brown and Malenfant (2015) argue that academic libraries are contributing to higher education assessment work by creating approaches, strategies and practices that document the value of academic libraries in advancing the goals and missions of their institutions. In order to meet the teaching, learning, information and research needs of the students, researchers, faculty and administration, academic libraries are expected to align their services with innovations currently pressuring their parent institutions.

There is a traceable shift right from the inception of technology adoption amongst academic libraries in the form of Online Public Access Catalogues (OPACs), database searching, CD-ROM/DVD database searching to the current Web-based searching. The present boon of digital technologies has made it easy for academic libraries to manage the avalanche of information generated by modern society. Shank and Bell (2011:105) refer to these new digital technologies as “disruptive innovations” (new computing technologies) which have emerged with faster speed and power to transform academic libraries and the role of the academic librarian. Among other strategies, this has increased the pressure on librarians to acquire brand new knowledge, skills and attitudes, as well as educate users about innovations for their future career growth.

Long-term key trends for academic libraries include collaboration amongst institutions to share resources and the burden of e-resource subscriptions (Horizon Report, 2015). Networking is also explained in the form of cross-disciplinary collaborative research amongst librarians (Council of Library and Information Resources, 2008). In line with this view, the Canadian Association of Research Libraries (CARL) (2010) states that, as a way of offering research support, librarians will increasingly be required to conduct research in order to meet conditions of employment. Librarians are also expected to take part in the open access initiative by ensuring patrons' access to scholarly research for free.

This information era requires technologically savvy librarians with knowledge and skills in research data management and preservation. It has become a prerequisite competency for librarians to carry out data curation (data curation is defined by Gopal (2016) as the management of data throughout its lifecycle, from creation and initial storage to the time when it is archived for posterity or becomes obsolete and is deleted. The main purpose of data curation is to ensure that data is reliably retrievable for future research purposes or reuse). Importantly, emphasis is on blended librarianship where librarians are expected to actively take up teaching roles using instructional technology.



All these demands require a brand-new mind-set amongst academic librarians. In order to successfully shift from traditional roles (reference or instruction subject specialist) librarians should have a positive attitude towards embracing change. This will allow them to acquire new highly specialised job titles such as, creative learning specialist, design librarian, public education specialist and outreach engagement specialist (Bell, Dempsey & Fister, 2015). According to the Australian Library and Information Association (ALIA) (2014), librarians must ensure a high standard of library practice through the knowledge of an information environment in its broad context, information seeking, information architecture, information organisation and access, information services, sources and products, information management and information generation. Cox and Corral (2013) reveal other specialist titles that are being adopted by academic librarians and these are namely: research data manager, Institutional Repository (IR) manager, e-resources librarian, digital librarian, systems librarian, Information Literacy (IL) educator and knowledge manager/information manager.

In this instance, it is one thing to identify the pressures placed on academic libraries in the Western perspective and another to conduct a closer investigation to learn about the situation in the African context. It is against this background that this research investigated the demands placed on academic libraries by the 21st century environment. Close attention was paid to the demands of the library users (undergraduate, postgraduate students and academics), technology and internal library processes in the 21st century. The significance of the present research, therefore, lies in its attempt to contribute to an African, particularly Zimbabwean, perspective of academic librarians and library patrons on the impact posed by the 21st century information landscape.

1.3. Contextual setting of the study

The context or circumstances, the social environment, and demography that surround or influence a study are responsible for its focus, and justify its existence (Zidler, 2007). This section defines the context of the study through mapping the modern information environment, higher education in developing countries and the Zimbabwean higher education.

1.3.1. The 21st century information landscape

The 21st century information era is built on ever evolving internal and external factors which have an impact on the operations of all organisations including higher education institutions. These factors can be identified as political, economic, social and technological. A slight adjustment or instability in these four factors can affect the operation of higher education institutions. This is the reason why the Canadian Association of Research Libraries (2010) and the Australian Library and Information Association (2014) emphasized that librarians should have strong foundation knowledge of the social, cultural, economic, political and information environment within which they work. Technology is one of the factors that continue to heavily impact higher education institutions including their libraries. In short, some of the demands placed on academic libraries are open access, digital curation, Institutional Repositories (IRs), e-learning, e-books, Web 2.0/social media, Net generation users and redesigning library spaces, amongst others.

1.3.2. Initiatives for higher education in developing countries

In research conducted by McCreadie (2013), a conclusion was reached that more than half the African nations are off-track or regressing on objectives to achieve universal education by 2015. However, an Author-Aid research community initiated in 2012 was created to support developing countries' researchers in getting their work published (Browse, 2013). Additionally, the International Network for the Availability of Scientific Publications (INASP) developed activities at institutional and national level to assist universities in improving their management of Internet bandwidth. The Bandwidth Management and Optimisation (BMO) programme supports the formation of a national research and education network through ensuring higher speed broadband networks for academic and research institutions (McCreadie, 2013).

Given all the opportunities for leapfrogging, developing countries are taking the initiative to become part of the global interactive village. Opposing environmental forces such as economic, social and technological disadvantages block these countries from keeping pace with change. With this view in mind, it is important to consider and be realistic about the extent to which change can be made within a specific environment. A closer investigation was necessary to identify the demands of the 21st century on the Zimbabwean academic library environment.

1.3.3. Higher education in Zimbabwe

Higher education was formally introduced to Zimbabwe by the then British colonial government in 1957. This saw the introduction of the first public university (University of Zimbabwe) which was then affiliated to the University of London. This meant that the university had high standards which comprised quality staff, a system, resources and facilities to maintain good teaching and scholarship. The number of universities in Zimbabwe rose to 15 that includes nine public and six private institutions - see Appendix K for the actual names of the universities and year of establishment.

The research sites of this study were three public universities, namely Midlands State University (MSU), Lupane State University (LSU) and National University of Science and Technology (NUST). The three libraries at these institutions share common ground as they are members of the Zimbabwe University Library Consortium (ZULC). The institutions' affiliation to the consortium

enables them to share resources, a financial burden for acquiring e-resources and to maintain their digital collections. More importantly, these sites are geographically close, meaning that they are easily accessible (O’Leary, 2004). This is the reason for selecting these sites. It is imperative to clarify this, as Yin (1994) and Flyvbjerg (2006) caution that careful choice of sites contributes substantially to the quality of research. Refer to Chapter 4 (methodology) for a detailed explanation of the research sites.

During the period 2000-2010 Zimbabwe faced a serious economic down turn which resulted in the flight of academic personnel to other countries. This negatively impacted the quality of higher education in the country. In a bid to come up with a quick solution to this problem, the Zimbabwe Council for Higher Education (ZIMCHE) (2010) called upon all lecturers in the diaspora to teach part time in all Zimbabwean public universities at a fee. In addition, an initiative was set to ensure that by 2015 every lecturer in Zimbabwe should have acquired a PhD (Kotecha, 2012). ZIMCHE is a professional body that was created through an Act of Parliament to regulate standards of teaching, examinations, academic qualifications and research in higher education institutions. It is a council assigned to maintain high quality standards amongst all universities in Zimbabwe with much emphasis on the production of high calibre graduates.

According to ZIMCHE (2010), all 15 registered universities in Zimbabwe should include an assessed component of work-related learning for periods up to one year in their curricula. It comes in the form of internships and work placement learning through work experience (part-time or voluntary). This is designed to reduce the gap between theory and practice. In addition to theoretical knowledge, university graduates are expected to have communication skills, teamwork skills and awareness of the context and functioning of the workplace within their field of study (Garwe, 2014). University libraries in Zimbabwe were also heavily affected by the country’s economic meltdown which led to a huge compromise in the quality and amount of resources offered (Ndlovu, 2011). Fortunately, issues of sustainability for library resources were addressed by the Open Society Institute of Southern Africa that encouraged and funded the establishment of the Zimbabwe University Libraries Consortium (ZULC) in 2001 for the purposes of cooperation and resource sharing. The INASP introduced electronic resources through their programme for the Enhancement of Research Information (PERI) and sponsored many training programmes for the librarians. Additionally, the Institute of Commonwealth Universities’ (ICU) low cost e-journal

programme and Book Aid International annually provide current, relevant printed books to all university libraries. In 2007, the ZULC consortium in conjunction with the Electronic Information for Libraries (EIFL) organisation assisted university libraries to create publicly accessible digital repositories through the Greenstone project.

Against this background, the research was sparked by concerns of how well academic libraries in Zimbabwe are keeping up with the pressures posed by the 21st century environment. The assumption is that technology is just a catalyst for major changes in higher education and therefore the study sought to clearly define and scrutinize other demands of the 21st century information era on academic libraries.

1.4. Problem statement and research questions

The traditional academic library is described as a store house for print copies of books and journals kept in closed access system under key and lock (Ameen, 2011; Lynch & Smith, 2001). The traditional academic library ensured that services were only available during library opening hours and it was known as a quiet reading place (Jain, 2013:133). In an improved manner, the modern or 21st century academic library is characterized by free access to electronic materials (Institutional Repositories, online databases, multimedia information resources) as well as availability of portable content anywhere, anytime (Chan, 2012; Mutula, 2004). It has information/ knowledge digital commons to make learning common and add an aspect of a patron driven environment (Shan & Shaheen, 2013).

Consequently, academic librarians are encouraged to acquire professional competencies needed to document and communicate the value of the 21st century academic library in relation to an institution's goals for student learning and success (Brown & Malenfant, 2015). Students and academics have their own peculiar demands and expectations of the 21st century academic library which need to be addressed. However, this has led to the re-organisation and re-invention of the library workplace. Neal (2006:3) warns that "this information age requires a heightened attention to innovation amongst academic libraries". In a profession largely governed by professional norms, library staff may find it difficult to initiate change or may resist change. Much as the 21st century seems to present opportunities for librarians to exploit new avenues and expose their value

to society, some library staff may express a negative attitude towards change due to fear of job loss if they fail to deliver and lack of motivation amongst other reasons.

Unfortunately, most developing countries like Zimbabwe are still lagging behind in terms of complying with requirements placed on them by this dynamic information environment. Even with the support provided by international organisations, Zimbabwean university libraries are still struggling to meet the demands of this information age. Given all the growing uncertainty about the dynamic roles of academic librarians in the university, it is crucial to go beyond anecdote to understand the demand placed on the academic library by the 21st century changes and the attitudes, skills and competencies of librarians in this milieu. A thorough understanding of the expectations of users (undergraduate and postgraduate students and academics) is also required. This may assist in mapping the strategies and guidelines university libraries need to remain relevant and provide a quality service to their specific user groups.

Research questions

The overarching research question for this study is what are the demands placed on the academic library by the 21st century information landscape? It was addressed through the following research questions:

- How have academic libraries across the globe embraced changes in the 21st century information landscape?
- To what extent has the 21st century information landscape shaped the Zimbabwean academic library?
- To what degree are Zimbabwean academic librarians' skills and competencies meeting the requirements demanded by the modern academic library?
- What are the Zimbabwean academic librarians' attitudes towards the changes in the 21st century academic library?
- What are the needs and expectations of the users of the 21st century academic library?

1.5. Conceptual and theoretical frameworks

Imenda (2014) asserts that the conceptual or theoretical framework is the epicenter of every research project. In most instances a conceptual framework is held within a broader structure known as a theoretical framework. In some instances, a conceptual framework is a synthesis of literature which identifies the variables required to explain a phenomenon (Regoniel, 2015).

1.5.1. Conceptual framework

Connaway and Powell (2010:271) define a conceptual framework as “that which includes the definitions of the terms and concepts used in a study, the research questions and the assumptions”. In the case of this study the conceptual framework was used to explain the needs and expectations of academics, undergraduate and postgraduate students (Postgraduate Diploma, Masters and PhD). A synthesis of existing literature pertaining to the key trends in the 21st century higher education expectations was used to identify concepts for this study.

Academic librarian: is a professional who works in a library associated with institutions of higher education of various types and levels including community, technical and liberal arts colleges, universities, and professional schools (Moran & Leonard, 2009). Academic librarianship entails acquiring, organising, managing and distributing library resources, and ensuring that library provision meets the needs of all its users.

Academic libraries: are libraries that belong to institutions of higher education including publicly or privately funded universities or colleges (Curzon & Quiñónez-Skinner, 2009). Academic libraries also known as research libraries are an important stakeholder community that are attached to higher education institutions and are playing a part in building a culture and infrastructure for teaching, learning and research (Tenopir, Hughes, Allard, Frame, Birch, Baird, Sandusky, Langseth & Lundeen, 2015).

Academic library user in the 21st century: University library users are composed of undergraduates of various age groups, postgraduate students, the academics and the administrative staff (Tanloet & Tuamsuk, 2011). Knowing library patrons’ demands and addressing them well may contribute much to the value and status of the university.

Academics: These are tertiary institution staff also referred to as lecturers. They have a dual teaching and research function. In this research the word academics will be used interchangeably with lecturers (Chan, 2017; Wood & Su, 2017). University students are registered for a qualification. University students are divided into two major groups thus, undergraduate and postgraduate (Lindsay, Breen & Jenkins, 2002)

Attitude: is defined as the internal state that influences an individual's choices of personal action (Bianey, Ulloa & Adams, 2004). Attitudes are usually optimistic or pessimistic of individual, place or thing. People can also disagree or be unsure of an object, meaning that they concurrently possess both positive and negative attitudes toward the item in the query. Carno and Prislín (2006) mention that an attitude represents an evaluative integration of cognitions and affected experience in relation to an object. Attitude can also be viewed as a psychological affinity that is articulated by evaluating a particular article with several ranks of approval and disapproval (Rahman, 2010).

Blended and flipped classroom models: The flipped classroom model is centred on project-based learning where students work collaboratively to solve local or global challenges to develop a deeper understanding of the subject. Rather than the instructor using class time to disperse information, that work is done by each student after class. To complement this learning model, Web 2.0 applications play a pivotal role. The blended classroom model is a combination of learning in the form of watching video lectures, listening to podcasts, perusing enhanced e-book content or online collaboration with peers and face-to-face classroom lectures. Higher education is expected to use 3D printing and language translating technologies in the near future (IFLA Trend Report, 2015). According to the Horizon Report (2015) the Bring Your Own Device (BYOD) concept encourages students to use mobile technologies within their learning spaces.

Collaboration: Opportunities for collective action are realized in hyper-connected societies (IFLA Trend Report, 2015). Networking will ensure group working and access to specialist expertise (Bell, Dempsey & Fister, 2015). Internationalization and global education are important strategies being applied in higher education to ensure increased research output (Witt, Kutner & Cooper, 2015).

Competencies: are attributes that influence how an individual uses skills and interacts with the world (Bronstein, 2015).

Data and digital Curation: Academic institutions are creating robust infrastructure for long-term data archiving, workflow tools and policies for describing, managing, sharing and providing access to data (Canadian Association of Research Libraries, 2010). Digital environments allow aggregating and mining data traces to provide analytics which support evaluation and monitoring processes (IFLA Trend Report, 2015). This environment has opened new vistas for librarians to use assessment data, software technology, interface design and an understanding of user needs and workflow. This has led to users experiencing the process of discovering, creating knowledge, and using resources and data tools (Bell, Dempsey & Fister, 2015; Council of Library and Information Resources, 2008).

Open Scholarship: Open scholarship is an elaborate apparatus of non-profit and educational elements (Bell, Dempsey & Fister, 2015). Universities are supporting digital scholarship through embarking on publishing initiatives and creating organisational materials with others. Open scholarship is being implemented on digitised special collections, research data, pre-prints and open educational resources. In other words, academic institutions have developed robust protocols for sharing catalogue records and materials, embracing access to licensed digital information over ownership, developing shared print models to ensure the preservation of print materials while reducing duplication and storage costs. In this regard, libraries are making open access publications discoverable alongside proprietary information and helping users understand and exercise their rights in the complex world of copyright and intellectual property (Brown & Malenfant, 2015).

Open scholarly communication: Scholarly communication is defined by Keener, Kirchner, Shreeves and Van Orsdel (2015:1) as “the scholarly communication system incorporates and expands on the more familiar concept of scholarly publishing and includes both informal and formal networks used by scholars to develop ideas, exchange information, build and mine data, certify research, publish findings, disseminate results and preserve outputs”.

Skills: are practical abilities or forms of expertise that equip individuals to fulfil their roles (Hashim & Mokhtar, 2012; Smith, Hurd & Schmidt, 2013). Skills refer to “a constellation of practical abilities and/or capacities embodied in successful tasks and outcomes” (Huvila, Holmberg, Kronqvist-Berg, Nivakoski & Widén, 2013: 199).

The 21st century information landscape: It is a fast paced information climate which demands rapid production of new knowledge, digitized, indexed online content and policies that guide professionals (Council of Library and Information Resources, 2008; Gruszczynski & Wagner, 2017).

The 21st century library: “is a trustworthy, diverse, equal opportunity, inspirational information and cultural center that is guided by the needs of the user, ready to keep up with the times and able to react flexibly to societal and technological changes” (Estonian Librarians Association, 2016:5).

1.5.2. Theoretical framework

Zidler (2007) argues that a theoretical framework normally stems from the use of a number of sources which are outlined and discussed in a literature review and which therefore form a critical part of one’s research. It determines “the lens through which researchers examine and interpret a particular aspect of a problem” (Ocholla & Le Roux, 2011:61). This section outlines the Diffusion of Innovation (DOI) Theory crafted by Rogers (2003) and concludes by highlighting the McKinsey 7S model propounded by Waterman, Peters and Phillips (1982). These two theories were used to explain the skills, competencies and attitudes to change of Zimbabwean academic librarians.

1.5.2.1. Diffusion of Innovation (DOI) Theory

Rogers (1995) suggests that the DOI theory purports how an innovation is communicated through certain channels over time among the members of a social system (organisation). Diffusion is a unique way of interaction related to the spread of messages that are perceived as new ideas. DOI theory explains the social process of communicating new ideas among the members of an organisation over time. The theory emphasizes awareness, knowledge, attitude, change and the decision-making process that lead to the adoption of an innovation (Rogers, 2004). The DOI theory is explained by innovation, communication, time, the social system and the critical mass. Refer to chapter three for a detailed explanation.

1.5.2.2. The McKinsey 7S framework's major elements

The McKinsey 7S framework (1982) owes its origins to Robert Waterman, Tom Peters and Julien Phillips and is often termed the 'managerial molecule' because of its shape. It emphasises that an organisation needs to be aligned in seven areas to perform optimally, namely strategy, structure, systems, style, staff, shared values and skills. The McKinsey 7S model is a universal framework which analyses and improves organisational effectiveness to achieve change in the workplace. The framework is defined by seven concepts, namely *structure*, *strategy*, *systems*, *skills*, *style*, *staff* and *shared values*. For an extensive discussion, see Chapter three.

1.6. Research design and methodology

A case study approach was adopted as the research design for this study. This design is "a method of studying elements of society through comprehensive description and analysis of a single situation" (O'Leary, 2004:23). Case studies are flexible in providing in-depth insights of a group's attitudes, perspectives and beliefs through allowing the application of multiple methods of data collection. This design proved appropriate for this study because it facilitated a close understanding of the inevitable changes to the 21st century academic library through the use of mixed methods (Mason, 2006).

This research applied a mixed methods approach comprising qualitative and quantitative techniques. This approach ensured that the researcher went beyond the quantitative statistical results and understood the behavioural conditions through the librarians' perspectives (Creswell, 2003). Multiple methods assisted the researcher not only to extend the logic of quantitative and qualitative explanation but also to think creatively in order to produce sensible and new knowledge (Tashakkori & Creswell, 2007).

An in depth understanding of the research problem was acquired through the use of Web-based questionnaires and through interviews. The mixed methods approach ensured that biases inherent in a single method neutralised and canceled short falls of other tools (Creswell, 2003). The Web-based questionnaire was designed using Google forms (<http://www.google.com/drive/apps.html>) which is available for free. Separate questionnaires were created for librarians, academics, and students (undergraduates and postgraduates). In the case of librarians, questionnaires were only

sent to those who interact with the users and to the management. These questionnaires were distributed with participants via e-mail. An interview guide was crafted for selected librarians. A guideline for library website scanning was designed as well.

1.6.1. Pre-testing research instruments

All data collection instruments were pre-tested before actual use. This assisted the researcher in identifying and refining questions which may have been misunderstood by participants (O’Leary, 2004). To ensure the strength, reliability and validity of the questionnaire and interview guide, the researcher conducted a pilot study with a few librarians, academics and students at the University of the Western Cape.

1.7. Significance of the study

In this present environment every university is striving to meet the standards set by accrediting bodies. It was hoped that the study would make significant contributions towards understanding how academic libraries handle the 21st century information environment. This line of research would benefit those connected to “the development and preparation of personnel in librarianship, including academic institutions, the professional associations and university library networks” (Tanloet & Tuamsuk 2011:123). This study was expected to be particularly useful to the university management, LIS educators and academic library staff in tertiary institutions in Zimbabwe as they compete for the best position in global ranking.

1.8. Scope and limitations of the study

This study was based on the established and mainstream higher education frameworks of three public university libraries in Zimbabwe. Higher education institutions are information intensive, with rigid, hierarchical structures and this offered an excellent opportunity to study the impact of the 21st century information age on academic libraries. Although it could have been interesting to include all nine public university libraries and compare them with the six private universities, unfortunately, this study was self-funded and there were time and economic constraints imposed on it. Thus, only academics, students and librarians at three public universities were involved in this study. Therefore, the extent to which findings could be generalized to other institutions or

settings is not known. Three web-based questionnaires were used for collecting data amongst academics, students and librarians. As a result, participants took longer to respond and the researcher had to wait for a substantial amount of time in order to reach a high response rate and this affected the study time-frame. Additionally, the time-frame of the study was further prolonged because of limited funding.

1.9. Outline of chapters

Chapter 1: describes the focus of the study. It articulates the research questions and outlines the significance of the study.

Chapter 2: provides a wider contextual background of the study by situating it in emerging research on the 21st century academic libraries, librarians and users.

Chapter 3: presents the theoretical and conceptual framework of the study.

Chapter 4: outlines the research design and methodological approach employed in the study's empirical research.

Chapter 5: presents and provides interpretations of the findings.

Chapter 6: provides a full discussion of the findings

Chapter 7: summarises, concludes and makes recommendations by giving a critical assessment of the study's findings in relation to the questions it set out to answer.

1.10. Chapter summary

This introductory chapter mapped out the background and motivation of the study. It further presented the contextual setting of the study which fully describes the situation in developing countries and the Zimbabwean higher education. The chapter explained the problem statement and the purpose of the study. It highlighted the theoretical frameworks which are composed of the DOI theory and McKinsey's 7S model. The research questions as well as the research design and methodology were clarified. The chapter described the research tools which were used in this study. Additionally, the significance of the study, and the scope and the limitations of the study were brought to light. The forthcoming chapter presents a literature review.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

Chapter one laid out the contextual basis of this study. This chapter delves deeper into a review of the literature related to the demands presented by the 21st century information landscape on academic libraries. It presents a comprehensive critique of the following related broad themes: the 21st century academic library, the 21st century academic librarian, the 21st century academic library patron and theoretical frameworks that relate to this study. This chapter discusses studies conducted in Africa (Kenya, South Africa, Zambia, and Zimbabwe), Australia, Canada, China, Europe (Finland, Italy, Lithuania, Poland, and Spain), and United States of America. Literature reviewed in this chapter is governed by the research problem, purpose of the study, and objectives of this study.

The study applied Rogers' (2003) Diffusion of innovation (DOI) theory and the McKinsey 7S model developed by Waterman, Peters and Phillips (1982). Literature synthesized in this chapter reveals a conceptual framework for measuring the needs and expectations of library patrons (academics, postgraduate and undergraduate students). This chapter answers the first research question of this study (*How have academic libraries across the globe embraced changes in the 21st century information landscape*).

2.2. The 21st century academic library

This section explains the present higher education scenario and outlines the major trends in academic libraries across the globe.

2.2.1. Current trends in higher education

The present information landscape is largely characterised by a knowledge intensive society which is fueled by the rapid penetration and use of technology, and an increase in curiosity amongst individuals. This situation shapes the tertiary education system of today, which according to Duderstadt (2000), entails the following and corroborated by more recent literature:

- *Learner-centeredness* – universities have transformed themselves from faculty-centered to learner-centered institutions, thereby becoming more responsive to what students need to learn rather than simply what faculties wish to teach (Horizon Report, 2015).
- *Affordability* – universities are increasingly required to be affordable through allowing educational opportunities for all citizens within the means of available resources. This is so because “society no longer tolerates high-costs at tertiary level, as poor student retention and poor results characterise much of higher education today” (Lynch, 2013; Mrig, Fusch & Cain, 2015; Nisen 2013; The Economist, 2015; Williams, 2011:51).
- *Lifelong learning* – advanced education and skills will require willingness to continue learning throughout life and a commitment on the part of institutions to provide such opportunities. The concept of student and alumnus are being merged, in which primary and secondary education, undergraduate, postgraduate and professional education, on the job training, continuing education and lifelong learning become a continuum (IFLA Trend Report, 2015);
- *Interactivity and collaboration* – new forms of pedagogy, such as learning to use information technology to break the constraints of time and space, make learning opportunities more compatible with lifestyle and career needs. Interactive and collaborative learning techniques are well-accepted approaches amongst the digital age generation (Cheon, Lee, Crooks & Song, 2012);
- *Diversity* – the great diversity characterizing higher education will continue, as it must serve an increasingly diverse population with diverse needs (Rodriguez, 2015).
- *Intelligence and adaptivity* – knowledge and “distributed-intelligence” technology is increasingly fostering the construction of learning environments that are not only highly customized but adapted to the needs of the learner (Pluta-Olearnik, 2017:63).
- *Scientific Research* – universities demand “very deep knowledge and scientific penetration in diverse fields such as medicine, computer sciences and social sciences” (Olearnik & Pluta-Olearnik, 2015:115).

There is growing competition in the higher education sector because of pressure from market forces, which contributes to the university libraries undergoing change to stay current and competitive in their areas of operation (Malham, 2006). Technology has impacted on higher

education particularly in Australia, China, the United Kingdom and the United States but it is important to conduct background research before deploying it (Jacob, Xiong & Ye, 2015; Kirkwood & Price, 2014; Kumar & Daniel, 2016; Thanaraj & Williams, 2016). Academics remain reluctant and unwilling to use technology for teaching because they believe that the traditional mode is more effective (Bickham, Bradburn, Edwards, Fallon, Luke, Mossman & Ness, nd; Cambridge International Examinations, 2015; Straumsheim, Jaschik & Lederman, 2015). On a different note, scholars state that technology enhances teaching through creating a better understanding for students through the use of multi-media tools and refining their synthesising skills (Centre for Educational Research and Innovation (CERI), 2008; Granito & Chernobilsky, 2012; Horizon Report, 2015; Scott, 2015). The Educause Center for Analysis and Research (ECAR) report (2014) states that their universities are using the simplest technologies such as the Internet and projectors. Similarly, in most African countries, the Internet is growing and smartphones are prevalent (United States Agency for International Development, 2015).

Moreover, King (2011); Swan, Wilmers, and King (2014) and Wegner (2008) maintain that internationalisation and globalisation of higher education has put pressure on institutions to compete regionally and globally for students, funding and prestige. This has resulted in the need for librarians to actively take the lead in disseminating and facilitating re-use of knowledge produced by their university community. Research conducted by the Southern African Regional Universities Association (SARUA) notes that there are low levels of internationalisation amongst universities in the Southern African Development Community (SADC) region (Kotecha, 2012). SARUA revealed small initiatives made in Mauritius, Botswana, Tanzania and South Africa in this regard. It was concluded that there are slow, uneven and low levels of regional and international collaboration. The situation in the SADC region is said to be driven by tremendous challenges such as insufficient capacity, developing, recruiting, renewing and retaining capable human resources, inadequate funding and resources (Kotecha, 2012).

2.2.2. Current trends in the academic library

Academic excellence cannot be achieved by ignoring the libraries of educational institutions. For this purpose, strategic vision and strong leadership is required to bring about change (Shan & Shaheen, 2013). Academic libraries are the soul of the university. Their main objectives are to

promote research activities, conservation and dissemination of knowledge, to inculcate reading habits and extension services (Joshi, 2013). The 21st century academic library concept is driven by new strategies of scholarly communication, the creation of new institutional frameworks, and electronic resources are an integral and permanent part of library collections (Roemer & Borchadt, 2015a). More specifically, academic libraries are addressing a plethora of scholarly and research resources characterised by emerging standards in e-publishing, access to digital collections, new roles for libraries and librarians and preserving digital resources (Walters, 2007).

Some of the visible trends of the 21st academic library as identified in the literature are: patron driven collection development, a largely digital collection, open access electronic resources such as institutional repositories, e-books, new spaces such as information, learning and research commons, and relative dependency on the social web (Facebook, Twitter) for service provision (Afebende, Ma, Mubarak, Torrens, Ferreira, Beasley, Chu & Ford, 2016; Canadian Association of Research Libraries (CARL), 2010; Chuta, 2015; Jain, 2013; The University of Adelaide report, 2015). Academic libraries are meant to maintain intellectual stimulation through offering mobile services which include mobile sites, text messaging services, mobile access to databases, the catalogue, chats/IM services, and social media accounts and applications (Li, 2013; Liu & Briggs, 2015; Pease, 2017; Wilders, 2017). Mobile services in academic libraries are facilitated through devices such as smartphones, tablets, e-book readers, laptops, handheld gaming tools and portable music players (Cannel & Crichton, 2011; Elmore & Stephens, 2012).

In 2011, the Electronic Information for Libraries (EIFL) organisation reported that most Zimbabwean librarians were competent in traditional roles but had limited technological skills. Notwithstanding these alarming findings, librarians assessed themselves as technologically highly skilled. Along the same lines, Chisita and Mataranyika (2013) and Chikonzo, Bothma, Kusekwa and Mushongwa (2014) revealed in two separate studies that in Zimbabwe little has been done to contextualize technological developments and their effect on job descriptions and job specifications for librarians.

2.3. The academic librarian in the 21st century

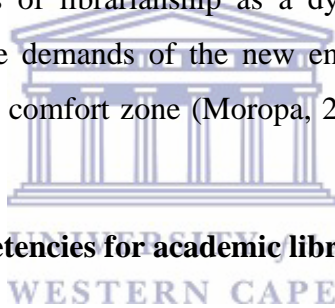
This section focuses firstly, on providing clarity to the major impetus for change amongst academic librarians; it then further identifies and describes the new roles, skills and competencies for

university librarians; and lastly, explains the attitudes and perceptions of librarians in the 21st century.

2.3.1. The major forces for change amongst academic librarians

The Association of College and Research Libraries (ACRL) Research Planning and Review Committee (2012); Heidorn (2011:662); and Jain (2013) attribute the academic librarians' strongest driving factors of their transformation to the rapid advancement in technology, evolution in the education system, changing user needs, emergence of social media, data curation, mobile technologies, patron-driven e-book acquisition and changes in scholarly communication.

This major shift has triggered two schools of thought: one states that librarianship is a dying profession and that it would not exist beyond the 21st century (Friend, 2013; Matthews, 2011; Rossiter, 2012), while proponents of librarianship as a dynamic profession express that the profession is evolving to meet the demands of the new environment highlight that academic librarians should step outside their comfort zone (Moropa, 2010; Proffitt, Milchako & Renspie, 2015).



2.3.2. New roles, skills and competencies for academic librarians

In libraries, change cannot only include technology, resources and services but also the library staff and user expectations. In this dynamic information environment academic librarians are reframing their original structure, roles and competencies to meet the demands of the new environment and fulfil the required services and collections. In this current demanding environment and increasingly changing work requirements, skilled library personnel are equally important (Malham, 2006). Due to massive shifts in higher education, tertiary institutions are being encouraged to recruit international students more aggressively (Hoover, 2014). This bold decision demands that academic libraries cater for these students through ensuring their awareness of the library services and resources and provide them with adequate information literacy skills programmes specifically addressing the issues of language barriers (Crowe, 2015; Rod-Welch & Brakeville, 2015). A collaborative approach amongst librarians has become a critical component towards managing change in academic libraries (Garrison, Kohler & Smith, 2015:238). For example, a case study of the Hong Kong University of Science and Technology (HKUST) Library

revealed that nurturing the ability to decode, assess and filter incoming environmental impact collectively is an important competence (Chan, 2012; Chan & Soong, 2011). The incoming environmental impact entails dynamic trends in higher education and the everchanging user needs. These factors affect the academic library through forcing them to rethink, and to reorganise their work structure and service delivery systems.

In addition to using advanced information tools and software, academic librarians also need other specialised skills such as teaching to provide satisfactory services (Shank & Bell, 2011). This role can be fulfilled through forging partnerships with faculty (academics, researchers, students) in promoting e-learning and teaching (Hensley, 2015; Walters, 2007:58). Cultivating long-term partnerships between the library and faculty will assist in achieving institutional-centric rather than library-centric services (Coetsee & Weiner, 2013:119; Gibson, 2015). Academic librarians in the USA and Canada seem to believe that research data electronic services are consistent with goals of their parent institutions (Tenopir, Sandusky, Allard & Birch, 2014). In Australia, Howard, Partridge, Hughes and Oliver (2016) note that librarians need skills for problem solving, critical analysis, critical reasoning and a passion for understanding their work environment including their patrons. Calarco, Shearer, Schmidt and Tate (2016) attest that librarians will need to have a broad perspective and understanding of scholarly publishing services, open access repository services, copyright and open access advice, and assessment of scholarly resources.

The current scholarly communication terrain is characterised by more complex, and extremely diverse forms of intellectual output being generated. These include data sets derived from research, learning and complex multimedia objects used in instruction, simulations, visualizations, and other forms of digital models and audio webcasts of conferences, lectures and symposia (Young, 2015). To complement these developments librarians are creating and maintaining Institutional Repositories (IRs) for their institutions. The IR is defined as a central tool in approaching the challenge of organising and accessing both formal and informal scholarly communications that will be created, transmitted and maintained in a myriad of digital forms (Walters, 2007).

In this regard, there is growing support of the research lifecycle in higher education, from creation right through to curation and consumption (Canadian Association of Research Libraries (CARL), 2010; Bell, Dempsey & Fister, 2015). Academic libraries offer support throughout all stages of the research cycle, by creating Libguides. Libguides are used for content management and they

are presented in the form of subject guides, course guides, research guides or information portals (Rasul & Singh, 2010). For example, a research guide with a clearly defined research cycle covers stages such as a) Discovery, which entails grant funding, links to latest scholarship; creating research problems; the second stage is b) Creation, which is based on guidelines in designing research methodology, data collection methods, collecting, testing and analysing as well as interpreting data, and c) Dissemination, includes repositories for articles and data, publishing work on the Web, author's rights and copyright including tracking research impact. That is to say, research data, educational resources or working papers are managed and archived so as to be shared with individuals elsewhere (Council on Library and Information Resources (CLIR), 2010). Librarians are being embedded in the research and teaching workflows through practising research data management, open access publishing, and information literacy to satisfy scholarly users' demands (Green & Courtney, 2015).

Research librarians need to be acutely aware of the learning needs of researchers as a form of support. This has prompted a new role for librarians known as the research informationist (Federer, 2014). Above all they need to carry skills for sourcing research funding for their research communities (Wolstenholme, 2015). Mower, James, Weber, Yaffe & Youngkin (2012) allude to the point that it has become imperative for academic librarians to gather knowledge based on the publication patterns of their institution's researchers because this provides an additional source to support collection development and scholarly communications programming.

A survey conducted by Cassella and Morando (2012) in Italy investigated new professional roles and skills for effective Institutional Repository management. It revealed that data curation is a strategic role for repository managers, which entails managing digital archives. The researchers warn that traditional librarian skills do not suffice anymore to run successful repositories. The traditional librarian acted primarily as the keeper of print copy records and books (Foskett, 2015; Kramer, 2004).

Recently, Chanetsa (2014) investigated the roles, responsibilities and skills of subject librarians in the Southern African Customs Union. Using questionnaires and interviews, the researcher determined the roles of subject librarians in teaching, learning and research support to faculty members, students and researchers. The findings further highlight that subject librarians are using a combination of traditional and modern modes of service delivery (dual or hybrid model).

Traditional academic library services are associated with the physical library building(s) on campus, and as the location where collections of printed materials are maintained, reference assistance is delivered, and access to electronic resources is provided (Kramer, 2004). On the other hand, modern academic library services are largely characterised by virtual operations where interaction and scholarly literature is online.

Another study conducted by Sutton (2011) identified core competencies for e-resources librarians in the 21st century library in the USA. Sutton applied content analysis to job adverts and Masters in Library and Information Science (MLIS) curricula and compared these with American Library Association (ALA) core competencies. Sutton's findings reflect the importance of continuing education since an ALA accredited MLIS degree is a major requirement for e-resources librarians. Additional requirements are ICT related skills such as integrated library systems knowledge. Even in South Africa, according to Ocholla and Shongwe (2013:38), academic librarians are increasingly required to specialise in specific subjects and this requirement has influenced the change in their job titles.

One current academic librarian skill which has evoked a lot of attention is that of “user experience” or UX librarian. It is a concept which is largely dependent on ethnography and designed to first understand and then improve the experiences patrons have when using the library. Priestner (2014) created the first UX in libraries. Priestner defined the concept as a way of studying cultures through observation, participation and other qualitative techniques with a view to better understand user interests and needs which are not clearly articulated (Potter, 2015: online). In this light, the UX librarian's role feeds into another critical role for academic librarians, that of being a researcher. Academic librarians are expected in this 21st century to engage in research as part of their job description (Wilkinson, 2013:55). In addition to investigating the needs and expectations of their campus community, research may include a comparison with other countries to justify funding (Coetsee & Weiner, 2013).

In connection with efforts of understanding and providing relevant information to users, academic librarians are utilizing altmetrics. Roemer & Borchardt (2015b) define altmetrics as a concept that is conceived from the changes in scholarly communication. It is a strictly 21st century approach to impact measurement that relies heavily on the connection between scholarly activity and the opportunities afforded by the social web (Roemer & Borchardt, 2015c). The social web platforms

(Facebook, Twitter, Slideshare, Academia.edu, Mendeley, and Research Gate) sparked free sharing of journal articles online initiated by librarians through the Open Access movement. This assists librarians in acquiring relevant resources for their research community. To comply with these demands, academic librarians are expected to harness social media skills for instant communication with their users and to provide free access to quality teaching and research resources available in the world (Harvey & Higgins, 2003).

This current information era also demands that librarians should engage in marketing not only the libraries where they work, but the profession in which they serve (Lucas-Alfieri, 2015). This is important because library patrons require understanding of the relevance of such expertise; and this may result in better cooperation and collaboration between librarians and users (Peacemaker & Heinze, 2015; Smith, 2011). Kwanya, Stilwell and Underwood (2015) suggest that librarians should conduct outreach programmes in places outside the library such as book clubs and student centres to allow a relaxed atmosphere for patrons to learn more about their profession and the library itself.

There should not be an oversight towards the importance of adoption and use of e-books among academic librarians. This is imperative because it will act as an eye opener for academic librarians to motivate library users to access and use these resources. A study conducted in South Africa by Zinn and Langdown (2011) found that there is a gradual trend towards e-book adoption amongst academic librarians, with most of them preferring to use both print and electronic books. The reasons behind low adoption were that e-books are expensive when using the subscription model and a limited number of e-books in all subject fields. At Auburn University in Montgomery, Baley, Scott and Best (2015) analysed 264 titles requested by faculty (out of 462 total requests) that were available in both print and electronic format. Bearing in mind the limited budget allocation to academic libraries, Baley, Scott and Best (2015) concluded that, on average, print books are cheaper than e-books in terms of acquisition.

2.3.3. Attitudes and perceptions of academic librarians

For change and growth to occur, libraries should not only consider new skills but individuals themselves and their social structures (work environment). This means that academic libraries require a thorough understanding of the individuals' attitude towards change at work (Silva,

Galbraith & Groesbeck, 2017; Miller, 2015). Banda (2010) studied the attitudes of Zambian librarians in the use of ICTs. With the aid of self-administered questionnaires, the study found that older librarians are uncomfortable to learn new ICT skills in comparison with younger librarians. The study further reveals that older librarians fear change in their work routines brought about by ICTs.

Blackburn (2011) mentioned that millennial or younger librarians have strong online presences and follow trends constantly through social networking platforms. Due to this, the author applied Rogers' (1995) Individual Innovativeness model which consists of five constructs and these include innovators, early adopters, early majority, late majority and laggards. Blackburn (2011) used the Individual Innovativeness theory by referring to millennial librarians as innovators and early adopters of new innovations. They are skilled and have optimistic attitudes which tend to influence other librarians to adopt innovations for professional work. The "transformed landscape requires a new generation of LIS professionals to effectively and efficiently mediate it" (Raju, 2014:163).

The younger librarians are referred to as the millennial librarians, specifically defined as the new generation of librarians. The millennial librarians are actively engaged in their own continuing professional development. In this regard, they "value mid-career librarians more than senior-career librarians because they have deep knowledge of specific subject and willingness to share this knowledge with other librarians' work" (Munde & Coonin, 2015:137). They also manifest a wide array of positive social habits as opposed to the older generation of librarians. Munde and Coonin (2015) found that IT departments were not only occupied by the millennials meaning that IT skills may have become integrated into regular duties of all academic librarians. Moropa (2010:387) argued that "librarians tend to resist change when confronted by the reality of the new technologies, such as the Internet, Google and Web 2.0 tools". Their stance tends to be that the library is superior or better than those new technologies or they look for faults with those technologies. Clearly, they view the new technologies as a threat to their job, hence, their defence of the library profession.

2.4. The 21st century academic library patron

The 21st century is dominated by university communities with an increased urge for seamless access to relevant and accurate information to satisfy their changing information needs in current

fields of knowledge (Jayasunya & Brilliantine, 2007; Nyamache, Munyao, Nyambura & Nyamboga, 2011). This section highlights academics', undergraduates' and postgraduates' requirements and expectations of the 21st century academic library. The focus is on Open Educational Resources, e-books, flipped/blended classrooms, m-learning, new library spaces, and information literacy programmes, amongst other issues.

2.4.1. Use of Open Educational Resources (OERs) in teaching and learning

Traditionally, academic libraries were the campus monopoly in terms of information provision but now they are faced with competition from online information providers (Ross & Sennyey, 2008). Bell, Dempsey and Fister (2015) maintain that research and learning practices have been influenced by research management systems such as Mendeley, Academia.edu, Google Scholar, Amazon, Research Gate, and Pubmed amongst others. Researchers are turning away from traditional publishing venues and opting to disseminate their findings in online community vetted forums. In other words, students and scholars are increasingly bypassing the library to satisfy their information needs with other information providers. These changes are disruptive as they challenge the traditional role, purpose and operations of the library. The Ulster University report (2015) provides a list of teaching support viz. lecturers recommending materials for purchasing books, e-books and non-book material, journals, collections and information access policy, examination papers and course validation.

While this transformation might seem impractical in an African context because of technological limitations, Cronje (2013), a researcher, academic and supervisor of doctoral students in the faculty of Informatics and Design at the Cape Peninsula University of Technology in South Africa has defied the odds by not relying on the library both physically and virtually. Cronje developed his own mini Open Online Course (mOOC) which emphasises the use of free online resources to find scholarly materials. The mOOC application is mainly composed of Google applications such as Gmail, Google drive, Google analytics, Google Calender, Google groups and Google hangouts. His concept also involves the use Wikipedia, Google Scholar, Mendeley, Zotero, ResearchGate, Academia.edu, blogs, Twitter, Facebook and YouTube. Massive Open Online Courses (MOOCs) generate unique opportunities for academic libraries and academic librarians are recommended to incorporate them when designing ILS programmes (Wu, 2013).

While Cronje referred his students to YouTube for tutorials, in Hinnant and Miller's (2015) study, 58% of faculty urged students to visit the reference desk for assistance with research and 34% of faculty invited a librarian to class. Even though it is apparent that users in the 21st century require library support and assistance, for example, faculty are struggling to understand copyright and intellectual property policies demanded by publishers, funding agencies and their institutions, research has shown that faculty and students perceive library services as secondary to their scholarly practices and prefer using online tools such as Google (Berg, 2015; Brantley, Bruns & Duffin, 2015). Similarly, Hall's (2015) research revealed that while faculty has low levels of engagement with open access issues and services, they demonstrate a curious interest in gaining knowledge with regards to the subject. This means that faculty heavily invests time in disseminating their research but are less likely to devote time to understanding the terms of use for their published works (Duncan, Clement & Rozum, 2013).

Getting academics and librarians to work together, even when it has obvious advantages, remains a tough struggle to win. This is evidenced by the findings of a study conducted by the Library Journal and Gale Cengage Publishing (2015) which highlights that the majority of academics (87%) feel that the library is essential to the success of students and the faculty themselves in conducting research. However, fewer than half the faculty (45%) desired better communication with librarians whilst 98% of the librarians felt there was a greater need in that regard. Furthermore, faculty felt there is no need to create ties or consultations with librarians. A closer analysis of the Library Journal and Gale Cengage Publishing's research findings shows that librarians are more eager to create good communications than faculty.

2.4.1.1. Use of e-textbooks for teaching and learning

Young (2015) mentions that many education professionals view Open Educational Resources (OERs) as an alternative to traditional print textbooks and their adoption as one method for reducing the overall cost of higher education. Research conducted by Hilton and Laman (2012) has shown that the introduction of open textbooks results in the reduction of class withdrawal while also improving the student's final examination scores. With reference to the findings of a study conducted by Lindshield and Adhikari (2013), students seem to prefer using online/free textbooks instead of buying a traditional textbook which is expensive. Academics in different geographical locations have exposed varying preferences in terms of resources formats. In Spain, academics

used academic journals for teaching postgraduate students and textbooks for teaching undergraduate students, they further preferred print textbooks for reading book chapters and used e-textbooks for skimming (Daniel, 2016). On a different note, Polish and Lithuanian based academics valued online resources more than print materials (Mierzecka, Kisilowska & Suminas, 2017). Advantageous as e-textbooks may be, Hobbs and Klare (2015) as well as Mune and Agee (2015) identified some barriers that hinder access of these materials. Some of the obstacles are password barriers, the need for collaborative features on e-textbooks platforms and access to full book titles as a whole not by separate chapter/section (Hobbs & Klare, 2015). Sacchanand (2012) and Cameron & Siddall (2015) maintain that academics partner with librarians in the compilation of the e-textbooks as well as print textbooks.

However, not all academics are interested in using free/online resources for teaching and learning. Findings from two independent studies revealed that some academics mentioned that they are not familiar with open access resources and have never used them in teaching (Allen & Seaman, 2014; Young, 2015). Other reasons for not using OERs were pinned on not finding relevant resources. Both studies suggested that librarians should market free sources of information and educate the faculty on how to retrieve these resources. In addition, libraries may encourage the use of OERs by offering grants to faculty, whereby the grant recipients are required to redesign their courses to use free-to-student materials (Lindshield & Adhikari, 2013). The course materials will include open educational resources, library books or articles to deliver course content (Joseph, 2015).

2.4.1.2. Flipped and Blended classrooms in higher education

The introduction of learning objects to the teaching and learning environment has changed the way classes are delivered in terms of breaking educational content down into small chunks that can be re-used in various learning environments. These are crafted in such a manner that supports class-related instruction for the purposes of illustrating, demonstrating, or stimulating principles or conditions. A good example is the use of visual literacy as part of learning criteria (Hattwig, Bussert, Medaille & Burgess, 2013). Heinz and Callender (2015) describe flipped classrooms as inverting the traditional model where content is provided outside the classroom and assigned work completed during scheduled class time. For example, assigning readings outside class for students

to prepare and participate in class discussion in the next class. According to Datig and Ruswick (2013) this teaching and learning style allows students to review materials at their pace and review as often as needed. Another advantage of using flipped classrooms is that students apply the information they read to class assignments leading to deeper understanding and mastery of the content. The concept of flipped classrooms is sometimes interwoven with the use OERs in teaching and learning. In this current environment students are required to bring their own electronic devices on which they can access the online resources and take part in classroom activities (Murphy, 2013).

Blended learning is a concept that combines any form of instructional technology (for example, web-based training and videos) with face-to-face instructor led training (Driscoll, 2002). The New Teaching Project (TNTP) (2014) described blended learning as a strategic integration of in-person and virtual learning thereby offering an opportunity to rethink how teachers teach and students learn. In other words, Fahlvik (2014) defines a blended classroom as that which fuses the physical classroom with an online learning space in order to improve education for the students. Blended classrooms offer a lot of opportunities such as, allowing the gradual change of learners from traditional classroom to e-learning thereby making it easier to accept. Blended classrooms allow learning institutions to supplement or complement courseware rather than replace it. A survey conducted by Chen and Jones (2007) at a university in the Northern United States revealed that students in the traditional setting were more satisfied with the clarity of instruction whereas students in the virtual-learning section indicated that their analytical skills improved as a result of the course. Chen and Jones (2007) concluded that while the traditional learning and virtual learning are equally good they may be improved by incorporating aspects of the other.

In academic libraries the flipped and blended classrooms shift the manner in which information literacy is delivered. For instance, Bloedel and Fuchs (2015) highlighted that at the University of Iowa business librarians are now teaching more IL sessions beyond the business building. They also teach (using the blended classroom concept including fun activities e.g. games and food) the college of Law and Engineering, meet students at residence halls, present to community members, work with the university's career center and training research foundation interns. In order to encourage the flipped classroom model most academic libraries are adopting the Bring Your Own Device (BYOD) which allows the use of personal devices laptops, tablets, smart phones or other mobile devices (Brown & Pallitt, 2015; Horizon Report, 2015). Levesque and Kunnapas (2015)

indicated that students who are exposed to the librarians' blended learning environment are more likely to achieve better academic performance. Chang and Chen (2015) hold a different opinion through stating that attending IL courses whether as an optional stance or as a requirement is not a key factor in learning, instead factors such as attention, relevance, confidence, satisfaction (ARCS), an ACRS based motivational course, and an inquiring learning environment are critical for achieving effective online IL courses and better learning outcomes. In corroboration with Chang and Chen's (2015) results, Miller (2017) found that a flipped library instruction approach did not improve student learning outcomes.

Dhamdhere (2016) maintained that a video lecture is often seen as the key ingredient in the flipped classroom approach then class time is used to do exercises, problem solving activities, group discussions and peer collaboration. The instructional technology is used for distributing lecture materials prior to the commencement of the actual lecture. Obradovich, Canuel and Duffy (2015) postulate that 107 (76%) of the libraries provide instructional videos on their websites but only two (2%) instructed users to watch instructional videos before attending a library research workshop. When utilizing the flipped instruction model some libraries measure learning indirectly through instructor and student perceptions of learning, other librarians measure student engagement which is an indicator for learning and very few assess students via quizzes, exams or final course grades (Arnold-Garza, 2014; Boucher, Robertson, Wainner & Saunders, 2013; Finland-Thompson & Momborquette, 2014). The flipped classroom concept was also applied in teaching librarians how to conduct systematic reviews in evidence-based health care and conducting an exhaustive literature search, documenting the search process and delivering organised and complete results (Conte, MacEachem, Mani, Townsend, Smith, Masters & Kelley, 2015).

2.4.1.3. Mobile learning in higher education

Mobile learning (m-learning) is a unique model for conveying knowledge and it is very much intertwined with the use of OERs and flipped and blended classrooms (Crow, Santos, LeBaron, McFadden & Osborne, 2010). The mobile environment is largely shaped by the use of devices such as smartphones, iPods, netbooks, iPads or tablets which are becoming ubiquitous among university students. In the UK, Italy, Sweden and the Czech Republic mobile technology penetration is more than 100%, hence m-learning is widespread in such countries (Newman,

Fletcher, Levy & Nielsen, 2016). Cheon, *et al.* (2012) postulate that this educational model embraces e-learning which is a vehicle for the integration of four learning approaches: a) individual learning, whereby students learn at their own speed; b) situated learning, (is) realised as students learning within a real context; c) collaborative learning, is based on mobile device applications ensuring easy interaction and instant communication amongst students as well as encouraging group work; and d) informal learning, (is) described by students learning out of class at their convenience.

The use of e-learning platforms has increased amongst academics globally, but in Kenyan universities the platforms were underutilised because of lack of skills and poor infrastructure (Makhokha and Mutisya, 2016). Some current teaching and learning technologies utilized by academics are interactive whiteboards, software applications for operating on mobile devices, and social media platforms (blogs, WhatsApp, wikis, RSS, social networking and tagging) (Ahalt & Fencho, 2015; Computer Information System Company (CISCO) report, 2014; the Institute for Teaching and Learning Innovation, 2016).

M-learning is an appropriate avenue for the integration of student-centered learning because many students own mobile devices. This has motivated the USA government to contemplate the transition from paper-based to digital textbooks to reduce costs (Hefling, 2012). Consequently, academic libraries are expected to offer mobile services in support of m-learning which entails the availability of mobile devices for borrowing purposes or use within the library. This may include tablets preloaded with course materials for students. For example, databases offered by academic libraries such as EBSCOhost and JSTOR; academic libraries' websites having mobile applications which allow self-service features such as book renewal, reservations and finding recommended texts (ACRL Research Planning and Review Committee, 2012).

2.4.2. Dynamic services for a new generation of undergraduate students

Today's undergraduates are now part of the new generation in or after 1982 and often labelled Generation Y but also referred to as the Net Generation, the Digital Generation, the Echo Boom Generation or the Millennials (Gardner & Eng, 2005). These students are unique because they are more ambitious and favour different values and learning styles. The behaviour of these students has posed implications for higher education and academic libraries. Changes in information

seeking behaviour amongst the user community has also forced libraries to reorganise their units such as reference, cataloguing, acquisition and circulation (Kwanya, Stilwell & Underwood, 2009). These units comprise services such as automation, digitisation, Resource Description and Access, content management systems, online purchasing, virtual reference and research services to satisfy their students', faculties' and researchers' needs and expectations (Miller, 2015). Kuh and Gonyea (2015) acknowledged that undergraduates utilized the library's study space, requested librarian assistance, accessed the reservation section and the online databases. Recent studies (Banleman & Adjoa, 2017; Brown & Malenfant, 2017) highlight that library use increases student success.

Research carried out by Jantz (2012) pertaining to innovation in academic libraries, revealed that innovation is a critical process for the library to survive and thrive in the 21st century. The researcher interviewed library directors and found that innovation has impacted scholarly communication between librarians and users. Interestingly, in some libraries undergraduate students did not want librarians to be in the middle of their information seeking behaviour. While other directors stated that faculty, staff and students were very engaged in redesigning their library space. One example of an innovation identified in Jantz's study was the development of an Institutional Repository to support user research requirements. It is evident that academic libraries should become more responsive to the changing demands of students and faculty members, marking trends and benchmarking against comparative institutions (Ameen, 2011). The appointment of a specialized librarian may assist in strengthening student engagement in order to shape library services and resources (Klain-Gabbay & Shoham, 2016).

In this modern environment several spaces (information, learning and research commons) have been created in academic libraries. In some academic libraries the reference collection has been moved to virtual environments and, users at the University of Denver and Syracuse, for example, protested at the move of collections to offsite storage arguing that access to printed volumes remains a function more valuable than additional study space (Bell, Dempsey & Fister, 2015; Cook, 2017; Gomez & Gould, 2010; Seal, 2015). Countless studies (Abusin & Zainab, 2010; Ashaver & Bem-Bura, 2013; Baharuddin & Kassim, 2014; Farrell, 2016; Kiilu & Olike, 2016) reveal that undergraduates shunned the library because librarians were ill-skilled, not friendly and not making follow-up questions. To create a friendly and warm environment, academic librarians

are increasingly employing the use of face-to-face interaction (Australasian Survey of Student Engagement (AUSSE), 2008; Holmes & Woznicki, 2010; Islam, Agarwal & Ikeda, 2017; Young & Rossmann, 2015). Brown and Malenfant (2017); Chimah, Nwajei and Akom (2015); Kolendo, (2016); Nicholas, Sterling, Davis, Lewis, Mckoy-Johnson, Nelson, Tugwell and Tyrell (2015) and Wilcox and Chia (2013) propose that academic librarians should increase the levels of online and face to face interaction with the library clientele since patrons benefit from following through demonstrations.

Research conducted by Burker (2015) and Diller (2015) recommend that academic libraries should be redesigned to meet three learning styles such as learning by doing, learning through conversation and learning by reflection. For this to happen, students require comfortable furniture and well-equipped spaces which allow the use of mobile technologies including smartphones (Andrews & Wright, 2015). On the flip side of these much-lauded new library spaces, research has proven that there are great distractions to some patrons. For example, in a study conducted by Regalado and Smale (2015) some undergraduate students were frustrated by the crowdedness and too much noise in the academic library as well as other students' activities due to the new library designs that incorporate the social aspect of learning. Dresselhaus and Shrode (2012) observed a difference in resource usage patterns, as a majority of undergraduate students used e-books, library catalogue and e-journal articles a few times per semester whilst postgraduates continuously accessed these resources.

2.4.3. Postgraduate students' requirements and expectations

Postgraduate students are described as the most intense and persistent consumers of library services, collections and resources; above all technologically savvy, independent learners as well as budding teachers and researchers (Goldenberg-Hart, 2008). Rasul and Singh (2010) found that 90% of the postgraduate students acknowledged the role of university libraries in facilitating research. Over 65% of researchers continue to rely on the academic library for access to print and electronic resources (Hart & Kleinveldt, 2011:37).

A comparison of the information literacy skills of 41 commencing postgraduate and 23 undergraduate students at Curtin University in Australia revealed that postgraduate students expect to be taken through information literacy (IL) programmes (Conway, 2011). Further, Conway states

that librarians and instructors should identify information literacy gaps amongst different user groups and address them adequately. In this 21st century information environment where students are faced with an avalanche of online information it has become a prerequisite for librarians to take an active role in teaching IL. In most developed countries such as Finland, the academic community are in full support of information literacy programmes offered at their libraries and they appreciate its immense contribution towards the production of high quality graduates (Beilin, 2016).

Separate studies conducted at the New York University, University of Minnesota and University of Washington investigated the library needs and expectations of postgraduate students. The studies revealed that postgraduate patrons prefer remote access to the library and they specifically require “thought centers” which are flexible, temporary spaces where speakers and resources from across disciplines can be brought together (Marcus, Covert-Vail & Mandel, 2007:12; Seal, 2015). It was also found that they rely heavily on electronic resources and collections but they are not entirely confident in their search skills and where to find relevant information, as such, they require assistance from librarians (Goldenberg-Hart, 2008; Green & Courtney, 2015; Hart & Kleinveldt, 2011; Spiro & Henry, 2010). RDM services represent new trends in library services but there many factors to consider when implementing new ideas/concepts (Corrall, Kennan, & Afzal, 2013; Toohey & Poulton, 2016) Academic libraries are expected to offer RDM support by creating and implementing data management plans and to do this they have to rope in the research office, IT services and ethics committee (Meier, 2016; Schmidt, Calarco, Kuchma & Shearer, 2016). Schmidt and Shearer (2016) state that RDM services (managing a data set collection, formulating policies in relation to RDM) will require librarians to have some level of subject knowledge including basic understanding of the discipline, norms and standards. Islam, Agarwal and Ikeda (2015) found that postgraduate students wished that the library offered a service for archiving research data because they would want to know that their data is safe and available for future generations to access and develop research as well.

In some cases, students may view themselves as good researchers but a closer investigation may prove them otherwise. This scenario is revealed by studies conducted by Fleming-May and Yuro, (2009), and Monroe-Gulick and Petr (2012) where postgraduate students are reluctant to approach a librarian because of a self-perpetuated mind-set that they are already expected to be independent

researchers and this thought was triggered by their evolution in identity from undergraduate (dependent learners) to postgraduate (independent learners). Another reason for not consulting librarians is that postgraduate students believe themselves to be too busy to attend an on-campus workshop during the week (Roszkowski & Reynolds, 2013).

Brown & Malenfant (2015) report that postgraduate students are required to keep up to date with the latest developments in their various disciplines. In this light, academic librarians are using social media platforms to facilitate instantaneous communication (Garofalo, 2013; Harrison, Burrell, Velasquez & Schreiner, 2017; Mabweazara & Zinn, 2016). Jayasunya and Brilliantine (2007) in their study focused on the expectations of law students in the modern information era. It was found that they require services offered through e-learning platforms such as Blackboard which incorporate its own social media (share documents and participate in chat messages).

Much as libraries encourage the use of research management tools such as Mendeley, Refworks, Endnote and Zotero, most postgraduate students do not use any of these tools (Bussell, Hagman & Guder, 2015; Conrad, Leonard & Somerville, 2015). For many postgraduate students these tools waste their time as they try to achieve optimum performance of these software applications and they are frustrated by the complexity of these tools (Alverson, Schwartz, Brunskill & Lefager, 2015; Garipey, Hodge, Doherty & Clark, 2015). Contrary to postgraduates, academics are using research management tools to maintain their personal research (Metzler, 2013; Otieno & Matoke, 2014; Schmidt & Dierkes, 2015).

In Kenya, users of private university libraries revealed that they require comprehensiveness and accessibility of library materials and services, immediate gratification as well as ease of use of multiple formats and media (Nyamache *et al.*, 2011). In summary, the needs and expectations of students and faculty include fast, easy and seamless access to pertinent information. There is high demand for flexible, comfortable places to work alone as well as collaboratively with colleagues. Undoubtedly, all university library clients require assistance to navigate an avalanche of online information sources, and this makes information literacy programmes top priority in this 21st century academic library.

2.5. Chapter Summary

Academic libraries in the USA are already addressing the needs and expectations of the 21st century patron whilst those in developing countries are still trying to adjust to the 21st century information environment. For academic libraries in developing countries to respond to the changing demands of students and faculty members, universities should strive to adequately fund them. This will in turn afford them a chance to mark trends against comparative institutions globally. This chapter chronicles firstly, in general, the latest innovations of a 21st century academic library and these include redesigned spaces known as the research, learning and information commons, e-collections, the promotion of open/free access to online resources (e-textbooks), institutional repositories and actively using the social web to interact with patrons. Secondly, the skills and competencies required for an academic librarian in this current information environment; namely that of research which yields job titles such as research informationalist, UX librarian, research librarian, research data manager, Institutional Repository specialist and digital curator. Librarians are also expected to be teachers through imparting information literacy skills and monitoring altmetrics, thus required to be actively involved in the use of social media. Thirdly, academics require links to research grants, support regarding all activities involved in the research cycle, support in offering m-learning and flipped/blended classroom, access to information pertaining to intellectual property and copyright issues; and more support the use of OERs. Fourthly, postgraduate students expect basic assistance with the use of electronic databases, the need for less noisy spaces, equipped research spaces and access to materials for enhancing 21st century teaching and learning skills. Lastly, undergraduates demand comprehensive information literacy (IL) programmes, access to learning objects, spaces which allow collaboration and discussion, access to mobile technologies and facilities that support the use of these devices.

The following concepts which define patrons' expectations of the modern academic library were identified in the literature and these will underpin the conceptual analysis; 1) Current scholarly communication - digital curation, research data management, Institutional Repositories; 2) New pedagogy - flipped and blended classrooms, m-learning, OERs including e-textbooks, information literacy programmes; 3) social web- altmetrics, Mendeley, Refworks, Endnote, Zotero, ResearchGate, Academia.edu, blogs, Twitter, Facebook and YouTube; 4) New library spaces -

information commons, research commons and learning commons; and 5) Collaboration - between librarians and faculty, amongst students themselves. Literature has shown that researchers are relying on data collecting methods such as interviews, surveys or questionnaires and content analysis. The next chapter presents the conceptual analysis and theoretical frameworks.



CHAPTER 3

CONCEPTUAL ANALYSIS AND THEORETICAL FRAMEWORKS

3.1. Introduction

The previous chapter, the literature review, identified the key concepts which are associated with university libraries in this 21st century. This chapter provides a comprehensive discussion of the conceptual and theoretical frameworks which informed this study and it is divided into two major sections. The first broad section explains the process of identifying concepts in the literature and justifying why this was necessary for the research. An in-depth account of the key concepts as identified in the literature (see chapter 2 summary) is outlined. The concepts guided this research by setting out analytical distinctions of the data gathered from library users (academics, postgraduates and undergraduates). The second major part of the chapter focuses on the Diffusion of Innovation Theory proposed by Rogers (2003) and the McKinsey 7S model proposed by Waterman, Peters and Phillips (1982). Using the lenses of the two theories the chapter presents the study's purpose and the direction of the research's argument through explaining how these were employed in this study. These theories were used to explain the attitudes towards the acquisition of new skills and competencies by modern academic librarians. The chapter finishes off by providing an analysis of the conceptual and theoretical frameworks to clearly show the marriage between the two.

The study set out to investigate the 21st century university library in Zimbabwe. The research was motivated by the need to examine the shape of the Zimbabwean academic library in the current information age with particular interest in the attitudes, skills and competencies of academic librarians, and patrons' needs and expectations at selected public Zimbabwean universities. Accordingly, this chapter tackles these issues in detail with the guidance of the conceptual and theoretical framework.

3.2. Conceptual Framework for academics and university students

For Connaway and Powell (2010:271), a conceptual framework is that which includes the definitions of the terms and concepts used in a study, the research questions and the assumptions.

However, Jabareen (2009) proposes systematic steps for compiling a conceptual framework to ensure its validity and reliability. The first phase involves identifying relevant literature; the second phase is based on conducting an extensive literature review; the third phase involves identifying specific concepts; the fourth phase relates to categorising the concepts (explaining attributes and the methodological role); and the fifth phase entails integrating concepts which have similarities into one broad title. Following such a process has been praised for assisting researchers in defining concepts, mapping the research terrain and systematising relationships among concepts (Rocco & Plakhotnik, 2009). This process also results in the generation of new insights (Romero, 2010), and this is a central objective of this research. It is therefore imperative for researchers to follow a proper way of compiling a conceptual framework or face the consequences of constraining the data collection process and drawing of conclusions (Levering, 2002).

In this study it was important to sift through the literature in search of the latest concepts which explain the modern needs and expectations of academics, and undergraduate and postgraduate students. Because this study required the most current information (which may be limited and sporadic) pertaining to the 21st century academic library user demands, it was necessary to compile a conceptual framework from the literature. This study has used more than one theoretical framework because it investigated the current university librarians' skills, competencies and attitudes which require meaningful and exhaustive interrogation which could only be achieved in this manner.

Given the reasons mentioned above, Creswell and Tashakkori (2007:209) suggest that the researcher may have to “synthesise the existing views in the literature concerning a given situation, both theoretical and empirical findings”. The end result reveals a list of related concepts to interpret and provide an in-depth understanding of the phenomenon of a research problem (Imenda, 2014; Jabareen, 2009). By the same token, a synthesis of existing literature pertaining to the current key trends in the 21st century higher education (with specific reference to researchers, academics and students) was used to identify concepts for this study. A comprehensive review of the literature revealed the following concepts, namely open scholarly communication, research data management, social web, new pedagogies, new academic library spaces and faculty-librarian collaboration. A summarised interpretation of the chosen concepts is shown in Appendix M.

Together these concepts answered the first research question *how have academic libraries across the globe embraced technological changes?* The concepts also threw light upon the key needs and expectations of modern library patrons. These 21st century patrons' requirements contributed towards defining librarians' latest skills and competencies to achieve a quality service delivery in academic libraries. In simpler terms, the modern patrons' demands and expectations defined the current 21st century academic library.

3.2.1. The 21st century library user

The academic library patrons are composed of researchers and academics, the administrative staff, undergraduates and postgraduate students (Tanloet & Tuamsuk, 2011). University libraries in the current information environment are more focused on supporting research, teaching, learning and student success. This is important because universities are expected to produce graduates who are highly innovative in their respective fields of speciality. More apparently, university libraries have actively embraced the critical role of supporting academics, doctoral students, postdoctoral students and research staff. Relative to this, understanding original researchers' needs is critical and research librarians should create useful classroom materials to adequately support researchers (Exner, 2014). As a result, this ensures the drive for continuous learning and research production.

To reinforce the academic libraries' role in supporting research, there is heightened interest in the concept of research intensive universities. The Group of Eight (2013) describes research intensive universities as institutions that focus on promoting excellence through emphasis on the highest levels of learning in research and education. Echoing these sentiments, Cloete, Bunting and Maasen (2015: 20) define research intensive universities as "academic institutions committed to creating and disseminating knowledge in an array of disciplines and with appropriate libraries and other infrastructure which permit teaching and research at the highest possible level".

However, it should be noted that not all universities are research-based universities and they occupy a relatively small percentage of the higher education sector. For example, in the United States of America the percentage of research-based university institutions is about 5%, while in UK the percentage is 25% and in China it is 3%, whilst in smaller developing countries there is often one research university and many countries have none (Cloete, Bunting & Maasen, 2015). It is therefore requisite for research intensive universities to have highly-qualified academics

committed to research, teaching and postgraduate students with a drive for research (Altbach, 2013). Bunting (2013) cites a study by the Centre for Higher Education Transformation (CHET) that shows that in South Africa the differentiated academic system already exists and it clearly distinguishes universities in groups according to a range of performance indicators. Given such developments, librarians are required to provide maximum support to the academics and researchers.

Seal (2015) suggests that education, technology and scholarly communication are evolving by shaping and reshaping each other in academic environments. All these aspects inform and formulate the needs and demands of the academic library patron existing in this 21st century information landscape. This development describes the environment in which university libraries are currently operating and therefore demands highly skilled librarians. This slight change in higher education has significant impact on the future of academic librarians. It results in the total accomplishment of the library's mission and vision in the current evolving information environment. The following subsections discuss concepts which inspire the various requirements and expectations of the 21st century university library patrons.

3.2.1.1. Open scholarly communication

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2015: online) defined “open scholarly communication as a process of sharing, disseminating and publishing research findings conducted by researchers for its free availability to the global academic communities”. Commonly used scholarly communications channels are; academic journals, conference proceedings, research books or monographs, theses and dissertations, research reports, personal memoirs and instantly on social media (Bazeley, Waller & Resnis, 2014; Bolick, 2015).

The unabated interest in open scholarly communication by tertiary institutions has promoted the development of robust protocols for free sharing of catalogue records and embracing ownership over access to licensed information. Depending on the university's scale and mission, most academic libraries are focusing their attention on sharing their resources with the world for free. In this 21st century individuals demand and expect to freely access final output of published articles or books as well as raw research data.

Scholarly communication is a small component of a larger research lifecycle. The research lifecycle is composed of the first stage which is the research ideas; the second stage is based on partners (funders and institutional research team); the third stage is the proposal writing phase (once accepted by funders then the research starts); the research writing process makes the fourth stage (data generation, research data management, data analysis, data sharing); and then the last stage is publication (Bohannon, 2013; Nikam & Kumar, 2013; Wouters & Costas, 2012). The process of publishing produces new methodologies, raw data, journal articles, book reviews/chapters which should be effectively archived and made accessible for researchers globally. Free access to research has become a very important aspect amongst universities in this era. Researchers, academics and students are generating research and require support from their libraries to access other scholarly materials and publish their research. In response to these demands, university libraries are developing services which encourage open scholarship as part of a broader trend in redefining librarianship in the 21st century. Many academic libraries have achieved this by making open access publications discoverable and assisting patrons to grasp issues around copyright and intellectual property (Brown & Malenfant, 2015).

Open scholarly communication is driven by the Open Access (OA) movement which has the Golden OA model and Green OA model. The Gold OA model is when the researcher can publish in OA journals, books or other types of literature where the materials are freely accessible to any user. Whereas with the Green OA model researchers are required to self-archive research output in institutional or subject repositories. Open scholarly communication is a broad concept which encompasses aspects such as: *Institutional Repositories (IRs)* – Yeates (2003:98) maintains that “an institutional repository is the collective intellectual output of an institution recorded in a form that can be preserved and exploited”. Ahmed, Alreyaee and Rahman (2014:441) describe “an IR as a set of services that a university offers or group of universities offer to the members of its community for the management and dissemination of digital materials and is accessible worldwide on the Internet”. Several academic libraries design their repositories using free software, for example, Dspace offers long-term preservation for digital materials via a search and retrieve system. An example of a segment of content that can be found in IRs is the Electronic Theses and Dissertations (ETDs). ETDs usually contain honours, masters and doctoral theses and dissertations.

There are three other types of repositories besides IRs and these include the subject-based, research and national repositories (Armbruster & Romary, 2009). A subject-based repository is “an open web collection of working papers or manuscript copies of published scholarly articles specific to particular scientific disciplines” (Björk, 2014:702). Subject-based repositories permit spontaneous self-archiving whereby scholars communicate their results early before official publication. This enables researchers to claim ownership of the new idea, test the quality of results and refine research before publishing. An example of a subject-based repository is the “Social Science Research Network (SSRN) which includes an Abstract Database containing abstracts on almost half a million scholarly working and forthcoming papers and an electronic paper collection including approximately 400,000 downloadable full text pdf documents” (Björk, 2014:701). Research repositories contain scholarly materials which are peer-reviewed. Research repositories usually contain survey studies conducted about many countries, for example comparative studies on the changing landscape of education amongst specific African Countries. The National repositories are systems that generally capture scholarly resources to preserve research and support, teaching and learning in the tertiary environment. National repositories capture research materials using national language, highlight the publications of well renowned scholars and support public policy. Examples of national repository systems are in the form of national research libraries within countries, particularly the French HAL system that is developed by the French National Centre for Scientific Research and the Japanese National Institute of Informatics.

Open Educational Resources (OERs) – Marons-Quinn and Diggins (2013) specify that OERs denote open courseware, teaching, learning and research materials in any form commonly online. Significantly, OERs are freely accessible and may be adapted and redistributed with limited restrictions. OERs are also defined by Young (2015: 43) as “materials that hold a powerful voice for more affordable learning resources and they specifically take the form of course materials, modules, textbooks, streaming videos, tests, software and any other tools, materials or techniques used to support access to knowledge”. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2012) states that OERs are available under the creative commons license that permits reference and educational use at no cost to the user. Some of the opportunities offered by OERs are that an institution may market their modules’ content to potential applicants, enhance the reputation and visibility of the university, by making knowledge more accessible they attract public funding for institutions and through this concept students have a chance to access

resources from many universities which improve the quality of education (Robertson, 2010). Jensen and West (2015) encourage university libraries to embrace a role of supporting the adoption of OERs within higher education. This can be achieved through creating awareness among faculty and enlightening faculty about the opportunities brought about by adopting OERs. Belliston (2009) states that subject librarians with specialities and expertise in particular fields can be contributors to the open educational commons by creating OERs themselves. Since librarians are required to teach information literacy they may as well design OERs in relation to this subject (Robertson, 2010).

Open Access (OA) journals – Collins and Walters (2010) hold that OA journals are freely available to the public. Cirasella and Bowdoin (2013) allude to OA journals as platforms which permit free access to articles. OA journals “do not invoke copyright to restrict access and use of journal articles, instead they use copyright and other tools to ensure permanent open access to all the articles they publish” (Kassahun & Nsala, 2015:3). Some of the opportunities of OA journals highlighted by Walters and Linvill (2011) include the point that, for ill-resourced universities, absence of subscription charges may increase readership and OA publishing may increase the extent to which scholarly societies, academic departments, or other non-commercial publishers can disseminate scholarly work of local or regional interest.

However, not all journal articles are accessible per se. According to Collins and Walters (2010:199) “students and scholars can take advantage of OA journals only if they are able to identify particular articles that meet their needs, and if they are able to retrieve those articles”. Beaubien and Eckard (2014) state that researchers should carefully choose OA journals to which to submit their manuscripts. Therefore, they require guidance from librarians using strategies for identifying high quality OA journals. Academic libraries can create and analyse OA journal impact factors that assist academics or researchers in finding reliable criteria for effectively assessing ethical and unethical open access publications.

Open Access (OA) books – OA books focus on a combination of a basic free online edition accompanied by a for-sale printed edition. The Open Access Publishing in European Networks (OAPEN) is “an initiative in this context and aims at working with publishers to build a quality-controlled collection of OA books” (Sutton & Chadwell, 2014:37). There is a rise in interest in OA publishing of academic books such as textbooks. For students, open textbooks are cheap and

improve learning since they have multimedia elements and other interactive features (Sutton & Chadwell, 2014). In the modern environment, researchers use print resources for reading and e-resources for searching and other functions. It is however, the librarians' function to find out which format is preferred by their researchers. Scholars and academics are “writers, citers, submitters, readers, editors, reviewers and quality-control accreditors” (Eve, 2014: online). As such, they require adequate support from their libraries regarding the correct book formats. Maintaining a different opinion, Maron (2014:9) claims that it is through the expertise offered by academicians to develop e-textbooks that e-textbooks may be used and distributed through their libraries. OA e-books have also garnered considerable attention in higher education. A few benefits of OA e-books include free access to full text content, allowing long-term preservation of written knowledge and OA e-books closing the gap between the information rich and poor. Some publishers make free availability of e-books for limited periods of time as a way of marketing. Libraries have a clear and vital role in adopting e-books and promoting their use by their diverse communities. Collins and Stone (2014) mentioned that libraries are already experimenting with e-books but are facing obstacles posed by policies and Digital Rights Management (DRM) which has led to less satisfaction with researchers and students.

There is wide interest in open scholarly communication amongst researchers and academicians in this 21st century because it promotes free global outreach of scholarly literature, it offers valuable feedback from readers, it promotes global readership, and global authorship (for example, global research collaborations). However, some of the major drawbacks of open scholarly communication is an increase in predatory OA journals (questionable scholarly open access publishers) seeking manuscripts from prospective authors for publishing (Choi & Woo, 2012; Lee, 2013; United Nations Educational, Scientific and Cultural Organisation (UNESCO), 2012). The predatory journals are not listed in the Directory of Open Access Journals (DOAJ), which has stringent criteria for scrutinizing membership of OA publishers. Researchers, academics and students have to be careful when choosing OA publishers when publishing their empirical research. Most scholars are hesitant to accept OA because they believe OA content can be stolen which reflects concerns about copyright and ownership (Adema & Schmidt, 2010).

Relevance of the open scholarly communication concept

Universities are supporting electronic scholarship by encouraging publishing and crafting organisational materials with others. As such, universities are ensuring that materials such as digitised special collections, research data, pre-prints and open educational resources are visible to everyone free of charge. In this particular research, this concept assisted in explaining a broad range of publishing needs amongst Zimbabwean university communities, with outputs ranging from peer-reviewed journal articles and monographs to undergraduate research and grey literature. This concept therefore, measured the acceptance of open scholarly communication amongst academics and students in Zimbabwe. This is a very important measure in this study, because there are limited resources in many low-income countries such as Zimbabwe.

3.2.1.2. Research data management (RDM)

Academic institutions are creating robust infrastructure for long-term data archiving. Information creation, management, curation and discoverability have gained attention in information management. The increase in requirement for RDM stems from the need to stay relevant in a changing digital research environment or a thoughtful assessment of the needs of researchers. The university's unique "intellectual products include archives and special collections, or newly generated research and learning materials (e-prints, data, courseware, digital scholarly resources, grey literature) or such things as expertise or researcher profiles" (IFLA Trend Report, 2015: online).

Tenopir, Sandusky, Allard and Birch (2014) clarify that RDM involves data storage which stores full dataset files, for example the Andrew File System (AFS) storage system, or backups containing snapshots of the information in the actual dataset file, for example the Time Machine software on a MAC laptop. Preservation entails keeping sensitive (especially for researchers dealing with health information) data secure as well as scanning research data recorded in paper to be kept in digital formats. For university libraries (such as Stanford University Library Website, 2018), that have embraced RDM, the requirements to deposit research datasets are as follows: the researcher should describe the type of data and a few examples on the document, describe any acronyms or abbreviations used, the methodology used to collect and analyse data, citations to journal articles based on the data, the full names and contacts information of any contributors and

data permissions and rights (ensure that publishers give the rights to share data, de-identify any personal information e.g. identified subjects, allow others to re-use your data). All raw data in the collection are curated to increase access and are assigned a digital object identifier (DOI).

In light of the above, a data repository and an IR for listing scholarly electronic materials and related data have become a requirement in every academic library (Williams, Fox, Roeder & Hunter, 2014). The management infrastructure offers research analytics which aid tertiary institutions in assessing comparative research strengths, collaborating and comparing themselves to peer groups (Swanson & Rinehart, 2016). RDM is a process for business, academic as well as related organisations in developing workflows and research analytics services in response to changing behaviours (Brake, 2011; Reinhalter & Wittman, 2014). As more information is created there is greater need for acquiring knowledge on how to best preserve this data for future reference and re-use.

Research revealed that some of the RDM library services required by researchers, academics and students include data curation and funding, assistance with data management planning and backup or storage services, long term data preservation, sharing and reuse services and training and outreach to learn more about data management best practices (Bishoff & Johnston, 2015; Lynch, 2014; McClure, Level, Cranston, Oehlerts & Culbertson, 2014; Prost, Malleret & Schopfel, 2015; Schopfel, Chaudiron, Jacquemin, Prost, Severo & Thiault, 2014; Van Tuyl & Michalek, 2015). In this intense information environment, the library has a role in assisting library patrons with their research requirements and this is a function that is tightly aligned to the twenty-first century academy.

Flores, Brodeur, Daniels, Nicholls and Turnator (2015) provide some of the tools used to support RDM services for researchers. For example, the Journal of Environmental Quality encourages authors to deposit their datasets in the internal server or an external repository such as institutional repositories or another acceptable repository such as Dryad Digital Repository. Other prominent disciplinary repositories include the inter-University Consortium for Political and Social Research, the Digital Archaeological Record (tDAR) and the Archive of the indigenous Languages of Latin America (Flores et al., 2015).

Even though RDM has proved to be a useful requirement amongst scholars, a major outcry has been expressed that some RDM tools used do not offer long term solutions to data preservation

(Ackers & Doty, 2013; Steinhart, Chen, Arguillas, Dietrich & Kramer, 2012; Wright, Kozlowski, Dietrich, Khan, Steinhart & McIntosh, 2013; Zilinski & Lorenz, 2012). For example, an individual requires Internet connection to archive information on Google drive, Dropbox and Box; for those with limited Internet access these methods might not be as useful. This means that IT specialists need to keep searching for better means to ensure permanent and safe modes of RDM. Researchers have complained about the amount of time required to prepare data for sharing, as well as the potential for misuse of research data. While procedures of managing data sets will make monitoring and tracking researchers easier and cheaper, the IFLA Trend Report (2015: online) argues that “serious consequences for individual privacy and trust in the online world is experienced”. This means that not every researcher is willing to comply with the RDM concept, as such librarians should work hard to convince researchers on the importance of data sharing and reuse.

Relevance of the research data management concept

As new expectations emerge in research data management, university librarians have to be in contact with academics and students throughout the whole research process. This concept should expose how Zimbabwean libraries have developed their research community networks, and the provision of support for research data management and access to meet the demands of 21st-century scholarship. The application of this concept should reveal that data-focused services in Zimbabwe may be achieved by continuous interaction with students and academics to support the nuances of individual needs and expectations.

3.2.1.3. Social Web

The social web is described as an online network and workflow of hubs that influence research and learning practices. Noh (2015) highlights that the social web is composed of both academic and non-academic platforms such as Google Scholar, Wikipedia, Khan Academy, Social Science Research Network, Research Gate, Amazon, GitHub, Galaxy Zoo, Mendeley, Twitter, CiteULike and blogs, amongst others. Particular journals also disseminate full text journal contents through special apps compatible with mobile devices, for example, M-Science and Ebscoost. These applications reduce interaction costs which make new forms of collaboration and service provision

possible. The social web also permits researchers and academics to gain recognition through the free marketing of personal publications.

As more of the research, teaching and learning is conducted in the modern environment, there is an increased level of interaction amongst students and researchers. New ways of networking and information sharing through social media have become wide spread within academia (Kwanya, Stilwell & Underwood, 2013). As “work is increasingly carried out in digital environments, activities leave a trace, which can be aggregated and mined to provide analytics that may be used to support a variety of goals (such as student retention and resource usage statistics)” (Kwanya, Stilwell & Underwood, 2013:190). This activity is known as altmetrics, and it is a natural extension of the same research in bibliometrics.

Altmetrics, short for alternative metrics, is usually based on data from the social web, and has been described as a promising approach for assessing research (Hammarfelt, 2014). Sutton (2014) maintains that altmetrics includes a wider range of measurements involving scholarly collections. Citation counts, web-based references, article downloads, social media mentions are examples of different kinds of measurements. Currently, altmetrics has attracted a lot of attention in its use to study and evaluate the impact of scholarly publications. Advocates of altmetrics argue that it offers a diversity of disseminating channels, the speed of acquiring data is exceptional and the openness of methods offer calculations which are completely transparent (Galligan & Dyas-Correia, 2013; Hammarfelt, 2014; Sutton, 2014). Altmetrics is offered through affordable platforms such as Altmetrics.com and Impact story whereas some platforms such as Journal Impact Factor and Web of Science require expensive subscriptions. Most publishers (BioMed Central, PLoS, Frontiers, Nature Publishing Group, Elsevier) and aggregators of scholarly articles and other content provide altmetrics along with the content.

These activities have been commended for assisting researchers in tracking the number of downloads on their research works, thus used for measuring the impact of particular research on its specific audience. Moreover, some search engines, such as Google Scholar, facilitate a setting for article alerts on specific search terms, authors or institutions. An individual is notified immediately when new research is available via the social web.

Much as the social web has a lot of opportunities, several scholars have revealed that library patrons are using the social web but are concerned about their privacy. In this regard, academic

libraries in the 21st century are devising policies to help curtail the ethical concerns posed by the social web (Hess, LaPorte-Fiori & Engual, 2015; Zimmer, 2013). It has been highlighted that some academics do not feel comfortable with sharing their research data through these platforms because they think it might be mis-used (Forkosh-Baruch & Hershkovitz, 2012; Jucevičienė, & Valinevičienė, 2015; Roemer & Borchardt, 2012; Tess, 2013). Procter, Williams, Stewart, Poschen, Snee, Voss and Asgari-Targhi (2010), Thelwall and Kousha (2015) and Veletsianos (2012) mention that some of the tools on the social web are not reliable because they fade with time, thus they cannot be effectively used for scholarly communication.

Relevance of the social web concept

The network of digital technologies has become central to the academic enterprise. This concept reveals how university library patrons use the social web for research, learning and knowledge-creation in digital environments. The social web concept should prove useful in describing its effectiveness on improving research, teaching and learning in Zimbabwean universities. Seeing that these tools are available for free online, this assists in highlighting if the social web is being applied for academic and research purposes in Zimbabwe. Because of the widespread application of these tools amongst academic library patrons, the concept should reveal whether the librarians have developed policies to cater for the protection of patrons' privacy.

3.2.1.4. New pedagogies

The current tertiary education system has incorporated new methods and practice of teaching known as mobile learning, blended learning and flipped classroom models. The 21st century pedagogies reflect a bold and creative commitment to relevance and quality teaching and learning (Ratten, 2011). Mulholland and Bates (2014) posit that these new concepts of learning empower students with skills such as collaborative team work, problem-solving, communicating, building connections, innovating and creating. In order to adequately serve Generation Y students in the knowledge age of the 21st century, academics are advised to appropriate and use new teaching models together with various tools (social media). For this to occur, it is essential to embrace teaching models known as m-learning, blended and flipped classrooms, which encompass the use of OERs particularly e-textbooks, and integration of information literacy programmes.

New pedagogies refer to learning models that rearrange teaching and learning to allow students to take charge of the learning process. New pedagogies are centred “on project-based learning where students work collaboratively to solve challenges to develop deeper understanding of the subject” (Miller & Booth, 2014: online). The instructor does not use lecture periods to give information, those assignments are conducted by each learner after the lecture. To complement this learning model, social media applications play a pivotal role. Learning takes the form of watching video lectures, perusing enhanced e-book content or online collaboration amongst learners. According to the Horizon Report (2015) the Bring Your Own Device (BYOD) concept encourages students to incorporate mobile technologies within their learning spaces.

In highlighting the usefulness of new pedagogies, separate studies by Dabbagh and Kitsantas (2012); El-Hussein and Cronje (2010); Newman and Scurry (2015) and Smyth (2011) cite that these forms of teaching foster collaborative projects in flipped classrooms, in-depth understanding of concepts through enjoying the best of both worlds (online and traditional learning) in blended learning, help students to hone their practical skills of using mobile devices for their academic work in m-learning, and new forms of education techniques permit learning independently.

However, researchers such as Abeysekera and Dawson (2015); Kukulska-Hulme (2012); Lynch (2015); O'Flaherty and Phillips (2015) and Rhema and Miliszewska (2010) identified some of the reasons that discourage some lecturers from employing new ways of teaching. Primarily, limitations of technological resources and limited bandwidth; negative attitudes amongst students and lecturers in terms of adjusting to these new forms of teaching and learning; and in some developing countries students do not own mobile devices and as such may expect their faculty or libraries to offer such devices.

In connection to the concept of new pedagogies, teaching skills are increasingly being recognised as highly-relevant to the duties of university librarians. Wheeler and McKinney (2015:116) highlight that “librarians need to grasp concepts about teaching theory and techniques in order to deliver high quality information literacy teaching”. Hensley (2015:318) holds that academic librarians should possess “mastery of pedagogical skills, instructional design, classroom management, and strategies for the assessment of student learning”. Lippincott (2015) asserts that university librarians should pay attention to the institution’s curriculum, adapt to new teaching methods, and link technology and collaborative spaces in libraries to learning. To fully embrace

teaching skills the library management should ensure that individuals who enrich the library's role in teaching and learning are staff members. In this 21st century, libraries are developing online instruction using free or purchased software to teach a multitude of topics to students and academics (Forbes, 2014). For instance, the instructional design librarian creates, delivers and assesses online information literacy instructional materials using design software such as Articulate Storyline and TechSmith Camtasia (O'Neill, 2015).

Relevance of the new pedagogies concept

In many ways, these new approaches to teaching have been spurred by the technology that students use in their personal spaces and use extends to their academic spaces. Mobile devices have become ubiquitous among students at tertiary level. Students can conveniently check results on their devices instead of visiting notice boards (Crawford, 2007). Face to face courses are being supported by Quick Response (QR) codes that offer an Internet link to supplementary course resources (Ashford, 2010). The concept of new pedagogies should provide information on whether the academics in Zimbabwe approve of and relate to the new teaching models. The concept should also explain whether academics encourage students to bring their devices to class or if the libraries offer devices for their academics and students to support m-learning. It should further provide meaning to the expectations of librarians as teachers, where they are required to impart information literacy to the university community using web-based software.

3.2.1.5. New academic library spaces

The 21st century information environment is defined by an increased availability of e-resources, new technology, and changing methods of teaching, learning, and research (Latimer, 2011; Noh, 2013). The 21st century has led to a call for a “more social approach to academic libraries by installing cafés, expanding group study spaces, and developing information commons” (Gayton, 2008:64). Academic libraries have tested new ways to fuse library sources, technology and research assistance. Some university libraries have “reconfigured their physical spaces and redesigned services to meet the new challenges by adopting the idea of the information commons or a central location that provides computers, sockets to permit the use of mobile devices, information resources in various formats, and staff assistance” (MacWhinnie, 2013:248).

The research commons is a research intensive environment intended for use by postgraduate students as well as academics and researchers. It is space consisting of technological resources and seminar rooms as well as areas for discussion and relaxation. The research commons is meant to improve the “library's contribution to postgraduate through-put and research output by providing a conducive environment for researchers and offering services which directly support research endeavours of postgraduate students and researchers” (Balci, 2011:201).

The learning commons, also known as “scholars' commons, information commons, academic commons or digital commons, is an educational space similar to libraries and classrooms that share space for information technology, remote or online education, tutoring, collaboration, content creation, meetings and reading or study” (Sullivan, 2010: 135). Beagle (2010) notes that the concept of learning commons fosters learning and communication. Seal (2015:562) argues that “academic libraries of the 21st century provide a welcoming common space that encourages exploration, creation, and collaboration between students, teachers, and a broader university community”.

Several researchers (Moltem, Goldman & Oulchen, 2013; Halbert, 2010; Hensley, Shreeves & Davis-Kahl, 2015; Lippincott, 2010; Weiner & Watkinson, 2014) have identified various advantages for redesigning library spaces. The new spaces identified above accommodate group study activities. They offer flexible work spaces consisting of equipment for teaching students and faculty about open publishing, amongst other issues. Virtual spaces enable patrons to collaborate in conducting their research and explore their creativity online. These virtual spaces allow creativity and innovation not only through research production but collaborative crafting of new concepts through the use of applications offered through makerspaces. In this light, makerspaces support virtual spaces since these are physical places where individuals meet to access materials, tools and technologies that permit hands on exploration (Lotts, 2015). A makerspace is “a physical location where people gather to share resources and knowledge, work on projects, network, and build” (Lotts, 2015:73). Makerspaces can facilitate outreach, engagement, creativity and innovation for academic libraries. Makerspaces have an array of applications which complement virtual environments and are also used for education and in offering library services it can also support creative writing, filming, art, hobbies and sculpture (Abram, 2015). Some of the advantages presented by this platform include facilitating group interaction, knowledge and

resource sharing and providing an open environment for expression of creativities and innovations (Noh, 2014).

As a result, tertiary institutions are designing, funding, and staffing their information commons. Technology has become the major catalyst for facilitating access to information and collaborative learning and group study, as such the information commons provides these spaces. However, some studies argue against the concept of redesigning library spaces through stating that it is a waste of resources. Some faculties, for example, users at the University of Denver and Syracuse have “protested the move of collections to offsite storage, arguing that access to printed volumes remains a function more valuable than additional study space” (Bell, Dempsey & Fister, 2015: online).

Relevance of the new library spaces concept

Modern library patrons expect university libraries to “provide an atmosphere conducive to the way they now study, research, and communicate: they want to do these things in a supportive, communal environment, surrounded by like-minded young people, all of them struggling with similar issues and problems related to academic, economic and social aspects” (Applegate, 2009: 345; Houlihan, 2005; Regalado & Smale, 2015). This concept should assist in measuring whether Zimbabwean based university patrons expect their libraries’ physical spaces to be modified in order to suit their needs. The question is, does the Zimbabwean university library’s context allow them to change into the formats described above?

3.2.1.6. Faculty-librarian collaboration

In this current era, it has been considered necessary for librarians and faculty to collaborate in student learning and move towards a common goal of encouraging students to think critically and innovatively. Collaboration between faculty and librarians enhances student learning, research and assists them to improve information competencies. Chiefly, information literacy is a required graduate quality which fosters lifelong learning and this is achieved through forging faculty-librarian relationships. Partnerships may be built through allowing librarians to teach a single session within a lecturer’s class or else to engage them as part of the tutors amongst departments (Meulemans & Carr, 2013). The Australian Library and Information Association (ALIA) (2014:12) notes that the faculty librarian may also become part of the research team within a

specific faculty assisting academics with their scholarly work. Librarian-faculty relations are essential to library collection development and service development, to aid this there has to be constant communication between the two parties (Shen, 2012).

Phelps and Campbell (2012:15); Shen (2012: 18); and Smith and Dailey (2013:320) posit that some of the benefits of good relations between faculty and librarians for students include: the production of more meaningful and better planned assignments, the integration of information literacy into the curriculum, information becoming more relevant to their lives, students learning about intellectual property, students developing critical thinking skills needed to evaluate resources, students becoming independent learners, developing intellectual curiosity, and students' academic work and learning expectations being raised.

Academics benefit from the collaboration firstly, through assisting in the “evaluation of resources before designing an assignment, which in turn leads to better student products. Secondly, faculty members obtain expert advice and assistance in designing assignments that involve library resources and information literacy concepts. Thirdly, taking advantage of a librarian's expertise makes sense and saves time because faculty can develop confidence in sending students to the library. Fourthly, a better library collection in the faculty member's subject area results from the individual's increased communication with librarians. Fifthly, library services can be a recruiting tool for potential faculty and students. Sixthly, library instruction can break the monotony of the class schedule. Seventhly, faculty members obtain personalised reference and research assistance from the librarian. Lastly, faculty and library partnership facilitate the selection of library resources for new courses and new programmes” (Belanger, Bliquez & Mondal, 2012:78).

These partnerships benefit librarians through defining the librarians' academic roles in universities. Librarians use their subject specialties when imparting their knowledge to faculty. Librarians are better able to help students with assignments. Through partnering with library users, librarians get feedback from the teaching faculty about student products. The partnership gives all librarians more credibility and visibility in the academic community. Both the faculty and librarians develop and maintain a better understanding of processes and programmes in each other's departments (Belanger, Bliquez, & Mondal, 2012; Mounce, 2010; Tucci, 2011).

On another note, the faculty-librarian relationship remains an issue of concern amongst universities, as mentioned by researchers Kobzina (2010); Mazella and Grob (2011) and Robinson, Ziino and Hoffman (2013:1445) that faculty the world over are reluctant to form partnerships with librarians. This has led to some librarians giving up on initiating any connection with faculty; some faculty staff have complained about in-effective communication from the library because they are not kept up to date on a regular basis; “faculty members are expected to alert students on some important activities at the library but most faculties do not encourage their students to use the library”.

Relevance of the faculty-librarian collaboration concept

Library patrons are critical players in the 21st century academic library environment, therefore, academic librarians should offer support to academics and students as collaborators and partners rather than as mere consumers of information resources and services. Engaging library patrons is based on building a relevant collection, effective information literacy programmes and creating useful user services. The faculty-librarian collaboration concept is effective in providing an explanation of the status of the partnership between faculties and librarians in Zimbabwean universities. The concept should further establish whether or not librarians in Zimbabwe engage or consult their users in collection and service development.

3.3. Theoretical frameworks that relate to this study

After identifying the key concepts that inform the needs and expectations of library patrons it is necessary to find out if librarians have kept pace with the skills, competencies and attitudes which align with the modern patrons’ requirements. Imenda (2014) asserts that the theoretical framework is the epicentre of every research project. It determines the lens that a researcher uses to examine and interpret a particular aspect of a problem (Ocholla & Le Roux, 2011:61). Literature abounds with theoretical frameworks which are linked to this study. This section’s discussion focuses on the Technology-Organisation-Environment (TOE) Framework, Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB) and Unified Theory of Acceptance and Use of Technology (UTAUT).

To begin with, the TOE framework was propounded by DePietro, Wiarda and Fleischer (1990). The TOE framework explains the process by which organisations adopt and implement

technological innovation using three major aspects namely the *technological context*, the *organisational context* and the *environmental context*. The TOE framework has been widely applied in the corporate world (Angeles, 2014; Chiu, Chen & Chen, 2017; Hwang, Huang & Wu, 2016; Micheni, 2015; Wan, Ismail & Mokhtar, 2016). The application of the TOE framework in research related to academic libraries is evident, thus Sibika (2013:73) found that TOE factors interpreted that “libraries could be regarded as sufficiently prepared for the introduction of mobile phone technology in the provision of services”; Yuvanaj (2016) using the TOE framework revealed that availability, economy and various services were core drivers of adoption of cloud computing in libraries; through the boundaries of TOE, Han (2010) interpreted that libraries can take advantage of cloud computing to manage computing resources cost-effectively and explore computing possibilities; Mitchell’s (2013) research results showed that cost benefit analysis and technology supports IT services productivity, efficiency, flexibility and scalability; and Sözüer and Pinar (2016) revealed that the TOE explains acceptance of new technologies (Web 2.0) in university libraries at organisational level.

TAM was crafted by Davis (1989) and is an information systems theory which models how individuals accept and use technology by outlining the *perceived ease of use* and the *perceived usefulness* of a technology. Researchers in the field of Library and Information Science have utilized the TAM, for example, Miller and Khera (2010) and Sung-Jin (2014) explained that TAM interpreted that technology was used because of its perceived usefulness rather than perceived ease of use in most developing countries; Alharbi and Drew (2014) report that academics had positive attitude towards use of learning management systems in their work routines and if academics’ perceived ease of use increases, the usefulness increases accordingly; Yoon’s (2016) and Jaradat’s (2012:37) studies indicated that “perceived usefulness, interactivity and ease of use had significant effects on user attitudes and intentions to use mobile library applications”. Sheikhshoei and Oloumi (2011) highlighted that the TAM’s applicability to librarians responsible for Engineering faculties of public universities in Tehran was weak because of its limited constructs. Johnston, Berg, Pillon, and Williams’ (2015:266) findings suggested that “preference may not indicate the likelihood that students will utilize print books, despite positive reviews for e-textbooks students experienced a drop in enthusiasm from the beginning to the end of the research”; and Anshori and Armanu (2013) alluded to the view that students found it simple to use WiFi and this improved their positive attitudes towards the use WiFi.

The underlying premise of the Theory of Planned Behaviour (TPB) is that “individuals make decisions rationally and systematically through the information that is available” (Ajzen, 1991; Ajzen, 2012:34). The TPB constructs are *beliefs or attitudes*, *subject norm* and *perceived behavioural control*. Ajzen (2015) stated that TPB has been used extensively in predicting different perceptions towards adoption of new concepts in higher education. Cheon, *et al.* (2012: 1059) report that “perceived behavioural control explains intention to adopt and accept mobile learning amongst students”. Based on the findings of two studies, Chuta (2015) posits that academic librarians do not have much of a choice but to understand the different user behaviours and act positively towards their requirements and expectations.

The Unified Theory of Acceptance and Use of Technology (UTAUT), proposed by Venkatesh, Morris, Davis and Davis (2003), “identifies four key factors (i.e., *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions*) and four moderators (i.e., *age*, *gender*, *experience*, and *voluntariness*) related to predicting behavioural intention to use a technology and actual technology use primarily in organisational contexts” (Venkatesh, Thong & Xu, 2016:335). LIS studies that adopted this framework (such as Boakye, 2015) found that students’ information retrieval skills were poor due to non-familiarity with the system, students further doubted the ability of the information retrieval system because of misconceptions from previous experience from their peers. Mpoeleng, Totolo and Jibril (2015:12) comment that Facebook was the most popularly used Web 2.0 tool. Social influence and “facilitating conditions” had a detrimental effect on librarians and resulted in a sluggish rate of adoption and use of Web 2.0 technologies in Botswana. Chang (2013: 487) notes that “performance expectancy, effort expectancy, social influence and facilitating conditions determine users’ behavioural intention of using library mobile applications. Individuals with different levels of task-technology fit will strengthen or weaken the relationships of determinants in the intention to use library mobile applications in university libraries”. Awwad and AlMajali (2015:1114) postulate that

students’ intention to use e-library services is dependent on performance expectancy, effort expectancy and social influence while students’ use behaviour is dependent on facilitating conditions and intention to use. Performance expectancy was significant for younger undergraduates in social sciences discipline students while effort expectancy was significant for older and applied discipline students.

Tan’s (2013) and Mutlu and Der’s (2017:174) results demonstrated that “performance expectations, effort expectancy and social influence have the effects on behaviour intentions and

facilitating conditions”. Thus Tan’s (2013) students believed that English e-learning websites can increase their performance since they are easy to use and they intended to use them often. Dulle and Minishi-Majanja (2011:34) suggested that “attitude, awareness, and effort expectancy were established as the key determinants for the researchers’ behavioural intention while facilitating conditions and social influence affected researchers’ actual usage of open access”.

3.4. Theoretical Frameworks applied in this study

This study combined two different theoretical frameworks to ensure that pertinent concepts relevant to answering the research problem are measured and analysed. Academic librarians were the significant informants of this study. Integrating two different theoretical frameworks allowed for a comprehensive analysis of the research problem. Although these two theoretical frameworks are both organisational-oriented, they complement each other through neutralising each other’s weaknesses, thus enabling an understanding of the responsiveness of librarians to the demands placed on the academic library in the changing landscape of the 21st century. The following subsections discuss the theories which form the basis for this study.

3.4.1. Diffusion of Innovation (DOI) Theory

The “DOI theory describes how an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003:5). Ibrahim, Ezra and Monsurat (2015: 84) hold that the theory states that “new ideas, inventions and practices are communicated through certain channels over time among the members of a social system using four main elements *innovation, communication channel, time and social system*”. As can be seen in Figure 3.1, the diagram represents the process of how groups of individuals within an organisation adapt to a new innovation (Rogers, 1995).

Diffusion of innovations theory describes the social process of communication of a new idea among the members of an organisation over time. The focus of the theory is not only on awareness and knowledge but also on attitude, change and the decision-making process that lead to the practice or adoption of an innovation (Rogers, 2003: 23).

The DOI theory has been tested and altered in order to ensure comprehensiveness. “The process of diffusion consists of acts of acceptance over a period of time of some particular innovation by an individual or group” (Rogers, 2003:25). Diffusion occurs by using available channels of

communication in an organisation and is influenced by the cultural values of the individual or group.

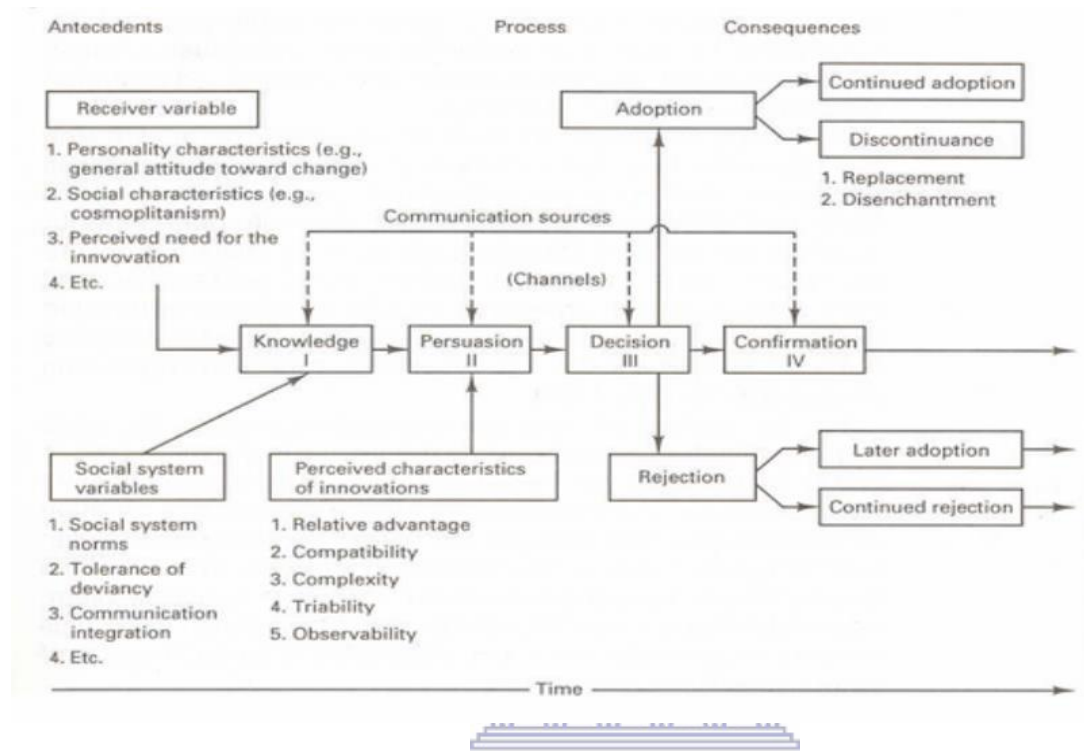


Figure 3. 1. Diffusion of innovations Model (Rogers, 2003)



3.4.1.1. The Innovation

The innovation concept -

measures the reason why certain innovations spread more quickly than others. The characteristics which determine the success of an innovation are: relative advantage, compatibility, complexity, trialability and observability to academic librarians within an organization (Rogers, 1995:210).

Relative advantage –

is the degree to which an innovation is perceived as better than the idea it supersedes by a particular group of users, measured in terms that matter to those users, like economic advantage, social prestige, convenience or satisfaction. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is likely to be (Rogers, 1995:212).

Compatibility –

this is the extent to which an innovation is perceived as being consistent with the values, past experiences and needs of potential adopters (library staff). Thus, a new trend which is incompatible with values, norms or practices will not be adopted as rapidly as an innovation that is compatible (Rogers, 1995:224).

Complexity –

this points to simplicity and ease of use. It is the degree to which an innovation is perceived as difficult to understand and use. New ideas that are easy to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings (Rogers, 1995:242).

Trialability –

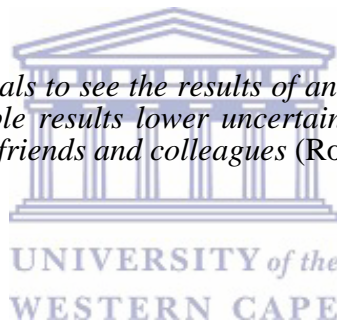
this is the degree to which an innovation can be experimented with on a limited basis. An innovation that is testable represents fewer risks to the individual who is considering it (Rogers, 1995:243).

Observability –

the easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Visible results lower uncertainty and also stimulate peer discussion of new idea, as friends and colleagues (Rogers, 1995:244).

3.4.1.2. Communication

This is the process by which



Librarians create and share information with one another in order to reach a mutual understanding. Mass media channels are more effective in creating knowledge of innovations, whereas interpersonal channels are more effective in forming and changing attitudes toward a new idea and thus in influencing the decision to adopt or reject a new idea. Most individuals evaluate an innovation based on subjective evaluation of their peers' visible experiences rather than on the basis of research experts (Oliveira & Martins, 2011:115).

3.4.1.3. Time

This element explains the length of time it takes for a new trend to be accepted and used. Rogers (2003) described time in three ways:

Innovation-decision process

The innovation-decision process explains the mental process through which an individual passes from first knowledge of an innovation to forming an attitude towards the innovation, to a decision to adopt or reject, to implementation of the new idea and to confirmation of this decision.

An individual seeks information at various stages in the innovation decision process in order to decrease uncertainty about an innovation expected consequences through the five step process. The steps include: a) Knowledge - individual becomes aware of an innovation and has some idea of how it functions; b) Persuasion - individual forms a favourable or unfavourable attitude toward the innovation; c) Decision - individual engages in activities that lead to a choice to adopt or reject the innovation; d) Implementation - individual puts an innovation into use; e) Confirmation - person evaluates the results of an innovation decision already made (Rogers, 2003:27).

Individual innovativeness

Innovativeness is the “degree to which an individual is earlier in adopting new ideas than other members of a social system. It is composed of innovators, early adopters, early majority, late majority and laggards” (Rogers, 2003:25). These are fully explained below:

Innovators:

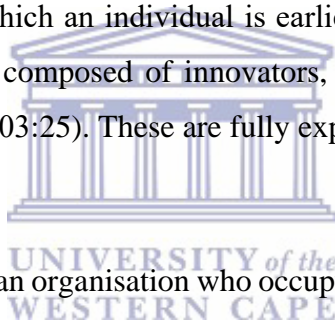
Innovators are those individuals of an organisation who occupy only two and a half percent (2.5%) of the whole group (Rogers, 2003). This means that they are only a limited number of individuals who have the risk-taking traits and energy to quickly pounce on a new innovation within organisations. It has been observed that “innovators actively seek new information and are able to cope with a higher degree of uncertainty that may accompany new innovations” (Rogers, 1995:13).

Characteristics of innovators, according to Rogers (1995:248-250), include that:

they are enthusiastic about following new trends and putting them into practice; innovators are known to be venturesome; they have a desire for the rash, the daring and the risky; they control substantial financial resources to absorb possible loss from an unprofitable innovation; and they possess the ability and passion to apply complex technical knowledge.

This measure is imperative to this research because it will show a unique group of librarians who are curious and highly active in the uptake and appreciation of new innovations.

Early Adopters:



Rogers (1995) states that among all individuals within an organisation, early adopters take up 13.5%. Early adopters are optimistic about new innovations but they always want to see how it works and need to be assured before they can adopt and use it. Other notable characteristics of the early adopters are that this group of individuals are an integral part of the social system (for example, academic library) because they form the greatest degree of opinion leadership in most systems. Early adopters have been described as “referent points for other adopters such as early majority, late majority and laggards. They serve as role models for other members and they are respected by peers and are successful in accepting change. As such, this group of people exert influence on the behaviour of other groups” (Van Braak, 2001: 148). This concept shows that in every institution you find librarians (usually the management or supervisors) who are always there to influence and convince others to adopt and probably accept new trends within the work place.

Early Majority:

The early majority are defined as individuals who have reservations about the use of new innovations but they adopt it under pressure from necessity (organisational requirements) and peers (Yi, Fiedler & Park, 2006). They interact frequently with peers and are therefore, easily persuaded by their peers. They “seldom hold positions of opinion leadership and they occupy the largest category (34%) of an organization” (Yi, Fiedler & Park, 2006:405). Early majority individuals discuss prior to making a decision to take-up a new idea, therefore their acceptance of an innovation is shaped by collaborative decision making. Through this concept it is easy to understand why some librarians prefer learning from their peers rather than exploring and learning independently. In other words, this group of librarians become more enlightened about the effectiveness of a new trend through learning from peers with experience of using it.

Late Majority:

The attributes of the late majority individuals entail that they are affected by peer pressure. They are known to be sceptical because they fear losing their job and they are economically cautious because they do not have enough resources. This is “the last sizable segment of a population to adopt an innovative technology, The late majority accounts for roughly 34% of the population within an organisation, and will accept a new innovation only after seeing that the majority of the population already has” (Rogers, 1995:222). Social norms are “quite important to sceptical individuals as they need continuous control in looking at innovations from different perspectives

or adapting to social norms” (Rogers, 1995:223). This concept is useful in measuring a group of librarians who adopt an innovation later, after the use of an innovation has become a norm within the library and if the innovation is in line with the patrons’ demands or expectations.

Laggards:

Sixteen percent (16%) of the individuals in an organisation are composed of the laggards (Rogers, 1995). Laggards are described as individuals who possess a traditionally inclined perspective and will only accept new innovations if they have been successfully adopted by others. They are known for taking the longest period to accept an innovation, if at all. They lack awareness and knowledge of new trends because they are isolates. Once they become aware they are very suspicious of new innovation. They point their reference to the past as such they are not passionate about following new trends. They possess no opinion leadership and in situations where resources are limited their innovation-decision process is lengthy. This is a very important construct because it gives possible reasons as to why some librarians refuse to accept change even when it is necessary.

Rate of adoption

Weiner (2003:73) posits that the “rate of adoption is related to its perceived benefits, the potential adopter’s attitudes and beliefs, and the influence of the communication that the individual receives from the social environment about the innovation”. Potential adopters (academic librarians) have a richer set of behavioural beliefs. Academic librarians’ attitudes constitute trialability, perceived usefulness, result demonstrability, visibility, and ease of use. The rate of adoption is “the relative speed with which an innovation is adopted by members of an organisation. The rate of adoption is usually measured as the number of librarians within an institution that adopt the innovation in a given time period” (Weiner, 2003:73). As explained above an innovation’s “rate of adoption is influenced by the five attributes of an innovation (innovator, early adopter, early majority, late majority, laggards)” (Rogers, 2003:25).

3.4.1.4. Social System

The social system is

a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal. In simpler terms, a social system is an organisation consisting of

a stable system of individuals who work together to achieve common goals through a hierarchy of ranks and a division of labour (Rogers, 2003:34).

The social system constitutes a boundary within which an innovation diffuses. This relates to how the “social structure affects the acceptance of a new idea, this aspect also measures how norms (the established behaviour patterns for the members of a social system) affect diffusion” (Rogers, 2003:28). It also explains the role of the opinion leader (management) in influencing librarians’ attitudes in a positive way. A “change agent is an individual who attempts to influence clients’ innovation-decisions in a direction that is deemed desirable” (Rogers, 2003:5).

3.4.1.5. Critical mass

The “critical mass permits an understanding of the nature of diffusion through explaining the point at which enough librarians have adopted an innovation that the innovation’s further rate of adoption becomes self-sustaining” (Rogers, 2003:38). The concept of “critical mass implies that outreach activities should be concentrated on getting the use of the innovation to the point of almost all members of the organisation using an innovation” (Rogers, 2003: 39). Thus, effort should be

focused on the early adopters, because they are opinion leaders and serve as role models for many members of the social system. In light of this view, early adopters are essential drivers in getting an innovation to the point of critical mass, and wide acceptance of an innovation in an organization (Rogers, 2003:40).

This aspect is very important to this particular study because it assisted in drawing conclusions about the extent to which Zimbabwean university libraries have addressed the 21st century information landscape.

3.4.1.6. Strengths and weaknesses of the DOI theory

Roger’s (2003) Diffusion of Innovation theory has been successfully used by many researchers to investigate the acceptance of new innovations such as technology. A notable strength of this theoretical framework is the emphasis on who accepts the innovation with reference to the number (percentage) of individuals who adopt an innovation (Nutley, Davies & Walter, 2002). Consequently, this allows measuring the extent of an organisation’s innovativeness. Apart from that, the theoretical framework, as alluded to by Rogers (1995), provides an avenue to measure at the organisational level. The DOI specifically links the adoption process to the organisational units, norms and opinion leaders. The theory also explains “a variety of external or social conditions that

may accelerate or slow the adoption process such as: whether the decision is made collectively, individually, or by a central authority; and the communication channels used to acquire information about an innovation” (Rogers, 1995:23).

Another strength of the DOI theory is that it considers “communication, or rather the process where information is both created and shared in order to reach a mutual level of understanding between individuals. This provides the means by which information is transmitted between individuals and social systems creating the communication channel” (Rogers & Scott, 1997: online). Thus, it explains the communication channels (for example, social media or attending conferences) through which librarians keep abreast with new trends. For instance, in this study the Individual Innovativeness theory accounts for the degree of interconnectedness amongst librarians within a library. In summary, the DOI theory is well respected for identifying the qualities that allow an innovation to be accepted within an organisation, the DOI emphasises the value of sharing ideas with their colleagues and peer network, and the theory also recommends that organisations understand the needs of the users (risk-averse librarians in an organisation).

However, some of the weaknesses of the DOI theory are well documented in the literature. A major flaw of the DOI is that it explains adoption by groups that do not want the innovation. For instance, some librarians may not be comfortable with designing web-based tutorials to offer information literacy training but because the organisational opinion leaders regard this as a requisite, the librarians have no choice but to accept the new idea, whether they have the necessary skills or not. The necessary skills are well explained by McKinsey 7S model, see section 3.4.2.1. A critique of the “DOI theory asserts that in the adopters’ categories of this theory, there is a missing category which states that some adopters may have features of innovators or early adopters but may not quickly adopt an innovation” (Neo & Calvert, 2012: online). An example is that librarians may not adopt the concept of RDM because they believe it would not be feasible within their organisation and also considering the fact that the concept might not appeal to the institutions’ researchers.

3.4.1.7. Justification for the use of the DOI theory

It is imperative to clearly articulate the significance of a theoretical framework. The following reasons inspired the use of the DOI theory in this study:

In this theoretical framework librarians are viewed heterogeneously, according to their attitudes towards acquiring the new skills and competencies to assist them in adequately satisfying patrons' needs. Consequently, this allows the researcher to draw conclusions based on the actual skills and competencies held by Zimbabwean academic librarians as well as how they use them to fulfil user expectations. This is possible because, as Waheed, Koblas and Kaur (2016:2) report, "personal innovative behaviour combines decisions about the acceptance of new trends and how these are utilised within organisations". Thus, this theory is useful in revealing the appropriation of new trends within an organisation. The theory also helps determine the librarians' sources of information with regards to the new trends using the communication channels such as peer-to-peer interaction and mass media.

Brundy (2015) indicates that academic library management requires highly creative and innovative librarians in order to address and embrace change. In a bid to try and understand whether or not Zimbabwean university librarians have up-to-date skills and competencies required to comfortably fit into the current information landscape, it is imperative to assess librarians' level of innovativeness. This theoretical framework clearly predicts the level of innovativeness and creativeness in acquiring and applying new skills and competencies amongst Zimbabwean university librarians and their organisations' innovativeness.

The theoretical framework measures the length of period librarians take to adopt new concepts presented in their work place (Gillard, Bailey & Nolan, 2008). This is achieved through careful consideration of the innovation-decision process which entails the five-step decision process (knowledge, persuasion, decision, implementation, and confirmation), individual innovativeness process and the rate of adoption. This aids in clearly defining the shape of Zimbabwean academic libraries in this 21st century information landscape.

A plethora of recent studies have applied the DOI theory. This provides reasons for its use in this research. A study conducted by Minishi-Majanja and Kiplang'at (2004:215) investigated the "diffusion of ICTs in the communication of agricultural information among agricultural researchers and extension workers in Kenya". Minishi-Majanja and Kiplang'at's (2004:215) study report that "a low relative advantage among the extension workers because of limited access to ICT resources resulted which resulted in them not being able to acquire necessary ICT skills. Additionally, use of ICTs was affected by behavioural attitudes, social and economic factors of

the respondents”. Using the DOI theory Ntemana and Olatokun (2012:180) investigated the “influence of the five attributes of diffusion innovation theory on lecturers’ use of ICTs”. Ntemana and Olatokun (2012:180) expound that the “attitude of lecturers towards using ICTs is positively influenced by relative advantage, complexity and observability, with observability having the highest influence”. In Neo and Calvert’s (2012: online) study it was revealed that “relative advantage, compatibility and complexity were the most important factors to explain adoption or non-adoption of Facebook in New Zealand libraries”. Another study by Jantz (2012:9) analysed “innovation in academic libraries using perspectives of librarians from six universities”. Jantz (2012:9) attests that understanding of the “complexity of an innovation requires a close look at the differences and similarities perceived by university librarians as they commented on the many dimensions of innovation-leadership, organisational structure, professional values, and the characteristics of the innovation itself”.

Nazari, Khosravi and Babalhavaeji (2013) revealed that relative advantage, compatibility, complexity, trialability and observation all link to appropriation of databases. Nazari, Khosravi and Babalhavaeji (2013: 28) further found that “49.28% of the faculty members were early majority adopters and users of online databases”. Aharony and Shonfeld (2015), based on the premise of DOI theory, discovered that most students were classified as early adopters to whom the innovation decision takes more time than it takes for the late majority or laggards. Additionally, the more students use ICT, the higher their perceptions about its relative advantage thus the more students use ICT, the more they believe it can enhance their ability and improve their efficiency. This showed that students had a positive attitude towards ICT use. Walton (2014:264) expresses the idea that “undergraduate students identified leisure reading, conducting research, forced adoption and convenience as positive factors in their choice to use e-books”. Bergström and Höglund’s (2014: online) survey revealed that “Sweden was still at the beginning of the diffusion process, although the penetration of reading devices in the country was high, which indicates a potential for e-book reading to expand and reach beyond the group of early adopters”. Raynard (2017) has it that e-books were more prevalent among students than faculty, that is to say, e-books technology was mostly used by younger people. Phoenix (2016) maintain that 35% of the librarians were innovators and early adopters while 15% were both the early adopters and late majority of virtual reference service. Fish and Piekielek (2016) state that faculty librarians may stand in as change

agents to help market Geographic Information Systems (GIS) services through organising seminars for academics in different faculties.

3.4.2. The McKinsey 7S model of organisational change management

The McKinsey 7S framework (1982) owes its origins to Robert Waterman, Tom Peters and Julien Phillips consultants working for McKinsey and Company. The McKinsey 7S model is a tool used by organisations to track and manage organisational change. The model is often termed as the ‘managerial molecule’ because of its shape (as shown in figure 3.2). The “variables represented in the model were considered to be of crucial importance to managers and employees” (Waterman, Peters & Phillips, 1982). It assists in ensuring that all of the “factors contributing to the change can be monitored against targeted measures which are *strategy, structure, skills, staff, shared values, style* and *systems*” (Sigh, 2013:45). The analysis of “several organisations using the model revealed that American organisations tend to focus on those variables which they feel they can change also known as hard variables (e.g. structure, strategy and systems) while neglecting the other variables” (Waterman, Peters & Phillips, 1982). “These other variables (e.g. skills, style, staff and shared values) are considered to be soft variables. Japanese and a few excellent American organisations are reportedly successful at linking their structure, strategy and systems with the soft variables” (Waterman, Peters & Phillips, 1982:21).

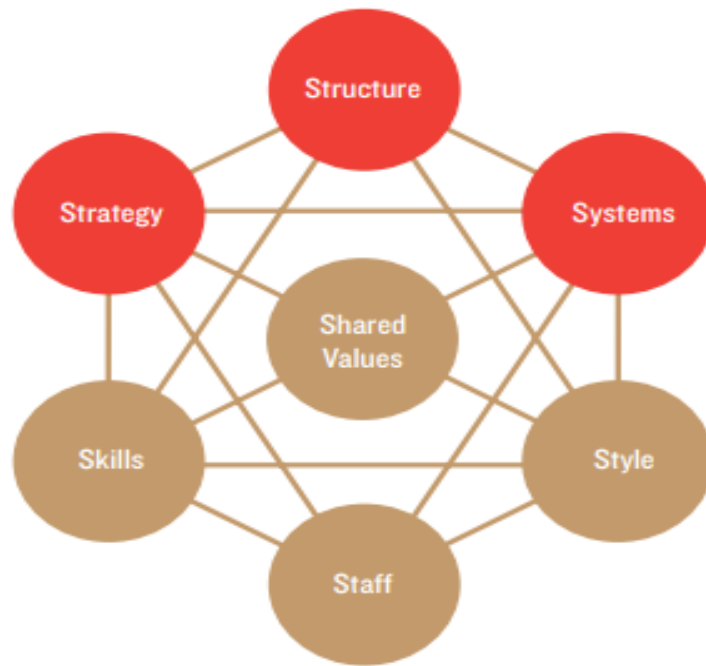


Figure 3. 2. McKinsey 7S model (Waterman, Peters & Phillips, 1982)

3.4.2.1. The McKinsey 7S framework's major elements

The model has been widely used to implement various organisational changes (Carter & Carmichael, 2009). The model emphasises that “an organisation needs to be aligned in seven areas to perform optimally, namely strategy, structure, systems, style, staff, shared values and skills” Waterman, Peters and Phillips (1982:12). According to Waterman, Peters and Phillips (1982), the first three elements: strategy, structure, and systems are categorized as hard core in defining and directly influencing the organisation’s existence. The remaining four elements: shared values, staff, style and skills are categorized as soft core, being less tangible and more influenced by the organisational culture. It is important to state that both categories are essential for the organisation’s success. The seven key elements are discussed in detail below.

Strategy

This is the “first stage of change according to the McKinsey 7S framework and involves the development of a step-by-step procedure for adopting new ideas” (Waterman, Peters & Phillips, 1982:15). Waterman, Peters and Phillips (1982) define strategy as the plan for distributing resources to achieve a set of goals within a given timeframe. Strategy is the

plan created to get past the patrons' demands and achieve the goals, particularly in libraries. Strategy is the plan of action an organisation prepares in response to, or, in anticipation of, changes in its external environment. Strategy is differentiated by tactics or operational actions by its nature of being premeditated, well thought through and often practically rehearsed. It deals essentially with three questions: 1) where the organisation is at this moment in time, 2) where the organisation wants to be in a particular length of time, and 3) how to get there. Thus, strategy is designed to transform the organisation from the present position to the new position described by objectives, subject to constraints of the capabilities or the potential (Price & Chahal, 2006:246).

Structure

The structure relates to the way in which the organisation is divided or structured. The structure is the supporting framework of an organisation which is also known as an organogram. Organisations are “structured in a variety of ways, dependent on their objectives and culture” (Waterman, Peters & Phillips, 1982:20). The structure of the institution maps the way it functions and executes activities (Waterman, Peters & Phillips, 1982). Traditionally, institutions have been organised in a systematic way with clear departments, such as in libraries technical services and client services. While the hierarchical organisational structure is still being applied, the flat structure seems to be taking over. In a flat organizational structure tasks are conducted in groups of specialists rather than fixed departments. This is in line with the recent trend amongst academic librarians as they are required to acquire specialised skills and competences, and to formulate communities of practices to keep each other up to date/ share new knowledge. Examples of such skills are instructional design librarian, creative learning specialist or researcher, amongst others (O’Neill, 2015). The idea is to make the “organisations more flexible and devolve power by empowering the employees and eliminate the middle management layers” (Boyle, 2007:326).

Systems

Systems refer to library processes and the technical platforms used to support services. The systems are the “routine processes and procedures followed within the organisation. Every organisation has internal processes to support and implement the strategy and to conduct daily activities affairs” (Hanafizadeh & Ravasan, 2011:35). For instance, an academic library may follow a particular process for addressing the needs of researchers, academics and students in the 21st century. Previously, the organisations used

Max Weber's bureaucratic-style process where most decisions are taken at the higher management level and there are various and sometimes unnecessary

requirements for a specific decision to be made. Increasingly, the organisations are modernising by altering their process by adopting new technology and other new trends to make the decision-making process quicker. Emphasis is on the organisation's clients with the intention to make the processes that involve them as user friendly as possible (Waterman, Peters & Phillips, 1982:18).

Shared values/superordinate goals

Shared values or superordinate goals “refer to the core values of an organisation according to which it runs” (Waterman, Peters & Phillips, 1982:20). These are articulated by the vision and mission statements. Every individual within an organisation share fundamental views which inform the institution functions. This may be to achieve excellence in a particular area, such as providing adequate support to library patrons. Shared values keep staff members working towards achieving common goal as a united group. Goals or objectives should be clearly defined to ensure that the adoption to change has clear guidelines. Organisations with poorly defined values results in each staff member formulating personal goals that conflict with formal organizational goals (Martins & Terblanche, 2003).



Style/Culture

Style or culture is the manner in which changes and leadership are adopted or implemented. It includes the main values, beliefs and norms (these influence the attitudes of employees when change occurs) which develop gradually and eventually become a norm within an organisation.

All organisations have their own distinct culture and management style. It also entails the way managers interact with the employees and the way they spend their time. Organisations have traditionally been influenced by the military style of management and culture where strict adherence to the upper management and procedures was expected from the lower-rank employees (Martins & Terblanche, 2003:67).

However, there have been extensive efforts in the past couple of decades to change to a more open culture, innovative and friendly environment with fewer hierarchies and smaller chains of command. Organisational culture remains an important consideration because it has the power to influence employees' attitude towards change within an organisation (Martins & Terblanche, 2003).

Staff

Staff refers to the employees and their working capacity (Waterman, Peters & Phillips, 1982). Staff are identified using their job titles within the organisation (e.g. assistant librarians/faculty librarians/subject librarians).

Organisations are made up of people who make the real difference to the success of the organisation in the increasingly knowledge-based society. The importance of human resources takes central position in the strategy of the organisation, away from the traditional model of capital and land. All leading organisations put extraordinary emphasis on hiring the best staff, providing them with rigorous training and mentoring support, and pushing their staff to the limits in achieving professional excellence (Waterman, Peters & Phillips, 1982:14).

This way of handling employees forms the basis of these organisations' strategy and building their prestige. It is also important for the “organisation to instil confidence among the employees about their future in the organisation and future career growth as an incentive for hard work” (Purcell & Boxal, 2003:23).



Skills

This category deals with “capabilities and competencies that exist amongst library staff within the organisation; and whether key people have the knowledge, skills, and ability to make the required changes” (Waterman, Peters & Phillips, 1982:15). Adequate analysis of “this category would require the identification of key performance areas (task analysis and assessment of the skills requirement, both current and required competences) for each of these performances” (Sanchez, 2001:498). Skills imply learning from one’s own and others’ successes and failures and to be able to respond to today’s requirements and readiness to respond to challenges. Library organisations need to be dynamic and flexible and need to have staff that enjoy embracing new ideas. They must be highly skilled so that they have confidence in their ability to incorporate the changes. Organisations should encourage personal development and learning amongst employees.

3.4.2.2. Strengths and weaknesses of the McKinsey 7S model

The literature is replete with studies that have employed McKinsey 7S framework. The following strengths have inspired its wide use amongst researchers in different fields of study:

The overall aim of the model is to provide direction in improving the organisational effectiveness. This model offers “ways and methods to understand an organisation and get an insight into the

way it works” (Waterman, Peters & Phillips, 1982:17). Additionally, because this model combines both the emotional and practical components of change this is a valuable element which enables staff members to deal with change. One other strength of the McKinsey 7S framework is that it “considers all parts of the model to be important and equally worth addressing and thus does not leave out some aspects that may be of importance” (Waterman, Peters & Phillips, 1982:17). Another notable advantage is that this model offers a directional factor to organisational change.

Unfortunately, McKinsey 7S framework has weaknesses associated with it. Since all the factors are interrelated and interdependent, the failing of one part means failing of all and this is the greatest disadvantage of this model. Waterman, Peters and Phillips (1982: 18) do acknowledge that “other variables exist and that they depict only the most crucial variables in the model”. This particular weakness is counteracted by the DOI theory concepts, because it has several elements to measure.



3.4.2.3. Justification of the McKinsey 7S framework

Several researchers have successfully used this theory and achieved their objectives. This subsection justifies the choice of the McKinsey 7S framework of organisational change for this research.

The McKinsey 7S Model is a tool to initiate change processes and to give them direction, and this made it suitable for this study. The McKinsey 7S model is useful in determining and analysing the “current state of each element and to compare this with the ideal state, then identify gaps and inconsistencies between them. Based on this it is then a question of adjusting and tuning the elements to ensure that your organisation works effectively and well towards achieving that end goal” (Simiyu, 2013:27).

The McKinsey 7S framework is useful in this study because it comprehensively interprets the skills and competencies. The McKinsey 7S framework provides a scenario based on specialized skills through determining the organisational structure of each academic library. The 7S model posits that organisations are successful when they achieve an integrated harmony of all seven factors (Barney, 1991).

The theoretical framework assists in the judgement of availability of university libraries 21st century strategies which govern change within their work routines. The McKinsey 7S model provides a step-by-step transition process within academic libraries as defined by the organisational objectives (David, 1997). This therefore defines the strategies of the university from the library's viewpoint.

It also gives clarity to some of the processes through which the academic libraries address the changing needs of researchers, academics and students in the 21st century. This is done through understanding the goal of the organisation and fully aligning McKinsey's seven factors with the institutions' goals. McKinsey 7S model can be used to understand what areas to align and improve to increase performance. The McKinsey 7S model is a holistic approach to an organisation, can describe how affectively one can organise an institution holistically which collectively determines how the institution will operate (Karami, 2005).

Shared values are the “pinnacle of the model and therefore in any organisation they form the underpinning culture, strategy, effectiveness and performance, linking to every other element in this framework” (Waterman, Peters & Phillips, 1982:19). The McKinsey 7S framework has been widely applied in different contexts such as higher education, technology acceptance, marketing and has explained organisational acceptance of change, thus it is highly flexible. Research conducted by Hanafizadeh and Ravasan (2011:44) examined the “Enterprise Resource Planning (ERP) system's readiness assessment on the basis of McKinsey 7S model”. Hanafizadeh and Ravasan (2011:44) revealed that, “when adopting a new innovation, it is important to consider the technical factors and the non-technical factors such as employees who will use the new system”. Accordingly, the McKinsey 7S model has been employed due to its comprehensiveness in covering diverse organisational dimensions and it was used to design an ERP readiness assessment framework. Bartley-Bryan (2013) applied the McKinsey 7S model to design a conceptual framework for assessing the implementation of distance learning at the University of Technology in Jamaica. The results suggest that all seven elements have a role in driving change within organisations, specifically when introducing technology-mediated systems. The University College Cork (2013) used the McKinsey 7S model to develop a strategic plan for its information services and the results were that they have to leverage the librarians' skills and services of the library when adopting a university e-learning system and enhancing provision of a digital library

through Open Access. Alshaher (2013:1954) proposed an “e-learning system readiness assessment model based on McKinsey 7S framework”. Alshaher (2013:1954) explains that the “successful implementation of an e-learning system is determined by the chief information officer plus the size of the organization”. A comprehensive literature review on the adoption of learning analytics amongst tertiary institutions conducted by Pressler and the Education Development Center (2014) outlines the seven areas of an organisation that need to be aligned for optimal performance. Pressler and the Education Development Center (2014) used the McKinsey 7S model to point out suggestions and cautions in relation to the adoption of learning analytics. Separate studies (Pandey & Tripathi, 2015) utilised McKinsey 7S model to understand how a limitation in information literacy skills affects academic performance.

Based on McKinsey 7S model, Marpaung, Prabawani and Susanta (2016) expound that the divisional structure in Inalum, Indonesia is beneficial to facilitate effective decision making, simply management structure and reduce management risk. Furthermore, the 7S model was useful in identifying barriers that can develop during the process of implementing strategies. Král and Králová (2016) established that approaches to changing organisational structure were based on external and internal drivers of change and formal and informal communication on the transformation. Edward and Muturi's (2016) study indicated that leadership style, communication style and employee training were not common strategic management practices to influence transformation amongst Kenyan government ministries. Leadership needs to understand and capitalise on organisational dynamics. This builds on the perspective of engaging staff members in the implementation of digital change (Toves, 2015). Sigha and Satpathy (2017) mention that libraries are supposed to adopt change management strategy, thus with the evolution and application of ICT in libraries, users require quality and value-added services.

3.5. Integration of the two Theoretical Frameworks

There are cases when research questions cannot be adequately answered by applying one theory. In such cases a researcher may combine two theories to fully address what neither theory could do independently. In highlighting factors which determine the success of integrating two theoretical frameworks, Mayer and Sparrowe (2013:918) state that respecting the foundational assumptions

of each theory and explaining how each theory will be utilized and why each theory alone could not address the research questions must be clearly articulated.

The two theories have their peculiar aspects that permit them to complement each other in this research. For instance, the DOI theory explains the level of organisational innovativeness by showing the period of time it takes for librarians in universities to accept and use new ideas. On the other hand, the McKinsey 7S model measures “organisational change through close analysis of the strategy, structure, systems, style, staff, shared values and skills held by the institution” (Waterman, Peters & Phillips, 1982:17). This shows whether the seven elements are flexible enough to explain librarians’ change in this 21st century. Both theoretical frameworks neutralise each other in that the McKinsey 7S model pays more attention to the library staff and their skills updating as part of the organisational change, whilst the DOI theory adds more concepts to explain how libraries manage change.

The major reason for integrating the two theories was prompted by the quest to determine the degree of acceptance of new trends amongst three state academic libraries in Zimbabwe, as well as identifying specific skills and competencies required in this current environment.

3.6. The connection between the conceptual and theoretical frameworks underpinning this study

There should be a connection between the conceptual framework, theoretical framework and the instruments used in a study (Evans, Coon & Ume, 2011). In line with Evans, Coon and Ume’s (2011) view, this section maps out how the conceptual framework and the two theoretical frameworks fit together to explain the 21st century academic library.

It is important to mention that the conceptual framework mentioned in 3.2 contributes towards the definition of academic librarians’ latest skills and competencies required in order to survive in this 21st century environment. The concepts relate to the two theories in that they present the external demands which may inform organisational values, beliefs, and norms in complying with the latest demands (McKinsey 7S model). The conceptual framework clearly indicates some of the latest trends which are based on the patrons’ and the universities’ expectations from the librarians and these trends are clearly articulated by the DOI theory.

In line with the research questions of this study both the conceptual and theoretical frameworks will assist in understanding the status of the Zimbabwean university libraries in keeping abreast with the modern information environment. This will be done through defining the extent of technological, open scholarly communication, RDM, social web, new pedagogies, new academic library spaces and faculty-librarian partnership changes measured against literature. These chosen frameworks will measure the current librarians' skills and competencies. Most importantly, the theoretical frameworks will help explain the attitudes of librarians in this modern environment. Finally, the needs and expectations for the modern library user are clarified.

3.7. Chapter summary

The chapter described how the conceptual framework for library patrons was compiled and the reasons for following this route. A review of recent literature revealed that the modern university library patrons expect support with regards to new pedagogies, open scholarly communication, social web, new library spaces and collaboration between faculty and the librarians. A close scrutiny of each concept and how it fits in with this study is given. Various theoretical frameworks which relate to the study were discussed namely the TOE, TAM, TPB and UTAUT. The chapter further focuses on two chosen theoretical frameworks applied in this study specifically, the Diffusion of Innovation theory and McKinsey 7S model. The theories determined the attitudes, skills and competencies required by modern academic librarians. They basically defined the extent to which academic libraries in Zimbabwe conform to the 21st century demands. The strengths and weaknesses of each theoretical framework were clearly highlighted. Moreover, each theoretical framework was justified with close reference to the aim of this study. A brief justification of integrating two theoretical frameworks is given. The relationship between the conceptual and theoretical frameworks and how they worked together to answer the main research problem is discussed. The next chapter highlights the methodology of this study.

CHAPTER 4

RESEARCH METHODOLOGY

4.1. Introduction

This chapter provides insight into the methods and techniques used to collect, interpret and analyse data for this study. Research methodology is a systematic approach that explains the procedures by which researchers map out the techniques of describing, explaining and predicting phenomena (Neuman, 2006). In particular, the chapter taps into how the Web-based questionnaires, semi-structured interview guide and website content analysis criteria were designed. The survey research design and the sampling methods are discussed in detail. Data presentation, analysis and interpretation process as well as the ethical considerations are clearly explained.

As a major signpost in any research the purpose of the study should be clearly articulated since it derives from the research problem. The overall purpose of the study was to investigate how the academic librarians at three Zimbabwean universities were reacting towards the demands placed on the academic library by the 21st century information environment. This was done through a close examination of the academics' and students' demands on university libraries in the 21st century. This chapter is centred on developing the direction and protocol for reporting the research results. In doing so, it is governed by the following research questions: 1) How have academic libraries across the globe embraced change in the 21st century information landscape? 2) To what extent has the 21st century information landscape shaped the Zimbabwean academic library? 3) To what degree are Zimbabwean academic librarians' skills and competencies meeting the requirements demanded by the modern academic library? 4) What are the Zimbabwean academic librarians' attitudes towards the changes in the 21st century academic library? and 5) What are the needs and expectations of 21st century academic library users?

4.2. Research methodology approaches

Research may either take the form of qualitative, quantitative or mixed methods approaches. These three are discussed in sub-sections below.

4.2.1. Qualitative research methodology approach

Qualitative research aims to understand “some aspect of social life and its methods which generate words, rather than numbers as data for analysis” (Snelson, 2016: online). Qualitative data is “not necessarily or usually numerical, and therefore cannot be analysed by using statistics” (Snelson, 2016: online). Qualitative research displays an “interactive dynamic and emergent character in which the aims, strategies, data analysis and validity are woven together in the process of the study” (Lloyd-Jones, 2003:37). Qualitative research is “actually an umbrella term encompassing a wide range of methods, such as interviews, case studies, ethnographic research and discourse analysis, to name a few” (Snelson, 2016: online).

Lloyd-Jones (2003:35) comments that qualitative research “aims to answer the questions related to what, how or why of a phenomenon rather than how many or how much, which are answered by quantitative methods”. Qualitative methods are often appropriate for understanding how individuals within a community perceive a particular issue. Brannen (2017:429) holds that qualitative researchers are “subjectivists because they believe that reality is constructed by us and by our observations. Thus, there is no pre-existing objective reality that can be observed”. Subjectivists hold the view that “the process of our observation of reality changes and transforms it, and is never definitive, as the quantitative researchers claim” (Brannen, 2017:429).

Qualitative research is applied when the researcher wants to “ponder the theoretical, philosophical paradigm in an inquisitive and open-ended setting” (Neuman, 2006:15). This method also refers to several “data collection and analysis techniques that use purposive sampling and semi-structured, open ended interviews” (Choy, 2014:101). Some of the strengths of this research method as identified by Choy (2014:101) include its allowance of the “view of homogeneous exploration; it raises more issues through broad and open-ended inquiry and provides in-depth understanding of behaviours, beliefs and assumptions”. However, Choy (2014:101) also pointed out several weaknesses of the qualitative methods. The weaknesses are as follows: it requires skillfulness for conducting interviews, it is time consuming during the interview process, and it does not provide objectively viable results. To enhance the trustworthiness of qualitative data several methods (for example, triangulation, thick description, inquiry audit amongst others) were designed to check for credibility, transferability, dependability and conformability of results (Silverman, 2000; Shenton, 2004). These techniques ensure reliability and validity of findings in

qualitative research. In this study the researcher mixed methods to ensure the trustworthiness of data collected during interviews. The researcher also applied website content analysis as a verifying method.

4.2.2. Quantitative research methodology approach

Snelson (2016) described the proponents of quantitative research as being realistic or positivist. Realists believe that what research does is uncover an existing truth. That is to say “the truth is out there and it is the researcher’s job to use objective research methods to uncover that truth. The researcher needs to be as detached from the research as possible and use methods that maximise objectivity and minimise the involvement of the researcher in a study” (Snelson, 2016: online). This arrangement is achieved by using methods adopted from natural sciences, which are then transposed to social research settings (such as library science). According to the quantitative viewpoint, the world is guided by “fixed laws of cause and effect. Scientific thinking is used to test theories about these laws, and either reject or provisionally accept them” (Snelson, 2016: online). As a consequence, McCusker and Gunaydin (2015) assert that quantitative research aims to understand the experiences and attitudes of individuals in society. Ross (2005:32) emphasises that the use of “quantitative methods depends on the type of research questions to be answered. The following are four examples of quantitative research questions: 1) how many students chose to study education? 2) Numerical change can be accurately studied by using quantitative methods e.g. Are the numbers of students in our university rising or falling? 3) In situations where a researcher seeks to test hypothesis”. This entails using theory to explain a phenomenon. For example, explaining the connection between student’s success and their literacy, and how this would in turn be related to low achievement; and 4) the need to determine the state of something, through explaining phenomena. For instance, determining the extent to which librarians in Zimbabwe have kept pace with the 21st century environment. This is more inferential, that is explaining something rather than just describing it.

Some of the notable strengths of the quantitative research method are that it is reliable in facilitating a critical analysis of numerical data for larger groups of people, and it also ensures a short time for administering questionnaires (Choy, 2014:101). MacCusker and Gunaydin (2015:539) posit that when investigating “a broad and diverse field such as general human services,

statistics can deliver more valid data in order to ascertain present and future trends”. Redoing research using “larger and multiple samples under similar conditions permit comparisons to be formulated. This points to the assumption that the findings are valid, thereby, perceived as the truth” (MacCusker and Gunaydin, 2015:539). Moreover, another advantage is that the researcher is removed from the emotional and subjective bias that can be more prevalent in qualitative research. Thus, “information and data can be interpreted, utilizing basic figures without the influence of participants compromising neutrality” (MacCusker and Gunaydin, 2015:539).

A number of weaknesses of quantitative research methods are identified in the literature. Some of these weaknesses include that there is no “human perception and beliefs, lack of resources for large scale research” may compromise the quality of research as quantitative research requires large numbers of people and that it does not offer depth or interrogative experience (Choy, 2014:101).

To ensure validity of the quantitative methods the researcher has to collect and analyze data to assess the accuracy of an instrument prior to data collection (Heale & Twycross, 2015). This will help in obtaining population generalizability as well as measure the appropriateness of the content of an instrument. Reliability ensures consistency, particularly assessing whether the instrument consistently measure what it is intended to measure (Black, 1999). In the present research all questionnaires were pre-tested before data collection. Data collected in a pilot study was analysed and improvements made to the instruments accordingly.

4.2.3. Mixed methods research methodology approach

Researchers such as Creswell (2014), Mason (2006) and Turner, Cardinal, and Burton (2015: online) are of the view that both “qualitative and quantitative methods individually are flawed, but these limitations can be mitigated through combining methodologies to provide better answers to research questions”. That is why Hathcoat and Meixner (2015: online) attest that “mixed methods research is based on the idea of heightened understanding through the use of multiple methods that do not share the same failings and have proven to be effective in cancelling another’s imperfection”.

Creswell (2014:42) claims that by using mixed methods “a researcher may both generalize the findings to a population as well as develop a detailed view of the meaning of a phenomenon or concept for individuals. In this research, the inquirer first surveyed a large number of individuals

and then followed up with a few participants to obtain their specific views and their voices about the topic. In these situations, collecting both closed-ended quantitative data and open-ended qualitative data proves advantageous”.

In mixed-methods “research, qualitative or quantitative components can predominate, or both can have equal status” (Creswell, 2014:42). This particular study used three (for academics, students and librarians) Web-based questionnaires, follow-up interviews with librarians and as a complement to questionnaires and interviews, website content analysis was conducted. The researcher based “the inquiry on the assumption that collecting diverse types of data best provides a more complete understanding of a research problem than either quantitative or qualitative data alone” (Creswell, 2014:42). This research was predominantly quantitative research because follow-up interviews were only applied to librarians. Mixing methods in this study acted as a basis for enhancing the reliability and validity of the findings to help create new knowledge.

4.3. Research design

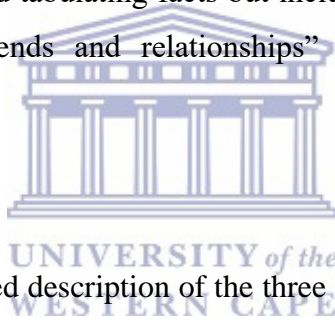
Creswell (2014:38) defines a “research design as a type of inquiry within qualitative, quantitative, and mixed approaches that provides specific direction for procedures in a research”. Research design links the “data to be collected and conclusions to be drawn to the initial questions of the study” (Yin, 2017:27). However, Neuman (2006: 14) advises that “designing the study requires making decisions about the type of case or samples to select and what research techniques such as questionnaires are to be employed”. Therefore, Creswell (2014), Neuman (2006:14) and Yin (2017) explain that “research design offers an action plan for getting from questions to a set of conclusions, and propositions”.

4.3.1. Survey research design

A survey is “any activity that collects information in an organised and methodical manner about characteristics of interest from some or all units of a population using well-defined concepts, methods and procedures, and compiles such information into a useful summary form” (Statistics Canada, 2010:1). The survey research design ensures that through carefully following procedures, a researcher can “make inferences about a large group of elements by studying a relatively small number selected from a large number” (Statistics Canada, 2010:1). For instance, in this study the

researcher sought to investigate the expectations of selected academics and students from their academic library in this present era at three state universities in Zimbabwe and use their views as basis for estimation of the whole population. A survey research design allowed the use of several methods to determine the present status of academic libraries in Zimbabwe.

This research applied the descriptive survey research to gather information on certain phenomena. The descriptive survey research permitted the researcher to examine academic libraries in Zimbabwe by “describing important factors associated with that situation such as, demographics, behaviours, attitudes, experiences, knowledge and skills. Descriptive survey research is used to estimate specific parameters in a population and describe associations” (Kelley, Clark, Brown & Sitzia, 2003:264). For example, the 21st century academic library and examining the influence of modern library patron demands on the 21st century academic library services. This type of research design is not “simply amassing and tabulating facts but includes proper analyses, interpretation, comparisons, identification of trends and relationships” (Kelley, Clark, Brown & Sitzia, 2003:264).



4.3.2. Research sites

This subsection highlights a detailed description of the three universities which were involved in this study.

4.3.2.1. National University of Science and Technology

SARUA (2009) states that the National University of Science and Technology (NUST) was initially opened in 1991 and it is situated in Bulawayo. The university consists of six faculties. The faculties at NUST include Commerce, Applied Science, The Built Environment, Communication and Information, Industrial Technology and Medicine. The university has only one student intake per year in August. Student admission is made on the full time (conventional and parallel students) and part time basis. Depending on the field of study all undergraduate programmes are four or five years long. All students are required to go through work related learning to gain hands on experience as part of their third year. Work related learning is “an approach to teaching and learning which requires a student spend some time during the course of study on practical experience” (SARUA, 2009: online).

The vision of NUST is “to be a world class center of excellence in teaching, research, innovation and entrepreneurship for sustainable development” (NUST Library Website, 2016: online). The mission of NUST is “to contribute positively towards the advancement of humanity through the provision of knowledge-based solutions to scientific, technological, economic and social challenges” (NUST Library Website, 2016: online). NUST strives to become a “flourishing and reputable institution not only in Zimbabwe and in Southern Africa but also among the international fraternity of universities” (NUST Library Website, 2016: online).

National University of Science and Technology Library

The NUST Library is currently temporarily situated off campus. The NUST main Library has three other branches which are “the Medical School Library, Graduate School Library and Faculty of the Built Environment (FOBE) Library” (Kujenga, 2011:5). The vision of the NUST Library is “to be one of the top class Academic Libraries in Zimbabwe, utilizing new and emerging technologies in the provision of services and information to the University community” (NUST Library Website, 2016: online). The NUST Library has a mission “to provide all staff and students with information resources using state of the art tools and methods in support of the University's teaching, learning and research activities” (NUST Library Website, 2016: online).

4.3.2.2. Midlands State University

The Midlands State University (MSU) was established in the year 1999 and it is based in Gweru (SARUA, 2009). MSU offers “degree programmes in seven faculties, namely: faculties of Arts, Commerce, Education, Law, Natural Resources Management and Agriculture, Science and Technology and Social Sciences. Enrolment takes place twice a year, in March and in August, full-time undergraduate applicants are enrolled at the university either as conventional or parallel students” (SARUA, 2009: online). Part-time students attend classes for a week per month and this programme is strictly meant for fully employed individuals. They complete their undergraduate studies in three years because of their experience. Students enrolled at MSU “study for four-year or five-year degree programmes spending their third level on work related learning in industry and other work places” (SARUA, 2009: online).

The main vision of MSU is to “be a unique, development oriented, pace-setting and stakeholder driven University that produces innovative and enterprising graduates” (MSU Library Website,

2016: online). According to the MSU Library Website (2016: online), the mission of the university is based on commitment to:

Have a results based culture of problem solving through quality and relevant research, teaching and training by means of flexible packaging, work related learning and strategic partnerships with the University's stakeholders for the immediate and ultimate benefit of humanity; sustainable socio-economic transformation through promotion of managerial skills and generation, dissemination and application of knowledge, total human capital development in an environment of a caring institution; the use of Information Communication Technologies (ICTs) and the virtual classroom as principal teaching and training modes of delivery and research; gender equality and equity in student admissions, staff recruitment and promotion policies; enhancing the quality of people's lives through new ideas and skills for sustainable utilization of resources; promotion of relevant and actionable quality research through both taught and research post graduate studies as means of generating new knowledge; and "good corporate governance policies and practices which are underpinned and expressed through the values of honesty, integrity, accountability and transparency and internationalization of higher education.

Midlands State University Library

The MSU Library consists of "several branches namely the Graduate School of Business Leadership, Faculty of Law, Zvishavane Campus, Manicaland College of Applied Sciences Campus, Batanai Campus, Faculty of Medicine, Disability Resources Centre, Main Library and several electronic resource centres" (MSU Library Website, 2016: online). The MSU Library's vision is "to be a technology driven information resource centre with quality services and outstanding collections" (MSU Library Website, 2016: online). The mission of the MSU Library is "to provide access to appropriate information resources that support quality research, teaching and learning experiences of the Midlands State University community" (MSU Library Website, 2016: online).

4.3.2.3. Lupane State University

The Lupane State University (LSU) was initially opened in August 2005 and has its premises in Lupane (SARUA, 2009). The vision of the university is "to be ranked among premier universities in the world in research-based knowledge and learning by 2025" (LSU Library Website, 2016: online). The mission of LSU is

to be and be recognised as a premier university of academic excellence and research-based knowledge and learning. The university will contribute to the advancement of society through research, creative activity, scholarly inquiry and the development of new knowledge through attracting the best academics, researchers and students in the region and the wider world (LSU Website, 2016: online).

The LSU enrolls students once a year. LSU's main focus is on research based on exploitation of natural resources for human development. It also seeks to uplift the rural communities which it serves. The university is made up of three main Faculties which are Agricultural Science, Commerce and Humanities and social sciences.

Lupane State University Library

The main vision of LSU Library is "to provide information and knowledge for the betterment of communities" (LSU Library Website, 2016: online). The major mission of LSU Library is "to timeously provide information resources that promote learning, support teaching; enhance scholarly research and creativity for the advancement of knowledge" (LSU Website, 2016: online).

4.3.3. Sampling methods

Researchers are "rarely able to examine every possible unit of study in a given population. It is necessary to choose a sub-set or sample of the population for investigation" (Ross, 2005: 32). The manner of sample selection is critical because it "defines how representative of the population the chosen group will be and therefore the extent to which findings from the study can be applied to the population as a whole" (Ross, 2005:32).

4.3.3.1. Stratified sampling for library patrons

For this particular research a stratified random sampling method was used for library patrons (academics and students). Ross (2005:33) states that with "stratified sampling, the population is divided into homogeneous, mutually exclusive groups called strata, and then independent samples are selected from each stratum". The stratified random sampling method ensured that participants are divided into subgroups such as academics, postgraduate (Masters and PhD) and undergraduate students. This ensured that participants are equally sampled to represent various subgroups. There are two main reasons for stratification identified by Ross (2005:33); a) "to ensure adequate sample

sizes for specific domains of interest for which analysis is to be performed; and b) to protect against drawing a lower sampling error”.

4.3.3.2. Purposive sampling for librarians

In the case of librarians, the researcher chose a purposive sampling technique to select only the management (librarian, deputy librarian and sub-librarian) and faculty librarians who deal directly with users and liaise directly with faculty to address their needs and expectations. This conforms to Parahoo’s (2006) view that in purposive sampling the choice of participants is largely influenced by the researcher’s judgement based on their ability to provide necessary data to help fulfil the objectives of the study. It was imperative for this research to include only those librarians who deal with patrons needs directly. In Zimbabwe, “an assistant librarian may be in charge of a unit (e.g. periodicals/serials section) in the client services department but at the same time serves as faculty librarian for the Faculty of Commerce and they also offer reference services” (Machimbidza, 2014:107). This means that assistant librarians (also known as faculty librarian or subject librarian) are constantly in contact with academics through attending board meetings. While sub librarians supervise all faculty librarians, the librarian and deputy librarian ensure the designing and implementation of policy.

4.3.3.3. The population of the study

The actual numbers of academics, students and librarians who participated in this study from all three universities are illustrated in Tables 4.1; 4.2; 4.3 and 4.4 (using estimations from NUST, MSU and LSU websites, 2016 and the Zimbabwe National Statistics Agency, 2014: online). The total number of academics in three universities is 864 and the total for students from all universities is 20 417 and 26 librarians in the clients’ services department. These universities were chosen on the basis of geographic proximity and they are all state universities in Zimbabwe.

Table 4. 1. Academics and Students at NUST (Zimbabwe National Statistics Agency, 2014)

Faculty	Postgraduate		undergraduate	Academics
	PhD	Masters		
Commerce	4	197	2 032	94
Applied Sciences	15	139	453	81
The Built Environment	3	10	360	12
Communication and Information Science	4	140	574	39
Industrial Technology	2	113	2 009	49
Medicine	0	0	56	27
Overall total	28	599	5 484	302

Table 4. 2. Academics and Students at MSU (Zimbabwe National Statistics Agency, 2014)

Faculty	Postgraduate		Undergraduate	Academics
	PhD	Masters		
Arts	4	83	1 030	58
Commerce	3	91	2 060	57
Education	6	105	1 096	42
Law	2	95	1 130	13
Natural Resources Management Agriculture	5	93	2 108	36
Science and Technology	6	45	1 002	50
Social Sciences	7	112	2 096	56
Overall Total	33	624	10 522	312

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Table 4. 3. Academics and Students at LSU (Zimbabwe National Statistics Agency, 2014)

Faculty	Postgraduate		Undergraduate	Academics
	PhD	Masters		
Agriculture	5	54	1 200	91
Commerce	4	20	513	76
Humanities and Social Sciences	6	38	1 287	83
Overall Total	15	112	3 000	250

Table 4. 4. Total Librarians at NUST, MSU and LSU (LSU Website, 2016; MSU Library Website, 2016; NUST Library Website, 2016)

Librarians	NUST	MSU	LSU
Head librarian	1	1	1
Deputy Librarian	1	1	1
Sub-Librarian (Client services)	1	1	1
Systems Analyst Librarian	1	1	1
Faculty Librarian	6	5	3
Overall Total	10	9	7

4.3.3.4. Sample size

Several factors need to be considered to determine the appropriate size of the sample. Neuman (2006:24) and Connaway and Powell (2010) state that a researcher’s decision about best sample size depends on the following aspects, 1) “the degree of accuracy required; 2) the degree of variability or diversity in the population, the number of different variables examined simultaneously in data analysis, and 3) the type of sampling method used. In this case stratified sampling requires fewer cases to achieve a specified degree of accuracy than does simple or systematic random sampling”. O’Leary (2004:17) opines that the “most critical consideration is that the sample be large enough to be adequately representative of the study population. Too small a sample can undermine the validity of research”.

In this study, the researcher used “the table for determining sample sizes from a given population” created by Krejcie and Morgan (1970:608). As shown in Table 4.5 the sample size for academics is 265. The sample size for academics in each university was calculated using the formula,

$$\frac{\text{Number of academics at each university} \times \text{Sample size}}{\text{Total number of academics in 3 universities}}$$

Table 4. 5. Determining sample sizes from a given population (Krejcie & Morgan, 1970:608)

Population Size	Sample Size
850	265
1200	291
1300	297
1400	302
1500	306
1600	310
1700	313
1800	317
1900	320
2000	322
2200	327
2400	331

2600	335
2800	338
3000	341
3500	346
4000	351
4500	354
5000	357
6000	361
7000	364
8000	367
9000	368
10000	370
15000	375
20000	377
30000	379

See Table 4.6 for actual sample sizes of academics for each university. As can be seen in Table 4.5, the sample size of postgraduate students is 302 and 377 for undergraduates. Using the same formula as the one applied to academics the researcher calculated the ratio for postgraduate and undergraduate students at NUST, MSU and LSU (refer to Table 4.7 and 4.8 for actual numbers). The formula ensured the proportional calculation of sample size in each stratum.

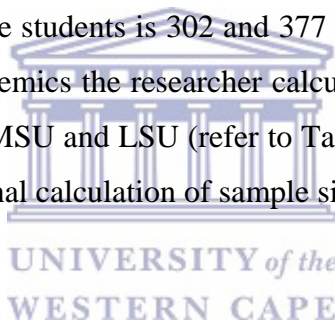


Table 4. 6. Total Sample size for Academics at NUST, MSU and LSU

	NUST	MSU	LSU	Total
Population	302	312	250	864
Sample Size	93	95	77	265

Table 4. 7. Total Sample Size for Postgraduate Students at NUST, MSU and LSU

	NUST	MSU	LSU	Total
	Postgraduate	Postgraduate	Postgraduate	
Population	627	657	127	1411
Sample Size	134	141	27	302

Table 4. 8. Total Sample Size for Undergraduate Students at NUST, MSU and LSU

	NUST	MSU	LSU	Total
	Undergraduate	Undergraduate	Undergraduate	
Population	5484	10522	3000	19006
Sample Size	109	208	60	377

4.4. Data collection procedures

Connaway and Powell (2010) state that data collection procedures refer to the techniques employed to collect the necessary data for answering a research question. Data collection is the “process of gathering the required information for each selected unit in the survey, interviews and website analysis” (Connaway & Powell, 2010:26). The data collection process was divided into two phases. The study began with a “broad survey in order to generalize results to a population and then, in a second phase, focused on qualitative, open-ended interviews which collected detailed views from librarians to help explain the initial quantitative survey” (Connaway & Powell, 2010:26). The researcher verified facts of collected data through conducting website content analysis.

4.4.1. Web-based Questionnaire

A Web-based questionnaire is a survey in which the “questionnaire is formatted with HTML and stored on a Web server. Respondents are invited to a URL and required to log in or authenticate in some way. Questions are presented via the respondents’ Web browser and responses are examined by the survey software and stored on the Web server” (Bertot, 2009:121).

Van Gelder, Bretveld and Roeleveld (2010:1294) state that “data collection using Web-based questionnaires improves data quality since validation checks can be incorporated with prompts that alert respondents when they enter implausible or incomplete answers. Because data is entered electronically and may automatically be transformed into an analysable format by common gateway interface scripts, errors in the process of data entry and coding are avoided as well”. Moreover, visual and audio aids may be added to simplify and facilitate recording of all necessary information, which is impossible in paper-based questionnaires. Web-based questionnaires are less time consuming compared to interviews because users are guided with various answers to choose from. It is always easy and instant to follow-up through sending e-mail reminders and invitations for follow-up interviews. If created using free software (for example, Google forms) Web-based questionnaires are cost free.

One notable disadvantage of using Web-based questionnaires is that the researcher might experience a high non-response rate. Sill and Song (2002) maintain that the non-response error stems from some of the individuals of the sample population who do not respond to the questionnaire. “Response rates of less than 100% will lead to selection bias” (Van Gelder, Bretveld & Roeleveld, 2010:1294). That is to say, “a low response rate does not necessarily entail non-response error, instead it is a reduction in sample size” (Sill & Song, 2002:26).

However, Sill and Song (2002:26) identified ways of improving the response rate. Firstly, “it is useful to pre-notify the respondents to ensure they are aware of the questionnaire; secondly, it is also important to apply waves of solicitations through reminders; thirdly, assuring the respondents of their anonymity assists in increasing response rates; and fourthly, the questionnaire’s language should be clear and its length should be short to reduce time for filling in required information”.

4.4.1.1. Web-based Questionnaire Design

Fox, Murray & Warm (2003:177) maintain that “when a Web-based questionnaire is being created, many different issues may affect data quality and response rates”. Therefore, careful creation of an online questionnaire is requisite in order to extract useful data. A Web-based questionnaire may take the form of closed-ended questions which provide respondents with “a list of predetermined responses from which to choose their answer. Closed-ended questions are usually preferred in survey research because of the ease of counting the frequency of each response” (Fox, Murray & Warm, 2003:178). An online questionnaire may also include open-ended questions which permit the respondents to answer using their own words.

The researcher used Google Forms (<http://www.google.com/drive/apps.html>) to design online questions. The researcher used both closed and open questions in creating all three questionnaires. The advantages of using Google Forms for Web-based questionnaires include that they are easy to transmit, they are delivered instantly and there is no cost of distribution. Google Forms also make it possible to create multiple questionnaires simultaneously, for example, the questionnaire for librarians, academics and students. Google Forms contain special features which ensure the storage of responses, downloading the data in Excel document format, and help to compile the results.

This study consists of three separate Web-based questionnaires. Specifically, separate Web-based questionnaires were sent to academics, librarians and students at three state universities. The rationale of using an online survey for research on this particular population is that all students, lecturers and librarians at NUST, MSU and LSU have e-mail accounts and students have access through on-campus computing centers. Librarians and academics have computers connected to the Internet in their offices. Because universities in Zimbabwe maintain Listservs or mailing lists for disseminating information to their constituents, the campus community has become accustomed to using e-mail and Internet almost on a daily basis. Actual Web-based questionnaires appear in Appendices E, F and G.

Likert scale

The Likert scale is “one of the most common and highly used methods to measure attitude because of its user and respondent friendly qualities” (Jamieson, 2004:1214). Jamieson (2004:1215) states that Likert scales, “among other attitude scales, have been empirically tested by several researchers and shown to have high reliability”. A Likert scale is “a commonly used set of responses for closed-ended questions” (Jamieson, 2004:1214). A Likert scale consists of one end which is labelled as the *most positive* end while the other end is labelled *least positive* with the *neutral* label in the middle of the scale. The scale may ask respondents to indicate how much they agree or disagree with a statement. This research applied a five-point scale characterised by alternative answers amongst other options, for example: “*Strongly Disagree, Disagree, Neither, Agree, Strongly Agree*. Each alternative is assigned a number for coding purposes, for example 1-5, where *Strongly Disagree* is 1, *Disagree* is 2, *Neither* is 3, *Agree* is 4 and *Strongly Agree* is 5” (Jamieson, 2004:1214).

4.4.1.2. Web-based questionnaire for Librarians

For the librarians the questionnaire was informed by the two theoretical frameworks. The research applied the Diffusion of Innovation (DOI) Theory and McKinsey 7S model (see Chapters 3) to reveal the librarians’ attitudes towards the acquisition of new required skills and competencies in this 21st century information environment. Questionnaires were distributed via e-mail to 26 librarians (10 NUST, 9 MSU, 7 LSU) at all three universities. The actual link to the librarians’

questionnaire is <http://goo.gl/forms/XOYU0mYNpU8hkPmt2>. (See also Appendix E) The Web-based questionnaire was systematically designed as follows:

The researcher used sections to group together related items and maintain the logical arrangement of all questions. Aside from Section A which solicited general information, all the other sections were titled using the main research questions of this study. In this regard, the first section collected data pertaining to personal information of the respondents, for example gender, age, work experience, level of education, LIS qualification and period of time the respondents have held an LIS qualification. The second section is based on defining the extent to which the 21st century information landscape has shaped the Zimbabwean academic library. Examples of questions found under the second section included: their knowledge of the existing changes in teaching, learning and research; the extent to which they offer specific services and resources related to the 21st century environment (as identified in literature); obtaining data pertaining to the use of mobile teaching and learning, social web tools, Open Access materials and new library spaces for service delivery. The third section was crafted to collect information on the 21st century academic librarians' attitude towards the latest changes in the academic library. Questions which were attached to the third section were based on the DOI and McKinsey 7S model and they required respondents to mention their opinions on current changes in higher education and in the academic library; librarians were also required to state the importance of constantly keeping updated and they also mentioned what they considered as a huge barrier which forced them to lag behind; using the Diffusion of Innovation theory librarians were asked to classify themselves based on their readiness to adopt new innovations. The fourth section collected data on the 21st century librarians' skills and competencies. Questions asked if the LIS qualification contributed to their job; asked respondents to identify the modern skills and competencies of academic librarians, the strategies or programmes put in place by libraries to ensure continuous updating of skills and competencies amongst librarians (this question is aligned to McKinsey 7S model). There were two specific questions based on the DOI pertaining to the social system which required knowing if librarians' colleagues at work and management influence their skills and competence acquisition. The last section is based on defining the patrons' needs and expectations of the 21st century academic library. Specific questions on the resources and services for patrons are asked, and their own opinion on the effects of patron needs and expectations on the library professionals' standards,

skills and competencies. The librarian questionnaire consists of 33 questions of which 12 items are open ended while 21 items are closed ended.

4.4.1.3. Web-based questionnaire for academics

The Web-based questionnaire for academics was guided by concepts identified from the literature (see chapters 2 and 3). Concepts such as open scholarly communication, research data management, social web, new pedagogies, new academic library spaces and faculty-librarian collaboration inform the questionnaire. The questionnaire was sent to 265 academics via e-mail (93 NUST, 95 MSU, and 77 LSU) at all three universities. The following is the link to the academics' questionnaire <http://goo.gl/forms/bqTnDe3yVIFfsgNY2> (See also Appendix F).

The Web-based questionnaire was divided into different sections informed by research questions of this study. Section A collected data pertaining to background information (gender, age, institution, department, highest qualification, current designation, years of service at respective institutions). Section B defined the extent to which the 21st century information landscape has shaped the Zimbabwean academic library. Items under section B pointed to issues such as the academics' opinions on changes in the modern higher education landscape; rating their library's services and resources; whether the library requested their views on the services and resources offered; the mode of communication used by their library; asked to identify forms of teaching and learning methods they used; they were asked to specify which services they encourage their students to use in the library and they were required to rate technology provision at their libraries. Section C unpacked the academics' views on the skills and competencies held by librarians. Section D revealed the academics' research, collaboration, teaching and learning support they require from their academic libraries. They were required to select which social web platforms they used to maintain and promote their personal research. The questionnaire has 32 items, with 12 open ended and 20 closed ended questions.

4.4.1.4. Web-based questionnaire for students

The students' Web-based questionnaire was informed by the concepts such as open scholarly communication, research data management, social web, new pedagogies, new academic library spaces and faculty-librarian collaboration. The questionnaire was sent to a total of 679 students (243 NUST, 349 MSU, 87 LSU). The link to the students' Web-based questionnaire is <http://goo.gl/forms/EvgQvGXnFKzfE52N2> (Refer to Appendix G). Section A provided demographic information (based on gender, age, institution, programme and year in which they are enrolled). Section B was based on the extent to which the 21st century information landscape has shaped the Zimbabwean academic library. Students were required to state the form of communication that the library used to interact with them. They were asked to rate the quality of services and resources offered at their library; Students were asked to choose which library services and resources they were encouraged to use by their lecturers. They were asked if their librarians were available for assistance 24/7 through online referencing services. Students were asked if their libraries consulted them with regards to the kind of services and resources they required. In Section C students were asked to provide their opinions on the teaching skills of librarians during orientation and information literacy programmes. They were asked to rate if their librarians are approachable and knowledgeable. Section D consisted of items which collect information pertaining to students' learning, research and collaborative needs from the library. The 26-item questionnaire consists of eight open ended questions and 18 closed ended questions.

4.4.2. Follow-up face to face interviews with librarians

Creswell (2014:45) describes an “interview as a data collecting tool in which the participant talks openly about a topic”. Interviewing is a “primary way of collecting data in qualitative research to direct the participant in responding to a specific research question” (Stuckey, 2013:57). Creative interviewing involves using a set of techniques to move past the mere words and sentences exchanged during the interview process. An interview is viewed as “a dynamic, meaning-making occasion where the actual circumstances of the meaning construction are important” (Holstein & Gubrium, 1995:43).

One of the advantages of interviews is the inherent personal contact, but one must be careful that this does not become a liability. The “personal contact of the interview helps to encourage, or put

more pressure on, persons to respond fully” (Holstein & Gubrium, 1995:43). Through the use of open-ended questions participants use their own words rather than being forced to choose from fixed responses. Therefore, interviews provide the opportunity for one to probe more for clarity so as to elicit meaningful and rich data from participants. Another advantage of an interview is that it produces a better response rate in comparison with Web-based questionnaires. The interview is “better at revealing information that is complex or an emotionally laden experience as perceived by the participant. Particularly when investigators are interested in understanding the perceptions of participants or learning how participants come to attach certain meanings to phenomena or events, interviewing provides a useful means of access” (Grant, Rohr & Grant, 2012:236) . That is to say, interviews are very reliable in revealing participants’ thoughts, feelings, beliefs and behaviour on a specific subject (Grant, Rohr & Grant, 2012).

It is important to note that interviews take different forms and these are the structured (standardized or formal), the unstructured (non-directive or informal or unstructured) and the semi-structured (semi-standardized or focused) formats (Berg, 2001). Berg (2001:265) further adds that the “structured interview uses a formally structured schedule of interview questions. In other words, researchers assume that the questions scheduled in their interview instruments are sufficiently comprehensive to elicit from subjects all information relevant to the study's topic”. In contrast, an unstructured interview “does not utilize schedules of questions” (Berg, 2001:265). In an unstandardized interview, interviewers must develop, adapt, and generate questions and follow-up probes appropriate to the given situation and the central purpose of the investigation. The “semi-structured interview is located between the extremes of completely standardized and completely unstandardized interviewing structures. These questions are typically asked of each interviewee in a systematic and consistent order, but the interviewers are allowed freedom to digress; that is, the interviewers are permitted to probe far beyond the answers to their prepared and standardized questions” (Berg, 2001:265).

This study adopted the semi-structured interview technique. A semi-structured face to face interview method was suitable for this study because it is often preceded by a different data collecting method (questionnaire) “in order to allow researchers to develop a keen understanding of the topic of interest necessary for developing relevant and meaningful semi-structured questions” (Creswell, 2014:46). This enabled the researcher to “formulate questions in words

familiar to the people being interviewed. Researchers can accomplish this through unscheduled probes that arise from the interview process itself” (Creswell, 2014:46). That enabled discussions to diverge a bit from the initial question that was asked, which resulted in more interesting answers that aided in providing comprehensive results. Most importantly, “semi-structured interviews gave room for questions to be prepared ahead of time, which permitted the interviewer to be well prepared” (Holstein & Gubrium, 1995:44). An audio-recorder was used to facilitate the recording of responses. This was important because it captured the information without any distortion.

For the purposes of this study, only the head librarian, deputy librarian, sub-librarian (Client services), systems analyst librarian, and faculty librarians from all three universities were interviewed. Four librarians from each of the three libraries were available, thus the total number of interviewed librarians was 12.

4.4.2.1. Semi-structured interview guide design

Fowler (2002) suggests that when preparing an interview guide, researchers should be clear about the type of information they require. As such, the determination of the purpose of the study provides the first step to begin developing a guide of questions. Stuckey (2013:57) reveals that “the semi-structured interview guide provides a clear set of instructions for interviewers and can provide reliable, comparable qualitative data”. For this research, the questions were designed after analysing data collected from Web-based questionnaires and website content analysis. In other words, it was informed by gaps and discrepancies identified from the analysis of questionnaires and websites data. Refer to the interview schedule on Appendix H and the interview guide on Appendix I.

4.5. Website content analysis

Content analysis is “a widely used research method for objective, systematic and quantitative examination of communication content” (Weare & Lin, 2000:289). As part of media communication, “websites and web pages lend themselves prima facie to content analysis” (Weare & Lin, 2000: 289). Website content analysis is a “systematic technique for coding content such as text, images, audio, videos and links found in communication” (Bauer, 2000:147). Website content analysis is “useful for discovering and gaining insight into user preferences and behaviours as well

as understanding complex social and communicational trends and patterns generated by users” (Kim & Kuljis, 2010:372).

Complementary to the questionnaires and interviews, website content analysis was conducted to find explanations to any puzzling or unclear information provided by the research participants (academics, students and librarians). This was done through checking the university and library websites of the three institutions to see whether there are features of new trends that support user requirements. Content analysis of the universities’ websites was conducted to check factual assertions and determine the veracity and correctness of the factual statements made by participants. Fact checking in research aims to remove errors and allow the researcher to report actual facts on the ground (O’Leary, 2004). Spotting inaccuracies in research helps in the creation of rich, valid and reliable knowledge based on facts thereby enriching research conclusions. Therefore, website content complements data collected through questionnaires and interviews and this created greater factual accuracy of the study’s research data.

4.5.1. Criteria for websites content analysis

The researcher used specific criteria to determine facts as mentioned by participants. In designing the criteria, the researcher used a checklist based on the new library trends and user needs in the 21st century (refer to Chapter 2 and 3 for the specific trends governing this research). The checklist was further informed by specific discrepancies (to act as pointers) identified in the collected data. The criteria were created to guide the researcher in finding clear answers (see Appendix L). Krippendorff (2008) strongly recommends the creation of written guidelines for Website content analysis such as accuracy checklists relating to fact gathering situations.

Pre-evaluation makes the first stage of website content analysis which is based on defining the indicators of what you are looking for. This entails defining the purpose of website content analysis which in this case is to find either factual or reasoned support for participants’ opinions. Searching for indicators to support or challenge a view, the researcher can easily spot inconsistencies from answers gathered from questionnaires and interviews. For example, a librarian may mention that they offer Open Access e-resources (journals and books) but on their library website it does not indicate that. After pre-evaluation the researcher is required to confirm the validity of claims. This is a stage where the researcher uses the guideline to identify inconsistencies. “There is no single

perfect indicator of reliability, truthfulness, or value. Instead, the researcher must make an inference from a collection of clues or indicators”, based on written guidelines or criteria (Krippendorff, 2008:353). To create a reasoned argument, it is important to confirm views through making follow-ups. This may yield a clear and well-argued standpoint on particular issues and contribute much to the data analysis process. The determination of information or facts is important in research because it validates the basis for beliefs, decisions and choices that shape conclusions. This study based its website content analysis on seven determinants which are 1) Open Scholarly materials, 2) RDM 3) Social web 4) New pedagogies 5) New library spaces 6) Faculty-librarian collaboration and 7) Librarian skills and competencies.

The following websites were continuously assessed throughout the data collection and analysis processes: NUST websites <http://www.nust.ac.zw/> and <http://library.nust.ac.zw/>; MSU websites <http://ww4.msu.ac.zw/> and <http://www.msu.ac.zw/libraries/library/>; LSU websites <http://lsu.ac.zw/> and <http://library.lsu.ac.zw/>.

4.6. Pre-testing the data collection tools

Lloyd-Jones (2003) emphasises that it is important to pre-test the data collection tools to improve the quality of data collected. In research it is always emphasised to check the research instruments for accuracy to ensure that collected data are not distorted. Determining the reliability and validity of the Web-based questionnaires and librarian interviews require pre-testing before actual use. This assisted in clarifying unclear questions and even deleting unnecessary (repeated) questions from the instruments. In other terms, pre-testing research tools is a useful and effective process which improves the quality of collected data as well as assists in drawing reliable conclusions.

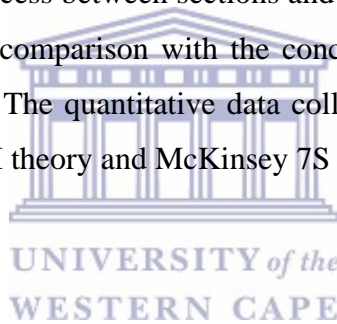
4.7. Data analysis, presentation and interpretation process

Data analysis is a systematic and logically rigorous process that is conducted in different ways “depending on whether the data is quantitative or qualitative” (Connaway & Powell, 2010:26). Data analysis involves “summarising the data and interpreting their meaning in a way that provides clear answers to questions that initiated the study” (Connaway & Powell, 2010:26). All data analysis is based on comparison of a “large quantity of computer-generated output from which the researcher has to give meaning to” (Connaway & Powell, 2006:26). During the data analysis and

interpretation process the researcher will search for patterns of similarities and differences. Connaway and Powell (2010:26) emphasise that in undertaking this process “researchers strive to avoid errors, false conclusions, and misleading inferences and are alert for possible fallacies or illusions”.

4.7.1. Quantitative data analysis

Data presentation was conducted using tables, graphs, and pie charts. The researcher also considered “alternative interpretations of the data, compared the results of the study with previous studies and drew out its wider implications” (Neuman, 2006:14). For this study, data analysis of quantitative results was done using the Statistical Package for the Social Science (SPSS) and Microsoft Excel. Cross referencing was applied to compare concepts and information from three universities during the analysis process between sections and chapters. Quantitative data analysis for patrons also involved a close comparison with the conceptual framework identified in the literature and university websites. The quantitative data collected from librarians was analysed using literature and the lens of DOI theory and McKinsey 7S model.



4.7.2. Qualitative data analysis

Braun and Clarke (2006:89) describe “thematic data analysis as a method for identifying, analysing and reporting patterns or themes within data”. It also provides “allowance for interpretation of various aspects of the research topic” (Boyatzis, 1998:35). Interviews were analysed by first transcribing the audio recordings into text format. Thereafter, the thematic data analysis technique was applied to group similar and contrasting patterns together. The process of interpreting qualitative data also involved identification of gaps and anomalies through comparison of literature, theoretical frameworks such as the DOI theory and McKinsey 7S model and universities’ website content. Berg (2001) and Miles, Huberman and Saldaña (2014) claim that the qualitative data analysis process involves close verification where the researcher unravels rival and similar explanations and follows up on surprising views to create new knowledge.

4.8. Ethical Considerations

Research ethics assist in defining what moral research procedures involve regarding the protection of research participants (Neuman, 2006). The “researcher has an obligation to respect the rights, needs, values and desires of the participants” (Creswell, 2003:29). Permission to conduct the study was obtained from the National University of Science and Technology (NUST), Midlands State University (MSU) and Lupane State University (LSU). Information consent letters about the study were provided to participants for both questionnaires and interview guide - see Appendix I. The researcher maintained the anonymity of all participants who took part in the questionnaire and interviews through using pseudonyms. All personal information obtained from the study was kept confidential, by ensuring that only the researcher and the supervisor has access to this information. All collected data containing information about all participants has been stored securely until the study report is completed. The participants were informed that confidentiality would be maintained throughout the study, that their participation is voluntary and that they can withdraw from the study at any stage. Specific to interviews, schedules were sent ahead of time, and the researcher confirmed the date in writing and sent a reminder several days before the interview. The researcher briefly introduced the study to the participants verbally. Permission to record the participants’ views during interviews was obtained in advance.

4.9. Chapter Summary

This chapter has outlined the research procedures, participants, data collection and analysis. It explains the survey research design, sampling method and the sample size of all participants. The chapter discussed how the web-based questionnaire, interview guide and website content analysis criteria were developed. The researcher used face-to-face semi-structured interviews as a follow-up to Web-based questionnaires. Website content analysis was used to complement questionnaires and interviews to ensure verification of collected data. All research gathering instruments were pre-tested prior to use; this improved the quality of data gathered. Data analysis techniques for both qualitative and quantitative data are clearly articulated. Finally, the ethical considerations are clearly laid out for both questionnaires and interviews.

CHAPTER 5

DATA PRESENTATION AND ANALYSIS

5.1. Introduction

The data analysis and presentation process involve the organisation of data categorically and chronologically, which entails a repeated review and a list of major ideas (Berg, 2001; Creswell, 2014). This chapter therefore systematically reports data collected through website content analysis, questionnaire responses from academics, students and librarians. It further articulates follow-up interview responses gathered from librarians. As cited in Chapter 1, the study investigated the shape of the 21st century Zimbabwean academic library with specific attention on the attitudes, skills and competencies of academic librarians and library patrons' needs and expectations across three state universities in Zimbabwe.

5.2. Website content analysis

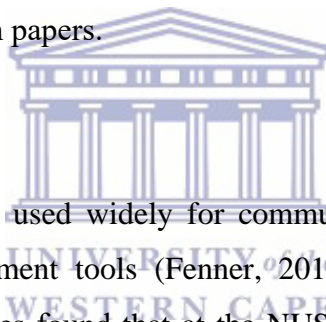
This section presents data gathered from website content analysis. The website content analysis paid close attention to the following intertwined concepts: OA scholarly resources, social web, RDM, new pedagogies, new library spaces, faculty-librarian collaborations and librarians' skills and competencies.

5.2.1. Open Access and scholarly resources

“Open Access implies free access to scientific knowledge (original scientific research results, raw data and metadata, source materials, digital representations of pictorial and graphical materials and scholarly multimedia material) for everybody” (Sitek & Bertelmann, 2014:140). The following related traces were identified from library websites.

Website content analysis revealed that the NUST library offers OA scholarly resources through the following link <http://library.nust.ac.zw/index.php/open-access-resources/> and it contains open courseware, full text OA repositories, full text IR on development, free statistical data on development topics, free citation databases, and scholarly document delivery services for developing countries.

Accredited journals (<http://library.nust.ac.zw/index.php/accredited-journals/>) comprising Science Citation index, Social Sciences Citation index, Web of science, DHET Accredited Journal list (South Africa), SCOPUS and a list of predatory journals. A Digital Library link (<http://library.nust.ac.zw/gsd/cgi-bin/library.cgi>) to past exam papers, theses and dissertations, NUST publications (e-magazine) and an IR link (<http://ir.nust.ac.zw/xmlui/>) to academics' research output. Research guide link (<http://library.nust.ac.zw/sp/subjects/index.php>) to subject guides, course guides and topic guides. The MSU Library has an OA Resources link (<http://goo.gl/Fcx2og>) which has the global open knowledge hub. An OA IR link (<http://ir.msu.ac.zw:8080/xmlui/>) with research output (Staff research papers), and theses and dissertations. LSU Library has an OA Resources link (<http://library.lsu.ac.zw/okhub.html>). Press reader link (<http://www.pressreader.com/>) which allows access to e-Newspapers (local and international). The library has an IR link (<http://ir.lsu.ac.zw/>) to theses and dissertations and academics' publications or research papers.



5.2.2. Social web

Social web applications are being used widely for communication, networking, collaborative forums and as reference management tools (Fenner, 2014; Nentwich & König, 2014). An assessment of the libraries' websites found that at the NUST library they have a link to social media platforms such as Facebook, Twitter and RSS. Social media platforms at MSU Library include Facebook, YouTube, Twitter, Google+, WhatsApp (+263-776228456), and Pinterest. MSU Library also has a citation management tools guide (Mendeley, Docear, Zotero). The LSU Library offers the social media tool, Facebook.

5.2.3. New pedagogies

Fullan and Langworthy (2013) cite that new pedagogies imply exciting new learning modes emerging from the interaction of pedagogy and technology to maximize learning and grasping concepts.

An examination of the libraries' websites showed that at the NUST library there is an e-resource centre link (<http://library.nust.ac.zw/index.php/eresources-list/>) of IL skills training on how to access and use e-resources and bookings are done via the subject librarian. NUST library Website

also has an e-resources video tutorial link (<http://library.nust.ac.zw/index.php/eresource-tutorial/>). The MSU library Website has an e-learning platform link (<http://www.msu.ac.zw/elearning/>) which provides access to learning materials, where students communicate with lecturers and classmates, submit assignments, check exam results, view personal student e-transcript, download lecturer manuals, download student manuals, and where announcements and notifications are made. In addition, the MSU Library has a research support link ([http://library.msu.ac.zw/index.php?pagecode=i0Tl_mQmEq-ZrauSEIjz99wrViKimPLtie - TuGfxgs](http://library.msu.ac.zw/index.php?pagecode=i0Tl_mQmEq-ZrauSEIjz99wrViKimPLtie_TuGfxgs)) where students make online requests. The LSU Library website has a Research assistance link (<http://library.lsu.ac.zw/research.html>) which consists of information on plagiarism, referencing, information literacy skills and reference management tools.

5.2.4. Online reference platforms

Librarians should “redouble their collaborative efforts with faculty in terms of marketing services to students, collection development, co-hosting workshops and co-publishing research” (Sacchanand, 2012:6).

At NUST Library there is a *talkback* link (<http://library.nust.ac.zw/sp/subjects/talkback.php>) where users make comments or suggestions about the library services and resources. The library also has a *submit a suggestion* link (<https://nustlibrary.nust.ac.zw/suggest~S0>) which allows users’ feedback. The MSU Library website has a research help link (<http://goo.gl/m8nRLg>) which provides remote reference services e.g. ASK-A-Librarian, research assistance application form, faculty based subject guides and information searching assistance. The LSU Library website has an ASK-A-LIBRARIAN link (<http://library.lsu.ac.zw/contact-us.php>) which allows the patrons to send their queries.

5.2.5. Other library website links useful in this study

The NUST Library Website has an OPAC link which consists of the new book list, and access to users’ library accounts. There is also an e-resources link (<http://library.nust.ac.zw/index.php/eresources-list/>), e-books and e-journals link. A remote access link (<http://library.nust.ac.zw/index.php/eresources-off-campus/>) allows access to e-resources off-campus. The MSU Library website has an e-resources link (<http://goo.gl/vCq3BS>) that allows

access to e-books, e-journals, e-catalogue, e-past exam papers, and Turnitin antiplagiarism software. There is a Mobile Library link (<http://goo.gl/2riyGA>) meant for distance learners i.e. Harare based programmes and reservation of books. Interlibrary loan link (<http://goo.gl/A4xgf9>) which allows book and journal requests via online forms. The LSU Library website analysis revealed an e-resources link which directs users to e-books, and e-journals collections (<http://library.lsu.ac.zw/resources.php>).

To conclude section 5.2, all library websites across the three universities showed that they all offer open access resources links and social web links. At NUST Library they use RSS whereas at MSU they use YouTube, Google+ and WhatsApp. MSU and LSU Libraries had citation management tools links. New pedagogies were visible as shown by a video tutorial link (NUST Library), an e-learning link (MSU Library) and an IL link (LSU Library). All three libraries had links to online reference services. However, all three library websites do not have links to new library spaces, RDM, collaborations between the library and faculty, and latest librarians' skills and competencies. The next section presents the web-based questionnaire responses from academics.

5.3. Questionnaire responses from academics in Zimbabwe

The academics' web-based questionnaire had a total of 33 questions of which 20 questions were closed-ended and 13 questions were open-ended. The questionnaire is divided into five major sections, Section A is based on the academics' background information, Section B highlights the extent to which the shape of the 21st century information landscape has shaped the Zimbabwean academic library, Section C focuses on skills and competencies of the 21st century academic librarian and Section D is based on the academics' needs and expectations of the 21st century.

5.3.1. Academics' background information

A web-based questionnaire was sent to 265 lecturers at three state universities and a total of 216 lecturers responded, thus signifying a response rate of 82%. Specifically, there were 80 responses at NUST, 79 responses at MSU and 57 responses at LSU. There were 159 (73%) male respondents and 58 (27%) females. This is no surprise as the Forum for African Women Educationists (FAWE) (2015) established that women remain underrepresented within the academic career in many sub-Saharan African countries with specific mention of Zambia and Kenya. To further cement this

notion, Zvobgo (2014:95) highlighted that academic staff in Zimbabwe have remained male dominated for many years despite having a gender policy in place.

Most (171 or 79%) academics were between the ages of 31 and 40, while 35 (16%) academics were between the ages of 41 and 50, nine (4%) academics were between the ages of 51 and 60 and one (1%) academic was in the age range of 20 to 30 years.

The highest qualification for several (196 or 91%) academics was a master's degree while a few (20 or 9%) academics were PhD holders and some individuals were studying towards a PhD and one individual was a postdoctoral fellow. Other qualifications held by academics were postgraduate certificates in higher education management, postgraduate diploma in higher education, master of business administration, and MSc Diagnostic Radiography. Several (209 or 97%) academics held the title of lecturer and only seven (3%) academics held the title of senior lecturer. Other designations mentioned were chairperson, dean, acting director, lecturer's union secretary, medical ultra-sonographer, coordinator fashion and textiles section, and examination coordinator. Most (142 or 65%) academics had between six and 10 years' experience, 65 (30%) academics had experience of between one and five years and ten (5%) academics had more than 10 years' experience.

At NUST departments ranged from industrial manufacturing engineering, records and archives management, banking and investment management, applied mathematics, journalism and media studies, sports science and coaching, science, mathematics and technology education, finance, environmental science and public health, applied physics, computer science and statistics, operations research, to research and innovation office. Departments at MSU fell within the ambit of mathematics, media and society studies, history, land and water resources management, economics, horticulture, animal and wildlife science, applied education, business management, Centre for entrepreneurship, food science and nutrition, educational technology, computer science and information systems, development studies and archaeology. Respondents at LSU were affiliated to the following departments: accounting and finance, geography and population studies, quality assurance, education, languages, crop and soil science, animal science and soil science management, business management and development studies.

5.3.2. The extent to which the 21st century information landscape has shaped the Zimbabwean academic library

Section B of the questionnaire comprised six open-ended questions and nine closed-ended questions. The questions gathered data about academics' thoughts on the changes in higher education, technologies used by academics in support of teaching, learning and research, services and resources recommended to students, new teaching and learning methods, whether the library requests their opinions on services rendered and communication used by the library to interact with academics.

5.3.2.1. Academics' insights on the changing higher education landscape

An open-ended question required lecturers to provide their perceptions of the changes in higher education. Lecturers at NUST stressed that higher education must change and adapt to economic and social needs, and that its libraries should transform. NUST Lecturers were of the opinion that higher education is today considered a key agent in educating both the old and new generations to build the future. Lecturers also revealed that changes in higher education are moving with great alacrity and the developing world might struggle to catch up. This is explained by the following comments (note that lecturers have been given numbers to identify them):

Lecturer 10 was of the opinion that “due to globalization effects, higher education is forced to redefine its principal purpose to help shape the society”. Lecturer 24 attested that “education is part of the transforming global socio-economic system likewise the information management systems (libraries) should also evolve”. Lecturer 18 held the view that “the speedy changes introduced by the current higher education atmosphere will leave behind the developing world forever”. Lecturer 7 stated that

Owing to increased exposure to technology and global culture currently the Generation Y (born 1980-2000) individuals are the ones enrolling at tertiary institutions, however, in the next five years Generation Z (millennials) will be demanding the services of higher education. As such, higher education needs to cater for both groups.

Moreover, academics at NUST asserted that ICTs and mobile technologies form part of the teaching and learning process. Even though education is now learner focused, academics and students are now expected to develop a keen interest in the use of technology. Lecturers highlighted

that emphasis is more on the application of knowledge rather than imparting knowledge. While some lecturers at NUST felt encouraged by the higher education environment in Zimbabwe others felt that the environment had become unbearable. Lecturers believed that higher education has been developed by the Internet which allows for the creation of knowledge. Lecturers at NUST have become more concerned about human expertise rather than library buildings.

Lecturer 14 mentioned that “higher education is becoming ICT driven”. This is highlighted by “the amazing e-learning tools which are utilized in environments with limited Internet bandwidth” (Lecturer 9). Lecturer 22 claimed that “higher education is less on dishing knowledge but encouraging application of knowledge” Lecturer 26 described “the higher education environment as that which allows new learning and teaching modes such as the use of mobile technologies and social media tools”. Lecturer 8 was of the view that “the education environment is student centered and the current higher education demands that both the educator and the learner are supposed to be techno-savvy”. “In the Zimbabwean viewpoint higher education has become a motivating space as the Zimbabwe Council for Higher Education (ZIMCHE) expects every university lecturer to pursue a PhD” (Lecturer 2). Lecturer 12 defined this environment as “challenging”. Lecturer 11 explained that “focus is no-longer on large and expensive library building but on knowledge itself”. Lecturer 20 stated that “the Internet is improving the quality of education as it is now making it easy for one to research and publish”.

At MSU lecturers claimed that the current higher education arena is shaped by a flood of information from the Internet and use of software. This situation has resulted in fast retrieval and sharing of information, for lecturers this has made it easier to connect and collaborate with colleagues. Lecturers complained that in the current higher education environment students are no longer retaining the knowledge learnt or students are finding it difficult to do so and one lecturer felt inadequate about his/her personal IT skills but blames the IT for students’ inadequacies. The environment allows for production of new knowledge, use of online resources and academics are able to work remotely without a physical visit to the library. Higher education is ever evolving and demands that academics should keep pace. In Zimbabwe, higher education is becoming obsolete and requires transformation. The country’s higher education system is investing in skills acquisition but has a weakness for emphasizing paper qualifications instead of actual skills. See below the exact explanations:

“the advent of Internet has made information much more readily available for learning and research purposes” (Lecturer 15), “teaching, learning and research should be driven by IT software” (Lecturer 20), “there is shift towards Internet based learning” (Lecturer 33), “I think the digital age has accelerated information acquisition and dissemination. For academics it is a welcome development as peers are now easily accessible, and collaborations much easier” (Lecturer 44), “it is increasingly getting digitized but the students retention is decreasing” (Lecturer 65), “it is releasing products who are not good enough because they manipulate technology sometimes better than their lecturers” (Lecturer 60), “it is well suited for research” (Lecturer 72), “move towards e-resources” (Lecturer 58), “More information available in your office without going to the library” (Lecturer 59), “I think it is much needed. The world is changing and as such, the learning sphere is also supposed to change to reflect the diversity of knowledge that exists” (Lecturer 50). “it is continually changing and we have to keep up as academics” (Lecturer 41), “It’s changing very fast and requesting for dynamic changes” (Lecturer 32), and Lecturer 53 highlighted that

In the Zimbabwean context it is slowly becoming archaic and needs to be revamped to be relevant in the current socio-economic environment whilst empowering its consumers with skills and tools to be effective in the future. It is too backward facing and focuses on paper qualifications at the expense of real skills.

LSU academics defined the current higher education environment as that which is increasingly using ICTs and is becoming a user-friendly environment. Academics advised that tertiary institutions should concentrate on acquiring electronic information sources, fast Internet and up to date computers. The current higher education arena is characterized by an increased production of information but libraries are underfunded and cannot afford to subscribe to databases of high quality. Lecturers suggest that the ever-transforming higher education environment demands institutions to be receptive and alert.

The following comments were made by LSU academics: “more use ICTs”(Lecturer 20), “becoming more user-friendly” (Lecturer 23), “Investing in more online sources and faster Internet, with good computers” (Lecturer 30), “increasing data availability online but libraries cannot afford to subscribe to better databases” (Lecturer 44), “it requires people who are more spontaneous in keeping up because its ever-changing” (Lecturer 50), and “it is very dynamic and therefore requires flexibility and responsiveness to changes in the environment and knowledge bases” (Lecturer 46).

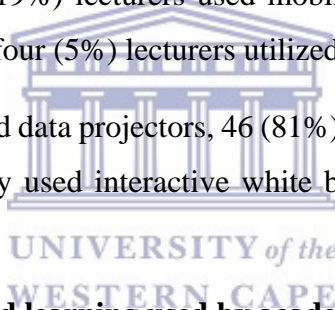
5.3.2.2. New technologies used by academics in teaching and learning

A question was posed which requested academics to select new technologies they used for teaching and learning. All 80 (100%) lecturers at NUST used data projectors, 62 (78%) lecturers utilized mobile technologies, 50 (63%) academics used the e-learning platform and 14 (18%) academics used social media platforms.

Other technologies used by some of the lecturers at NUST were “Google groups” (Lecturer 18), “physical and dynamic models in engineering” (Lecturer 22), “use of WhatsApp platform and also the Fundo/SAKAI platform e-learning” (Lecturer 79) and “the university is in the process of introducing SAKAI e-learning platform” (Lecturer 14).

All 79 (100%) MSU academics stated that they used data projectors, 69 (87%) lecturers said they utilized e-learning platforms, 15 (19%) lecturers used mobile technologies, 13 (16%) lecturers used interactive white boards, and four (5%) lecturers utilized social media.

All 57 (100%) lecturers at LSU used data projectors, 46 (81%) lecturers used mobile technologies, four (7%) lecturers stated that they used interactive white boards and two (4%) lecturers used social media.



5.3.2.3. New forms of teaching and learning used by academics

A question was presented to academics which required them to identify new forms of teaching and learning they used. At NUST blended classrooms were used by 67 (84%) academics, 39 (49%) lecturers used flipped classrooms and five (6%) academics claimed that they used mobile learning. Other forms stated by lecturers included “tutorials” (Lecturer 9), “demonstrations” (Lecturer 22), “independent learning” (Lecturer 11), “clinical learning” (Lecturer 24), and “discussion groups and individual presentations in the classrooms set up” (Lecturer 8).

About 71 (90%) MSU lecturers revealed that they used blended classrooms, nine (11%) lecturers used mobile learning and only four (5%) lecturers used flipped classrooms. Other teaching and learning modes included “student class presentations” (Lecture 15), “field trips” (Lecturer 72), “laboratory practicals” (Lecturer 33), and “printed notes for challenging topics” (Lecturer 41).

Forty-nine (86%) LSU lecturers stated that they used blended classrooms, five (9%) mobile learning and three (5%) lecturers stated that they use flipped classrooms.

5.3.2.4. Specific library services and resources lecturers recommend to their students

Academics were asked to select library services and resources which they recommended to their students. All 80 (100%) lecturers at NUST never recommended that their students borrow equipment or use electronic links to sources of research funding internal and external or use RDM. All 80 (100%) respondents agreed/strongly agreed that they encouraged students to use e-resources, access electronic scholarly publications and open educational materials. Seventy-one (89%) academics agreed that they encouraged their students to use the institutional repository while nine (11%) strongly disagreed. Sixty-four (80%) lecturers agreed that they advised their students to use online information literacy tutorials while 16 (20%) were neutral. Sixty-three (79%) lecturers agreed that they recommended students use research guides while 17 (21%) disagreed. Sixty-one (76%) lecturers encouraged their students to use print resources and 19 (24%) lecturers were undecided. Sixty (75%) lecturers encouraged their students to use remote access to reference services. See Table 5.1 for specific figures.



Table 5. 1. Services and Resources recommended for Students at NUST (N=80)

Library Services and Resources	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Electronic links to sources of research funding internal and external	0	0	0	0	0	0	0	0	80	100
Equipment loan	0	0	0	0	0	0	0	0	80	100
E-resources related to your field	4	5	76	95	0	0	0	0	0	0
Institutional Repository	0	0	71	89	0	0	0	0	9	11
Electronic access to scholarly publications	13	16	67	84	0	0	0	0	0	0
Open educational materials	15	19	65	81	0	0	0	0	0	0
Online information literacy tutorials	0	0	64	80	16	20	0	0	0	0
Assistance with navigating research guides	0	0	63	79	0	0	17	21	0	0
Print resources	0	0	61	76	19	24	0	0	0	0
Remote access to reference services	0	0	60	75	0	0	0	0	20	25
Research data management services	0	0	0	0	0	0	71	89	9	11

At MSU, all 79 (100%) lecturers agreed/strongly agreed that they encouraged their students to use electronic access to scholarly publications, open educational materials, e-resources related to their field and print resources. Every (79 or 100%) academic disagreed/strongly disagreed that they encouraged their students to use electronic links to sources of research funding internal and

external, equipment loan, and research data management. Sixty-seven (85%) lecturers agreed that they advocate their students use online information literacy tutorials whilst 12(15%) lecturers were neutral. Most (65 or 82%) lecturers encouraged students to request assistance with navigating research guides and 14 (18%) lecturers disagreed. Sixty-three (80%) lecturers agreed that they motivate their students to use the institutional repository whilst sixteen (20) lecturers disagreed. Fifty-nine (75%) lecturers agreed that they encouraged their students to use remote access to reference services and 20 (25%) lecturers disagreed. For actual figures refer to Table 5.2.

Table 5. 2. Services and Resources recommended for Students at MSU (N=79)

Library Services and Resources	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	f	%	f	%	f	%	f	%	f	%
Electronic links to sources of research funding internal and external	0	0	0	0	0	0	79	100	0	0
Equipment loan	0	0	0	0	0	0	0	0	79	100
Online information literacy tutorials	0	0	67	85	12	15	0	0	0	0
Assistance with navigating research guides	0	0	65	82	0	0	14	18	0	0
Open educational materials	15	19	64	81	0	0	0	0	0	0
Electronic access to scholarly publications	16	20	63	80	0	0	0	0	0	0
Institutional Repository	0	0	63	80	0	0	16	20	0	0
Print resources	16	20	63	80	0	0	0	0	0	0
Remote access to reference services	0	0	59	75	0	0	20	25	0	0
E-resources related to your field	20	25	59	75	0	0	0	0	0	0
Research data management services	0	0	0	0	0	0	60	76	19	24

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Table 5.3 highlights that every (57 or 100%) academic at LSU agreed/strongly agreed to advocating electronic access to scholarly publications, online information literacy tutorials, open educational materials, remote access to reference services and e-resources related to your field. All 57 (100%) academics disagreed/strongly disagreed that they recommended their students use RDM services, equipment loan and electronic links to sources of research funding internal and external. Fifty-three (93%) lecturers agreed that they suggested print resources while four (7%) lecturers strongly disagreed. Forty-seven (82%) lecturers agreed that they recommended students to use the Institutional Repository and assistance with navigating research guides while ten (18%) lecturers disagreed/strongly disagreed.

Table 5. 3. Services and Resources recommended for Students at LSU (N=57)

Library Services and Resources	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Electronic links to sources of research funding internal and external	0	0	0	0	0	0	0	0	57	100
Equipment loan	0	0	0	0	0	0	0	0	57	100
Print resources	0	0	53	93	0	0	0	0	0	0
E-resources related to your field	7	12	50	88	0	0	0	0	0	0
Electronic access to scholarly publications	8	14	49	86	0	0	0	0	0	0
Remote access to reference services	8	14	49	86	0	0	0	0	0	0
Open educational materials	8	14	49	86	0	0	0	0	0	0
Online information literacy tutorials	10	18	47	82	0	0	0	0	0	0
Institutional Repository	0	0	47	82	0	0	0	0	10	18
Assistance with navigating research guides	0	0	47	82	0	0	10	18	0	0
Research data management services	0	0	0	0	0	0	44	77	13	23

5.3.2.4. Rating of services and resources provided by the library

When asked to rate the current services provided at their library, 72 (90%) academics at NUST rated their library’s services as moderate while five (6%) individuals rated the services as poor, and three (4%) rated the service as high. Most (68 or 86%) lecturers at MSU rated the library services high/very high while 11 (14%) lecturers rated the services moderate. Fifty-one (89%) LSU lecturers ranked their library’s services moderate, while four (7%) lecturers ranked the services poor/very poor and only two (4%) lecturers ranked the services high.

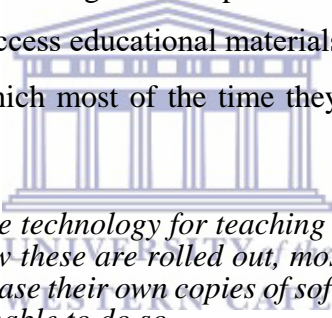
Academics were requested to rate the resources offered by their library. A majority 73 (91%) of NUST lecturers rated the resources moderate, four (5%) lecturers rated the resources as poor whilst three (4%) respondents rated the resources high. About 67 (85%) MSU lecturers rated the resources high/very high, nine (11%) lecturers rated resources moderate, and two (3%) lecturers rated the resources poor. Fifty (88%) LSU academics ranked their library’s resources moderate, four (7%) academics ranked resources poor/very poor while only three (5%) academics ranked the resources high.

5.3.2.5. Rating technology provision in the library

Academics were asked to rate technology facilities at their library and 68 (85%) mentioned that the technology provision at the NUST Library was moderate or average. Lecturers provided the following explanations for choosing moderate: “the NUST Library has basic equipment used to provide library services” (12 NUST lecturers), “it is limited to accessing online resources which

at times are not sufficient for teaching and learning needs” (12 NUST lecturers). “It would be good to be able to access more e-books and e-journals” (12 NUST lecturers). “It would be good to have more online support as opposed to telephoning the library each time one has a query” (eight NUST lecturers). “It has been improving over the years but has not yet reached the advanced stage” (13 NUST lecturers) and “I get everything I need from the online library” (12 NUST lecturers).

Ten (13%) lecturers stated that the technology provision was poor. Reasons provided were that “They do not loan equipment for learning” (Lecturer 7). “E-resources are limited in the sense that students end up searching on Google instead of using the library” (Lecturer 8). “Financial constraints make it impossible for the library to be fully equipped” (Lecturer 9). “The institution does not pay subscriptions pertinent to journals in my area” (Lecturer 79). “The library lags behind in many modern platforms and they need to do a lot of catching up” (Lecturer 68). “The rate of technology is poor because the following are not provided: equipment loan, data repository, research software packages, open access educational materials” (Lecturer 11;49;61). “There are a few computers in the library of which most of the time they are not functional” (Lecturer 66). Lecturer 77 at NUST stated that



There are efforts to improve technology for teaching and learning but very often lack of resources affect how these are rolled out, most of the time staff members go out of their way to purchase their own copies of software needed to use in class because the university is unable to do so.

Two (2%) academics rated technology provision as very poor. Lecturers gave the following explanations “A lot needs to be done to improve service provision” (Lecturer 60). “The library does not have up to standard equipment which still needs to be updated” (Lecturer 64).

Sixty-three (80%) academics at MSU rated technology provision at their library high/very high. Lecturers cemented their answer through the following comments: “ there is WiFi and computer labs for students to access the Internet, though the speed at times is not that awesome but it is usable”(Lecturer 44;65;72, MSU), “hardcopies are there and latest journals are also available”(10 MSU lecturers), “it provides almost everything that I need” (10 MSU lecturers), “the institution subscribes to many journals” (10 MSU lecturers), “every student is able to get access to reading material due to the virtual private network (VPN) on campus” (10 MSU Lecturers), “it is excellent. The staff is always willing to assist us” (Lecturer 5;26;28;33;37;48;54;62;67;75, MSU), and “there is a dedicated bandwidth for the library” (Lecturer 3;23;29;35;43;49;52;58;66;74, MSU).

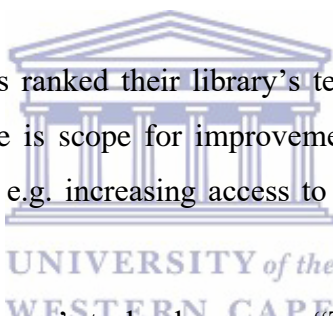
Twelve (15%) lecturers rated technology moderate and provided the following reasons: Lecturer 59 at MSU commented that

The library mostly provides e-resources such as journals and books. There is however, room for improvement as they need to provide services that they currently do not provide such as software for research, equipment loan, electronic links to sources of research funding and well-equipped work space for research.

“Yes, there are computers for use by students but they are very limited in number” (Lecturer 10;42;56;69;73, MSU), and “very erratic” (Lecturer 8;14;22;39;51;63, MSU)

Four (5%) lecturers rated the technology at their library poor. The following explanations were provided “needs upgrading a bit outdated” (Lecturer 15, MSU), “there is lack of statistical software with the library encouraging the use of open source software which is not always the best option” (Lecturer 30, MSU), and “there is slow adaptation to current global technology” (Lecturer 41;70, MSU).

At LSU, forty-five (79%) lecturers ranked their library’s technology moderate. The following explanations were provided: “there is scope for improvement” (23 LSU Lecturers) and “it is moderate, a lot more can be done e.g. increasing access to more academic journals” (22 LSU Lecturers).



Ten (18%) lecturers ranked their library’s technology poor. “There are very few computers in the library” (Lecturer 5;15;20;29;32;56), and “the library uses basic software due to limitations in resources” (Lecturer 4;12; 26;46), while two (3%) (Lecturer 38;54) lecturers ranked the library high.

5.3.2.6. Library’s consultation regarding services and resources offered

An open-ended question was asked whether the library consulted lecturers about services offered. Fifty-six (70%) NUST lecturers stated that the library did not consult them about services offered. A variety of reasons were mentioned: “the library is still providing services that were being provided 10 years ago” (Lecturer 4, NUST) (similar sentiments were mentioned by 16 academics), 39 (49%) lecturers mentioned never having been consulted.

On another note, twenty-four (30%) lecturers at NUST acknowledged that the library does consult them. The reasons for their choice were that “the website allows one to provide feedback on what

is offered and one can do that in person” (Lecturer 9;13;19;24;31;64;35;70, NUST), “they ask us to evaluate them” (Lecturer 3;12;18;25;30;42;63;77, NUST), “this is done through the library-faculty representative, and through the faculty meeting” (Lecturer 1;7;14;15;21;37;50;68, NUST).

Furthermore, at NUST, seventy-two (90%) lecturers confirmed that the library does consult them about the resources held. The evidence provided includes the following statements: “librarians ask about materials which may be added to the collection e.g. books and e-resources” (mentioned by 22 lecturers), “the library faculty representative regularly attends faculty board meetings and requests our feedback and needs” (mentioned by 28 NUST), and “feedback can be forwarded via the library website and physically” (mentioned by 23 lectures).

However, eight (10%) NUST lecturers stated that the library does not request their opinions on resources offered. The following comments were the reasons provided: “never been contacted” (Lecturer 7;57, NUST), “they just tell us about the resources they offer which are not adequate for our needs as educators” (Lecturer 19, NUST), and “the library still provides very old resources which were provided a decade ago” (Lecturer 10, NUST). Some (Lecturer 12, 20, 24, 79, NUST) academics stated that they do request for specific resources but they are never purchased.

Most (60 or 75%) MSU lecturers said the library does ask for their opinion. MSU lecturers gave the following comments: “the library always consults chairpersons and lecturers first to establish if there is enough literature for each department and each course. Library people always welcome any brilliant new ideas” (mentioned by 15 MSU lectures), “they ask for suggestions on service improvements” (mentioned by 15 MSU lecturers), “we have a library committee that regularly meet to discuss” (mentioned by 15 MSU lecturers) and “we get requests through our faculty representatives” (mentioned by 15 MSU lecturers).

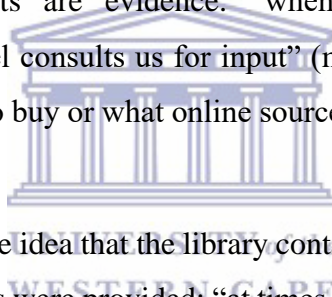
Twenty (25%) MSU lecturers denied that the library consults them. The reasons provided were that “I don’t remember a seminar or questionnaire asking about library services” (Lecturer 3;19;22;31;39;41;50;65, MSU), “no follow-ups are done” (Lecturer 8;11;23;42;53;75;76, MSU), “I have been working there for ten years now but I have never been asked for any feedback on service delivery by the library” (Lecturer 14;30;69;54;70, MSU).

Moreover, fifty-nine (75%) MSU academics stated that the library does request their opinions in terms of resources offered. The reasons were as follows: the library requests for lists of e-books

and e-journals for example (11 MSU Lecturers), lecturers provide their lists of textbooks and journals in their specific fields e.g. (15 MSU Lecturers). “I offer suggestions for new publications in my field” (10 MSU Lecturers), “each semester, requests are made for books and other library resources that can be considered for procurement” (13 MSU Lecturers), and “they hold consultative workshops every semester” (11 MSU lecturers).

A few 20 (25%) MSU academics denied that the library consulted them for resources offered. The following reasons were provided: “not explicitly. All they want is what they can get me but as to how they are performing and what I would want they have not yet requested that information” (Lecturer 4;12;21;29;33;37;49;54;67;71;78, MSU), and “if it does, then I have never been part of its survey” (Lecturer 13;27;34;38;42;46;59;69;77, MSU)

At LSU, 50 (88%) lecturers highlighted that the library does request their opinions on resources offered. The following comments are evidence: “when there are proposed changes or improvements the library personnel consults us for input” (mentioned by 22 LSU lectures), and “they always enquire what books to buy or what online sources to subscribe to” (mentioned by 22 lecturers).



Seven (12%) lecturers dismissed the idea that the library contacts them for their views on services offered. The following explanations were provided: “at times but rarely” (Lecturer 1;35;56, LSU), and “I have never come across questions soliciting my opinion” (Lecturer 6;14;27;50, LSU).

Most 51 (85%) LSU lecturers stated that the library does solicit their views on resources offered. The following explanations were provided “they ask with regards to adequacy levels and recommendations on what additional resources we need to meet our needs” (mentioned by 17 LSU lecturers), “the library asks for titles that are relevant to my courses” (mentioned by 16 LSU lecturers) and “the library request for personal published materials and students dissertations” (mentioned by 18 LSU lecturers).

Only six (11%) lecturers denied that the library has ever asked for their opinion on resources offered. The following explanation “I am yet to come across one” (Lecturer 1;4;6;13;29;54, LSU).

5.3.2.7. Library's mode of communication

Academics were requested to identify the communication modes used by the library. Lecturers highlighted that the library mainly used e-mail and face-to-face communication. Seventy-six (95%) lecturers mentioned that the NUST Library uses e-mail to interact with them, while 72 (90%) lecturers claimed that the library uses face-to-face interaction, and 11 (14%) academics highlighted that they use the telephone. Academics identified other forms of communication used by the library viz. “website announcements” (Lecturer 24, NUST), “they send a circular requesting suggestions in print form” (Lecturer 12, NUST), “through the library committee” (Lecturer 3, NUST), “via the university mass e-mail” (Lecturer 9, NUST), and “rarely so, books can become long overdue and they do not send reminders” (Lecturer 14, NUST).

At MSU, 74 (94%) lecturers said the library communicates via e-mail, 67 (85%) lecturers mentioned that the library uses face to face interaction, seven (9%) lecturers stated the library uses telephone communication, three (4%) lecturers said the library uses mobile phones, while only one lecturer uses social media. Other modes of interaction utilized at MSU were; “internal memos” (Lecturer 15 and 65, MSU), “the university website” (Lecturer 20, MSU), “notices on university staff portal” (Lecturer 44, MSU), and “through chairpersons” (Lecturer 53, MSU).

Fifty-seven (100%) LSU academics said that their library uses face to face communication, 40 (70%) lecturers stated that the library uses e-mail, 19 (33%) lecturers highlighted that the library telephones, and two (4%) lecturers pointed out that the library uses social media. Other modes of communication were “memos” (Lecturer 30, LSU).

Conclusively Section 5.3.2, revealed that the current higher education is defined by globalization, social and economic transformation, IT, ICTs, mobile technologies, knowledge, Generation Y and Z as well as e-learning. Some lecturers described the higher education environment as a system which has become more friendly and motivating while others perceived it as a frustrating space. Academics mentioned that their libraries are blocked by inadequate finance to offer high quality services and resources. Academics used data projectors, mobile technologies and e-learning platform. Most academics at all three institutions rated their library technology facility moderate.

Several academics admitted that the library request their opinions on services and resources, a very significant number of lecturers denied that the library requested their input. Lecturers pointed out

that the library used e-mail, face to face communication and other modes were internal memos, website announcements, staff portal and departmental chairpersons. The following section addresses the skills and competencies of the 21st century librarian

5.3.3. The skills and competencies of the 21st century academic librarian

Section C of the questionnaire had one closed-ended question and it gathered data pertaining to the rating of librarians' skills and competencies as well as one open-ended question which required academics to elaborate on their rating.

5.3.3.1. Rating Librarians' skills and competencies

Lecturers were asked to rate the skills and competencies of their librarians and forty (50%) academics rated their librarians' skills and competencies at NUST high. The reasons for rating librarians highly were as follows: "The librarians know what is expected of their work and they assist when approached for services" (Lecturer 4;16;20;31;39;47;66;80, NUST). "They are suitably qualified, their performance may be limited by the resource challenge faced by the institution" (Lecturer 9;12;27;34;43;49;56;63;70;79, NUST). "The library faculty representative conducted workshops and seemed to be skilled but the problem is that the library is still at infant stage in terms of technological advancement" (Lecturer 1;13;22;37;45;59;73;79, NUST). "They are really experienced but their performance is limited sometimes due to lack of resources and network disruptions" (Lecturer 2;6;15;29;33;40;55;58;64;72, NUST). "The rate of their skills and competencies is high because they can manage library users with the little resources they have" (Lecturer 71, NUST). "They are quick to assist" (Lecturer 26, NUST). "They are helpful within the constrained environment in which they operate" (Lecturer 11, NUST) and "They deliver when approached" (Lecturer 68, NUST).

Thirty-nine (49%) lecturers rated the librarians' skills and competencies moderate or average because "they have a fair understanding of their library collection" (Lecturer 7;14;21;23;35;48, NUST), "the 21st century librarian should be able to advise in terms of online literacy e.g. referencing, bibliography currently they do not do that" (Lecturer 3;8;18;38;44;54;69, NUST), "they can do better especially in using social media platforms to communicate with their patrons about services offered" (Lecturer 25;46;52;60;65;74;79, NUST), "they do not interact often with

people” (Lecturer 5;17;32;36;57;62;78, NUST), “non-availability of most needful software packages and services degrades the skills level of the librarians” (Lecturer 10;19;30;42;53, NUST), “this is because we do not get quality services from the library” (Lecturer 61;75, NUST), “they have to constantly update their skills” (Lecturer 24;41;51;76, NUST) and “they need to improve” (Lecturer 28;50;67, NUST). Only one (1%) lecturer rated the librarians’ skills and competencies as poor because “librarians never hold seminars for lecturers so I rate them lowly” (Lecturer 77, NUST).

At MSU, sixty-three (80%) lecturers rated librarians’ skills and competencies high/very high. Reasons given by Lecturer 15, MSU were that

Librarians have been exposed to practices elsewhere and have shown competencies. There is very little interaction between library staff and academic staff. Most academic staff use the library’s online services which limits interaction with staff. Always helpful.

Nine-teen MSU lecturers stated that they “Never had a complaint with them. Librarians are always seeking to improve”, “that librarians are fully trained and knowledgeable has trained and obtained relevant library management qualifications” (mentioned by 21 MSU lecturers) and “the library has well trained personnel who are skilled and knowledgeable but resources are limited” (similar sentiments are mentioned by 20 MSU lecturers)

Sixteen (20%) lecturers rated the librarians’ skills and competencies moderate. The following explanations were given: “they know what I ask but do not go further to indicate how else I can do things better. They are not really a source of cutting edge knowledge. I have to have an explicit idea of what I want before I can be helped” (Lecturer 6;17;31;40;50;73, MSU), “they need to catch up with new technology” (Lecturer 1;13;28;39;41, MSU) and “they are able to satisfactorily provide the service they currently offer” (Lecturer 12;27;32;60;77, MSU).

At LSU, thirty (53%) lecturers rated the skills of their librarians high. The reason provided was that “most of them are recent graduates (Lecturer 1;5;8;9;12;13;15;20;21;22, LSU) and they always attend international conferences which act as refresher workshops” (Lecturer 24;25;28;33;37;39;41;42;44;45;49;53;54;56;57, LSU). Twenty-seven (47%) lecturers rated their librarians moderate. The reasons for their answers were as follows; “Some officers need to improve themselves academically and also build up their experience” (Lecturer 4;14;19;30;35;43;56, LSU),

“available and eager to share library resources with others” (Lecturer 3;16;27;32;46;48;52, LSU), and “they are not all that innovative” (Lecturer 2;7;10;11;18;23;26;29;34;36;38;51;55, LSU).

To sum up section 5.3.3, half of the academics at NUST rated their librarians’ skills and competencies high because they were suitably qualified, experienced and good with their job, and perform to the best of their ability with the limited resources. Most MSU lecturers rated their librarians’ skills high/very high because they have been exposed to practices elsewhere and have experience, they have a strong online presence such that they enable lecturers to access the library remotely, and that they are well trained. Slightly above half of the LSU lecturers rated librarians’ skills high because most of them are fresh graduates who always attend international conferences. The subsequent section discusses the specific academics’ needs of the 21st century academic library.

5.3.4. Academics' needs of the 21st century academic library

Section D is structured in the following manner, Questions 17 to 20 were closed-ended and collected data pertaining to academics’ research support needs, teaching and learning support and forms of collaboration. Questions 21 and 22 were open-ended questions which solicited data on other current lecturers’ requirements as well as the library’s role in meeting the needs of academics.

5.3.4.1. Academics’ research support requirements

When asked to state their research support requirements all 80 (100%) lecturers at NUST agreed/strongly agreed that they need provision of links to internal and external research funding agencies, provision of information on specific accredited OA journals and books, access to scholarly publications, regular and instant updates on latest publications in specific field, access to research software packages and well-equipped research spaces. Seventy (88%) lecturers agreed/strongly agreed that provision of reliable information on digital research and citation management was important while ten (12%) strongly disagreed. Sixty-nine (86%) lecturers agreed/strongly agreed that they require flexible booking for research training whenever needed and access to research output statistics (altmetrics) while 11(14%) lecturers disagreed to the two services. Fifty-six (70%) lecturers disagreed that they require RDM tools whereas 24 (30%) lecturers agreed/strongly agreed. Table 5.4 shows the actual figures.

Table 5. 4. NUST Academics’ research support requirements (N=80)

Research requirements	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Access to research software packages	11	14	69	86	0	0	0	0	0	0
Provision of links to internal and external research funding agencies	13	16	67	84	0	0	0	0	0	0
Provision of information on specific accredited Open Access journals and books	13	16	67	84	0	0	0	0	0	0
Provision of reliable information on digital research and citation management tools	7	8	63	80	0	0	0	0	10	12
Flexible booking for research training whenever needed	7	8	62	78	0	0	11	14	0	0
Access to scholarly publications	18	22	62	78	0	0	0	0	0	0
Regular updates and instant updates on latest publications related to your field of speciality	18	22	62	78	0	0	0	0	0	0
Access to your institutional research output statistics (altmetrics)	9	11	60	75	0	0	11	14	0	0
Well- equipped working spaces for research	20	25	60	75	0	0	0	0	0	0
Provision of Research Data Management tools	12	15	12	15	0	0	56	70	0	0

Table 5.5 shows that every (79 or 100%) MSU academic agreed/strongly agreed that they required provision of links to internal and external research funding agencies, access to scholarly publications, provision of information on specific accredited OA journals and books, regular and instant updates on latest publications related to their field of specialty, access to research software packages, well-equipped working spaces for research and provision of reliable information on digital research and citation management tools. Seventy (89%) academics agreed/strongly agreed that they required access to their institutional research output statistics and nine (11%) academics disagreed. Sixty-five (82%) academics agreed/strongly agreed that they needed flexible booking for research training whenever required while 14(18%) academics disagreed. Sixty-three (80%) academics disagreed that they required provision of RDM tools and only 16 (20%) agreed.

Table 5. 5. MSU Academics’ research support requirements (N=79)

Research requirements	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Provision of information on specific accredited Open Access journals and books	12	15	67	85	0	0	0	0	0	0
Provision of links to internal and external research funding agencies	14	18	65	82	0	0	0	0	0	0
Access to your institutional research output statistics (altmetrics)	6	8	64	81	0	0	0	0	0	0
Regular and instant updates on latest publications related to your field of speciality	16	20	63	80	0	0	0	0	0	0
Access to scholarly publications	18	23	61	77	0	0	0	0	0	0
Well- equipped working spaces for research	20	25	59	75	0	0	0	0	0	0
Provision of reliable information on digital research and citation management tools	21	27	58	73	0	0	0	0	0	0
Flexible booking for research training whenever needed	8	10	57	72	0	0	14	18	0	0
Access to research software packages	22	28	57	72	0	0	0	0	0	0
Provision of Research Data Management tools	0	0	16	20	0	0	63	80	0	0

Table 5.6 illustrates that all 57 (100%) academics at LSU agreed/strongly agreed that they required links to internal and external research funding agencies, information on specific accredited OA journals and books, access to scholarly publications, regular and instant updates on latest publications related to their field, reliable information on digital research and citation management tools, access to your institutional research output statistics, access to research software packages, and well equipped working spaces for research. Fifty-one (89%) academics agreed/strongly agreed that they needed flexible booking for research training whenever required while six (11%) academics disagreed. Thirty-nine (68%) academics disagreed that they required RDM tools while 18 (32%) academics strongly agreed.

Table 5. 6. LSU Academics’ research support requirements (N=57)

Research requirements	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Provision of information on specific accredited Open Access journals and books	8	14	49	86	0	0	0	0	0	0
Provision of links to internal and external research funding agencies	9	16	48	84	0	0	0	0	0	0
Access to your institutional research output statistics (altmetrics)	11	19	46	81	0	0	0	0	0	0
Access to scholarly publications	13	23	44	77	0	0	0	0	0	0
Provision of reliable information on digital research and citation management tools	13	23	44	77	0	0	0	0	0	0
Flexible booking for research training whenever needed	8	14	43	75	0	0	6	11	0	0
Regular and instant updates on latest publications related to your field of speciality	14	25	43	75	0	0	0	0	0	0
Access to research software packages	14	25	43	75	0	0	0	0	0	0
Well- equipped working spaces for research	14	25	43	75	0	0	0	0	0	0
Provision of Research Data Management tools	18	32	0	0	0	0	39	68	0	0

5.3.4.2. Teaching and learning support required from the library

Lecturers were requested to select their teaching and learning needs. At NUST, all (100%) lecturers agreed/strongly agreed that they required remote access to reference services and off-campus access to e-resources. Seventy-seven (96%) lecturers agreed/strongly agreed that they required OERs and a few (4%) lecturers disagreed. Seventy-two (90%) lecturers agreed/strongly agreed that they needed regular online IL programmes and access to interlibrary loan while eight (10%) lecturers disagreed to both services. Sixty-two (78%) lecturers agreed that they required equipment loan for teaching and learning while eighteen (22%) lecturers disagreed. Forty-three (54%) lecturers disagreed that they required flexible working spaces for teaching within the library and 37 (46%) lecturers agreed that they required this service.

All 79 (100%) MSU academics agreed/strongly agreed that they needed OERs, regular online IL programmes, access to inter-library loan services, remote access to reference services, equipment loan and off-campus access to e-resources. Forty-eight (61%) academics agreed that flexible working spaces for teaching within the library was important while 31 (39%) academics disagreed.

All 57 (100%) LSU lecturers agreed/strongly agreed that they required regular online information literacy programmes, OERs, remote access to reference services, equipment loan, interlibrary loan and off-campus access to e-resources. Twenty-nine (51%) agreed/strongly agreed that they required flexible working spaces for teaching within the library while 28 (49%) lecturers disagreed.

5.3.4.3. Collaboration requirements from the library

Lecturers were asked to mention their collaboration needs from the library. Figure 5.1 shows that all (100%) lecturers at NUST agreed/strongly agreed that they required acquisition of specific resources, alerts for them and students on availability of new services and resources relevant to your field and allowing your requests for information literacy on behalf of your students. Seventy-two (90%) lecturers agreed/strongly agreed that they needed to collaborate with librarians through co-hosting workshops and conferences whereas eight (10%) lecturers disagreed. Seventy-one (89%) lecturers agreed/strongly agreed that they needed partnering in deploying new campus technologies whilst nine (11%) disagreed. Sixty-nine (86%) lecturers agreed/strongly agreed that

they needed to teach IL in context and assessment while 11(14%) disagreed. Sixty-eight (85%) lecturers disagreed that they needed teaching space within the library and 12 (15%) lecturers agreed.

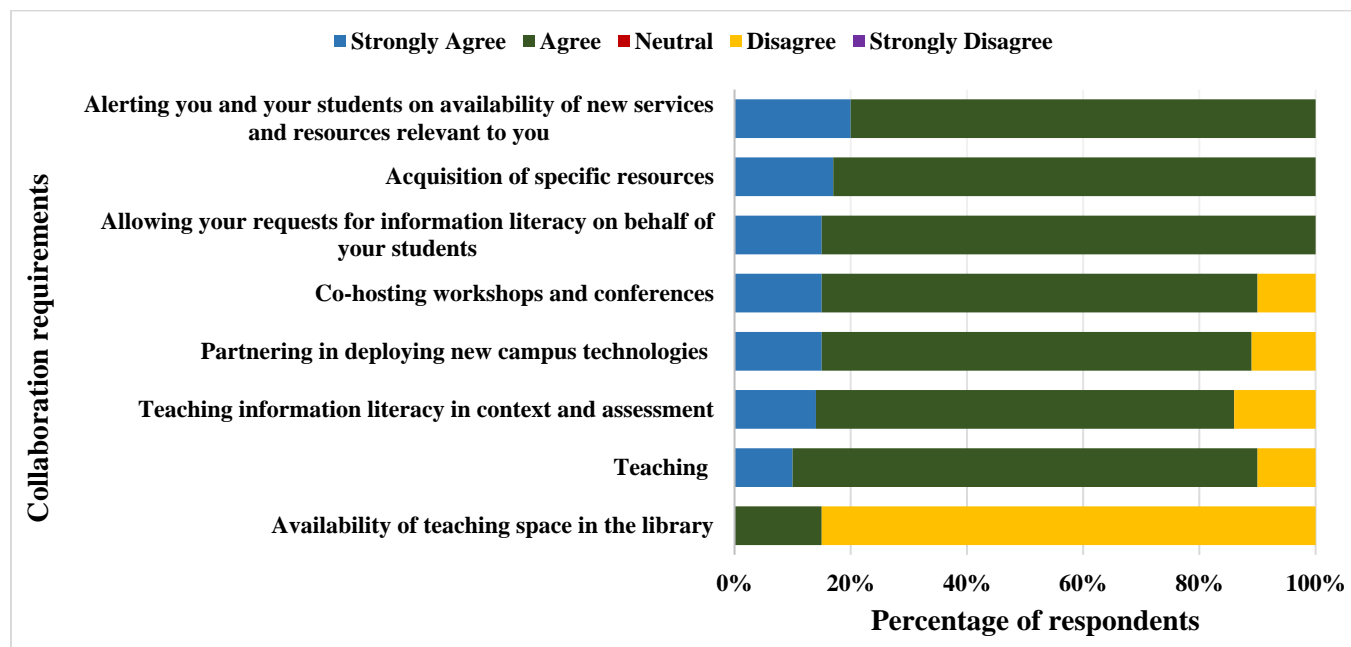


Figure 5. 1 Collaboration requirements by NUST Academics (N=80)

Figure 5.2 illustrates that all 79 (100%) academics at MSU agreed/strongly agreed that they required alerts for them and students on availability of new services and resources, the acquisition of specific resources and requests for information literacy on behalf of their students. Seventy-two (91%) academics agreed/strongly agreed co-hosting workshops and conferences while seven (9%) academics disagreed. Sixty-six (84%) academics required partnering in deploying new campus technologies while 13(16%) academics disagreed that they needed such collaborations. Sixty-three (80%) academics agreed that they required collaboration for teaching information literacy in context and assessment while 16 (20%) academics disagreed. Forty-three (54%) academics agreed that they needed availability of teaching space in the library while 36 (46%) academics disagreed.

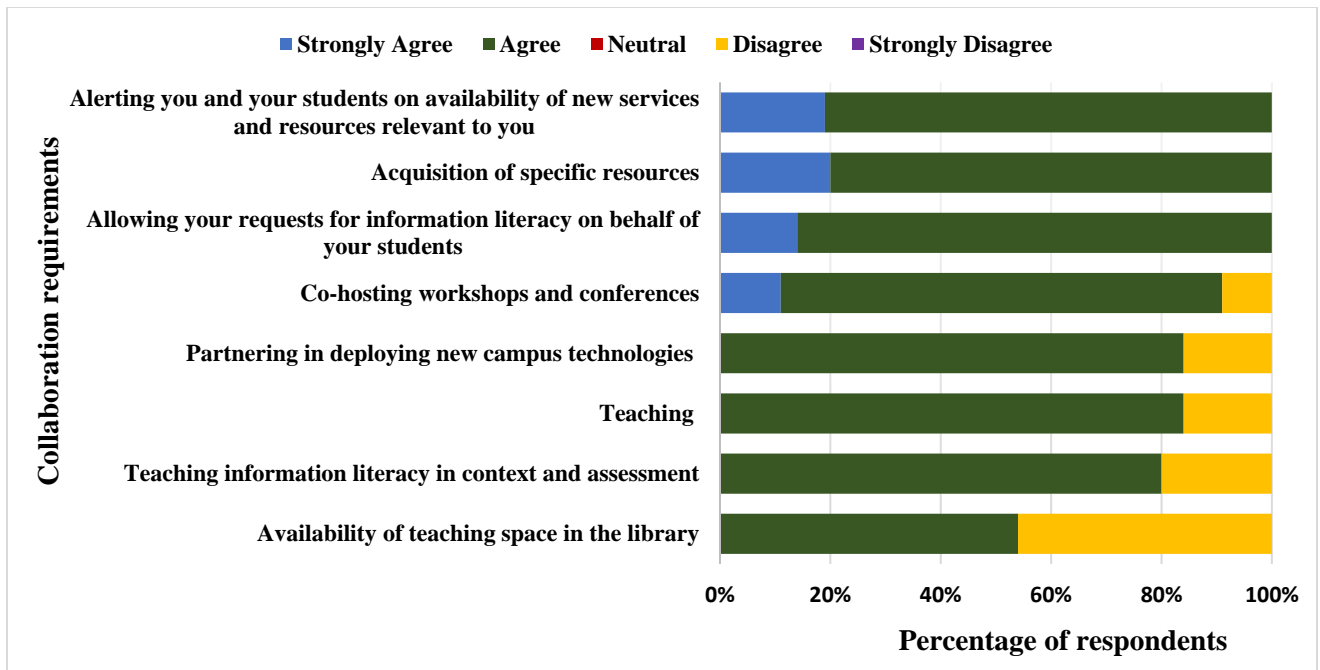


Figure 5. 2 Collaboration requirements by MSU Academics (N=79)

All 57 (100%) LSU lecturers agreed/strongly agreed that they required co-hosting workshops and conferences, alerts on availability of new services and resources relevant to them, teaching information literacy in context and assessment, partnering in deploying new campus technologies, specific resources, making requests for information literacy on behalf of their students and teaching. Thirty-seven (65%) lecturers disagreed that they required teaching space in the library while twenty (35%) lecturers strongly agreed. Figure 5.3 reveals the actual illustration.

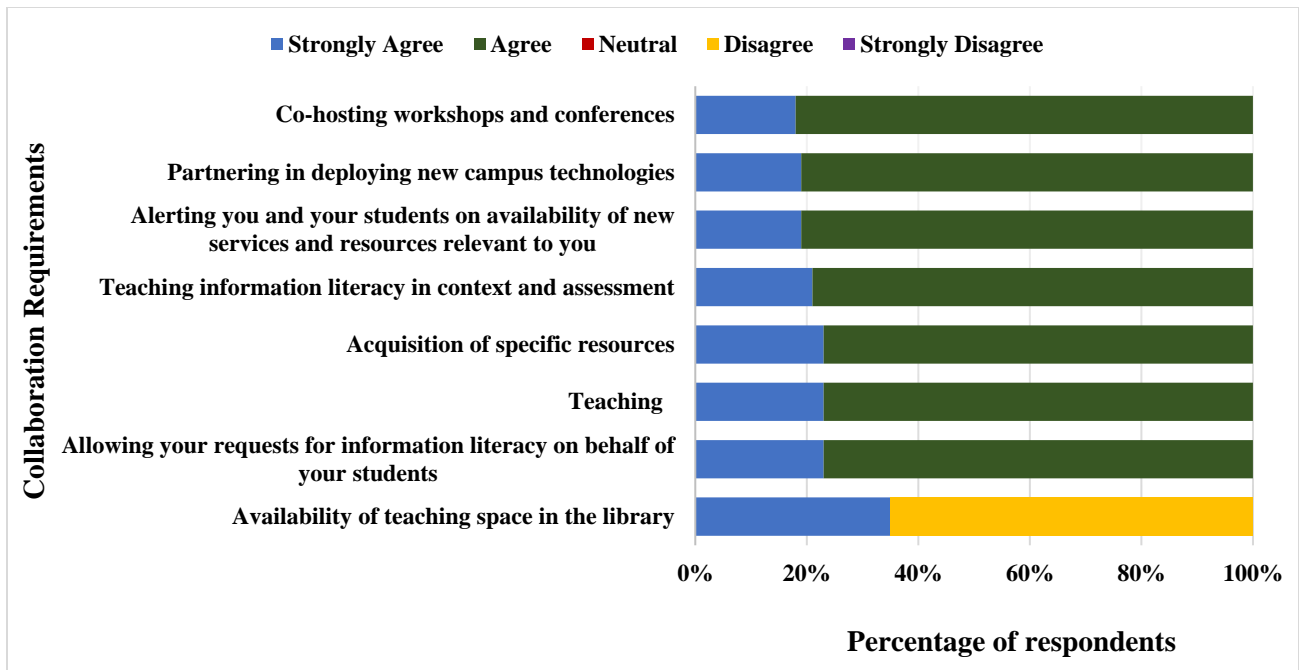


Figure 5. 3 Collaboration requirements by LSU Academics (N=57)

5.3.4.4. Social web tools for maintaining and promoting personal research

Academics were asked to select from a list which social web tools they used. Every (100%) NUST lecturer highlighted that they are signed up on Research Gate. All (100%) lecturers indicated that they do not use Open Research and Contribution Identities (ORCID) and iWrite. Seventy-six (95%) lecturers disagreed that they use Endnote and only four (5%) lecturers strongly agreed that they use the platform. Seventy-two (90%) lecturers agreed that they have Academia.edu accounts while eight (10%) disagreed. Seventy-two (90%) lecturers disagreed that they use Social Science Research Network (SSRN) and eight (10%) agreed that they use this tool. Seventy-one (89%) lecturers were undecided about their use of Mendeley while three (4%) lecturers disagreed and six (7%) strongly agreed. Seventy-one (89%) lecturers disagreed that they use CiteULike while nine (11%) were undecided. Sixty-eight (85%) lecturers do not use a blog while twelve (15%) lecturers agreed. Sixty-eight (85%) lecturers agreed/strongly agreed that they have a LinkedIn account and 12(15%) disagreed. Sixty (75%) lecturers disagreed that they use RefWorks whilst 20(25%) agreed that they use the application. Twitter was only used by 27 (34%) lecturers and 53 (66%) lecturers disagreed. See actual figures in Table 5.7.

Table 5. 7. Social web tools for NUST Academics (N=80)

Social web tools	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Open Research and Contribution (ORCID)	0	0	0	0	0	0	80	100	0	0
iWrite	0	0	0	0	0	0	80	100	0	0
Endnote	4	5	0	0	0	0	76	95	0	0
Social Science Research Network (SSRN)	0	0	8	10	0	0	72	90	0	0
CiteULike	0	0	0	0	9	11	71	89	0	0
Blogs	12	15	60	75	0	0	68	85	0	0
RefWorks	0	0	20	25	0	0	60	75	0	0
Twitter	0	0	27	34	0	0	53	66	0	0
Research Gate	17	21	63	79	0	0	0	0	0	0
Academia.edu	10	12	62	78	0	0	8	10	0	0
LinkedIn	6	7	62	78	0	0	12	15	0	0
Mendeley	6	7	0	0	71	89	3	4	0	0

Table 5.8 reveals that all 79 (100%) MSU academics disagreed that they were signed up on ORCID, CiteULike, Blog, iWrite and Endnote. Seventy-four (94%) academics disagreed that they had a Refworks account while only five (6%) academics agreed. Sixty-nine (87%) disagreed that they used Social Science Research Network and ten (13%) academics agreed. Sixty-five (82%) academics agreed/strongly agreed that they used LinkedIn while 14 (17%) academics strongly disagreed. Sixty (76%) academics agreed that they used Mendeley and Research Gate while 18 (23%) academics disagreed. Fifty-eight (73%) academics agreed that they utilized Academia.edu while 21 (27%) disagreed. Fifty-two (66%) academics agreed that they had Twitter accounts while 27 (34%) disagreed.

Table 5.8. Social web tools for MSU Academics (N=79)

Social web tools	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Open Research and Contribution (ORCID)	0	0	0	0	0	0	79	100	0	0
CiteULike	0	0	0	0	0	0	79	100	0	0
Blog	0	0	0	0	0	0	79	100	0	0
iWrite	0	0	0	0	0	0	79	100	0	0
Endnote	0	0	0	0	0	0	79	100	0	0
RefWorks	0	0	5	6	0	0	74	94	0	0
Social Science Research Network (SSRN)	0	0	10	13	0	0	69	87	0	0
Mendeley	0	0	60	76	0	0	18	23	0	0
Research Gate	0	0	60	76	0	0	18	23	0	0
Academia.edu	0	0	58	73	0	0	21	27	0	0
LinkedIn	6	8	59	75	0	0	0	0	14	17
Twitter	0	0	52	66	0	0	27	34	0	0

At LSU, all 57 (100%) lecturers disagreed that they used CiteULike, ORCID, Blog, Endnote, and iWrite to maintain and promote their personal research. Every (100%) lecturer agreed/strongly agreed that they used LinkedIn and Research Gate. Fifty-one (89%) lecturers used Academia.edu while six (11%) disagreed that they used the platform. Fifty (88%) lecturers disagreed that they used Mendeley and SSRN while seven (12%) lecturers strongly agreed. Forty-five (79%) lecturers agreed that they used Twitter while 12 (21%) disagreed. Forty-three (75%) lecturers agreed that they used RefWorks while 14 (23%) lecturers disagreed. Table 5.9 shows the exact findings.

Table 5.9. Social web tools for LSU Academics (N=57)

Social web tools	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
CiteULike	0	0	0	0	0	0	57	100	0	0
Open Research and Contribution (ORCID)	0	0	0	0	0	0	57	100	0	0
Blogs	0	0	0	0	0	0	57	100	0	0
Endnote	0	0	0	0	0	0	57	100	0	0
iWrite	0	0	0	0	0	0	57	100	0	0
Mendeley	7	12	0	0	0	0	50	88	0	0
Social Science Research Network (SSRN)	7	12	0	0	0	0	50	88	0	0
Academia.edu	3	5	48	84	0	0	6	11	0	0
LinkedIn	10	18	47	82	0	0	0	0	0	0
Research Gate	12	21	45	79	0	0	0	0	0	0
Twitter	0	0	45	79	0	0	12	21	0	0
RefWorks	0	0	43	75	0	0	14	23	0	0

5.3.4.5. Other current requirements from the 21st century academic library

Lecturers were asked in an open-ended question to mention any additional current requirements of their library. Other academics' requirements from the library were: "use of social media platforms for communicating with library users to ensure prompt enquiry"(Lecturer 12, NUST), "needs to be technologically driven"(Lecturer 28, NUST), "e-newspapers (old and new) for contextual analysis/textual studies" (Lecturer 20, NUST), "improvement of Internet connectivity and speed" (Lecturer 18, NUST), "student access to current publications" (Lecturer 11, NUST), "student access to e-textbooks" (Lecturer 60, NUST), "student access to space for research"(Lecturer 75, NUST), "student access to software for plagiarism (Turn-it-in) and referencing (Mendeley)" (Lecturer 68, NUST), "off-campus access to the library" (Lecturer 57, NUST), and "effective access to publications" (Lecturer 24, NUST).

At MSU, other current requirements for lecturers were: "well equipped and modernized library" (Lecturer 14, MSU), "more workshops on use of new technologies" (Lecturer 59, MSU), "interlibrary loan" (Lecturer 20, MSU), "specialized library e.g. Science library" (Lecturer 4, MSU), and "collaborative research with some librarians" (Lecturer 44, MSU).

Requirements pinpointed by LSU academics entailed: "fast and reliable Internet connection" (Lecturer 50, LSU), and "more updated teaching and learning software" (Lecturer 23, LSU).

5.3.4.6. The library's role in meeting academics' requirements and expectations of the academic library in the current information landscape

Academics were asked an open-ended question whether their library was living up to their requirements in this current information landscape? Academics at NUST had mixed opinions, but most academics complained about the absence of particular services and resources due to the current poor economic situation. A minority of lecturers at NUST were satisfied with the efforts made by their library in terms of service delivery. The following supportive responses were provided by NUST academics, "Yes, the library is moving with technologies and most of its services are accessible online" (Lecturer 77, NUST), "Yes to some extent but they still have a lot to improve" (Lecturer 64, NUST), "it's still developing" (Lecturer 75, NUST), "it is still

improving” (Lecturer 73, NUST), “ it’s not yet there but it is progressing in the right direction” (Lecturer 28, NUST), “Fairly so. They provide only some of the technology we need” (Lecturer 68, NUST), “They are in trying conditions” (Lecturer 60, NUST).

Negative responses included: “the library needs to improve on a number of areas such as (a) increasing users working space: (b) increasing the number of computers available for use by the ever increasing number of library users” (Lecturer 10, NUST), “purchasing new materials/resources for disciplines such as the Records and Archives Management” (Lecturer 24, NUST), “Not really, its failing to provide easy access to off-campus resources” (Lecturer 18, NUST), No, it should subscribe to accredited journals and update their technology” (Lecturer 7, NUST), “No. most of the resources I need are easier to access through browsing the Internet in general. It would be great to have the library and its e-resources being my preferred choice of accessing e-books and e-journals” (Lecturer 14, NUST), “Not yet. It has room to improve access to e-resources, and learning and teaching equipment” (Lecturer 9, NUST), “ Not really, due to the limitations of resources mainly caused by the tough economic conditions” (Lecturer 22, NUST), Not really, I would like to see facilitation of access to international digital libraries (databases) in my field” (Lecturer 26, NUST), “No, the library is underequipped” (Lecturer 8, NUST), “No its not because; (a) students are not able to access latest publications and materials which makes it difficult for them to do assignments: (b) there is no space for research: (c) No softwares are provided to students” (Lecturer 2, NUST), “No, there is a need for the library to subscribe to leading journals in the field of communication” (Lecturer 12, NUST),

No, it is not. The access to international journals and other e-resources is limited. In addition, the library needs to constantly update its textbooks, so that lecturers and students are able to access contemporary research and are exposed to current research in various settings (Lecturer 20, NUST),

“No, they are not operating at the expected pitch. This may be attributed to the resources depleted which we are operating in I suppose” (Lecturer 11, NUST), No, the library is invisible and they never bring the information to the academics” (Lecturer 79, NUST), “No, because they do not market some of the resources adequately” (Lecturer 35, NUST).

While some lecturers at MSU were completely content about the library services, others complained about the invisibility of the library and the absence of specific services and resources due to financial constraints. The following are remarks made by MSU lecturers when asked if the

library is meeting their needs: “Yes everything I require at this stage is available in the library” (Lecturer 53, MSU), “Yes, it is striving to be competitive” (Lecturer 32, MSU), “Yes, it is, so far I have received all data that I need” (Lecturer 41, MSU), “it is very modern” (Lecturer 50, MSU), Lecturer 57 at MSU explained that

Mostly yes. It is just that they stay in the background and are not aggressive in making known to us what they have on offer and how we can leverage it to be better at what we are doing. Somehow, they just expect us to know what is available and how it will be beneficial to us. Better marketing of the services available would push them into the pro level; at the moment they are mediocre.

To a certain extent. There is however room for improvement the library needs to introduce services that they currently do not provide such as software for research, equipment loan, electronic links to sources of research funding, and a well-equipped research work spaces (Lecturer 59, MSU).

The biggest drawbacks are in information required for research. The library has subscribed to some journals but not necessarily the best ones in my field and this short- changes researchers. There is also a problem of a lack of subscription to referencing software which in this day and age is critical for research. Statistical software is also lacking in the library (Lecturer 72, MSU).

“No, due to financial constraints” (Lecturer 58, MSU), “while every effort is being made to make it digital, I am afraid the constraints from lack of financial resources is too much” (Lecturer 60, MSU), “No, we do not have access to crucial journal articles” (Lecturer 14, MSU), “A lot needs to be done to improve Internet connectivity and server size” (Lecturer 65, MSU) and “No, a lot of technology is missing” (Lecturer 44, MSU).

Academics at LSU were concerned about limited services and resources at their library and claimed that the library only offers a supportive role. Comments by LSU lecturers in explaining whether the library meets their needs are as follows: “to a large extent yes. There is however scope for improvement” (Lecturer 46, LSU), “they still lack exposure pulling a leaf from other international universities, there is serious lack of resources” (Lecturer 50, LSU), “No, it has limited gadgets such as computers, limited books, and limited bandwidth” (Lecturer 44, LSU), “No, but it is supportive” (Lecturer 30, LSU), “quite a lot needs to be done, especially timely links to academic resources and timely payments to providers of academic resources e.g. journals so as to avoid unnecessary downtime and inaccessibility” (Lecturer 23, LSU), and “The library is not able to meet most of our needs due to funding challenges. Some important electronic journals are not accessible because the subscription packages do not allow for access” (Lecturer 20, LSU).

To conclude section 5.3.4, for research support all lecturers required links to internal and external research funding agencies, provision of information on specific accredited OA journals and books, access to scholarly publications, regularly and instant updates on latest publications in specific field, access to research software, well-equipped research spaces, reliable information on digital research and citation management, flexible booking for research training, and access to research output statistics. Lecturers from all institutions required the following teaching and learning support: remote access to reference services, off-campus access to e-resources, OERs, regular online IL programmes, access to interlibrary loan, equipment loan, and flexible working spaces for teaching within the library. Collaborations required by lecturers were as follows: acquisition of specific resources, alerts on availability of new services and resources, requests for IL on behalf of students, collaborate with librarians in teaching and co-hosting workshops/conferences, partnering in deploying new campus technologies, and teach IL in context and assessment. Lecturers at NUST and LSU do not require teaching space in the library while MSU lecturers required the space. Social web platforms used by NUST lecturers for maintaining and promoting their personal research were Research Gate, Academia.edu, and LinkedIn. At MSU lecturers used LinkedIn, Mendeley, Research Gate, Academia.edu and Twitter. LSU lecturers used LinkedIn, Research Gate, Twitter and RefWorks. The next section outlines Web-based questionnaire results from university students.

5.4. Questionnaire responses from the university students in Zimbabwe

The students' Web-based questionnaire had a total of 26 questions of which 18 questions were closed-ended and eight questions were open-ended. The questionnaire is divided into five major sections, Section A is based on the students' background information, Section B is presents the extent to which the 21st century information landscape has shaped the Zimbabwean academic library, Section C focuses on skills and competencies of the 21st century academic librarian and Section D highlights on the students' needs and expectations of the 21st century.

5.4.1. Students' background information

The overall feedback was 454 students out of a sample size of 679 students, and this resulted in a response rate of 67%. Female students were 226 while male respondents were 230. About 299 were honours students, only nine were postgraduate graduate diploma students, 131 were masters students and 15 were PhD students (NUST and MSU).

A total of 149 NUST students gave feedback to the Web-based questionnaire, of whom 79 were female and 70 male students. There were 64 Honours students, 75 Masters students, eight PhD students, and two postgraduate diploma students. There were 88 second year students, 28 fourth year students, 27 first year students, and six fifth year students. Faculties at NUST included Commerce, Education, Communication and Information Science, Industrial Technology, Applied Science, The Built Environment, Industrial Technology, Science and Technology, Science and Technology, Arts, Education, and Social Sciences.

A Web-based questionnaire was sent to 349 MSU students and 232 students responded. Female students totaled 122 while male students amounted to 110. There were 185 Honours students, 40 Masters students and seven PhD students. Most (122) students were in their second year, 103 were in their fourth year and seven were in their first year. At MSU, faculties included Arts, Commerce, Law, Education, Agriculture, Applied Science, The built environment, Industrial Technology, Science and Technology, and Social Sciences.

Seventy-three LSU students responded to the Web-based questionnaire. Fifty male students and 23 female students gave feedback. Fifty students were studying towards an Honours degree, 16 were studying towards a Master's degree, whilst seven students were studying towards a postgraduate diploma, and there were no PhD students. LSU faculties were Social Sciences, Agriculture, Commerce, Science and Technology, Education, and Arts.

5.4.2. The extent to which the 21st century information landscape has shaped the Zimbabwean academic library

Section B comprised 11 questions. Seven questions were closed-ended and four were open-ended. Types of questions related to library services and resources used in support of research and learning requirements, ratings of library services and resources, library communication status and communication modes used.

5.4.2.1. Specific library services and resources encouraged by lecturers

An open-ended question required respondents to state specific services and resources encouraged by their lecturers. The following feedback was provided by NUST students: “online public access catalogue (OPAC) and textbook” (Student 123); “WiFi but to a lesser extent because its slow” (Student 141); “the Internet, journals and textbooks” (Students 19 and 137); “online articles and journals, and latest hard copy reading textbooks which are not available especially in the accounting department” (Students 97 and 144); “e-learning platform” (Student 141); and “theses online” (Student 8).

At MSU, the following responses were provided: “we are encouraged to fully utilize the institutional repository” (Student 89); “e-journals, Google scholar, e-books, print media and institutional repositories” (Student 75, 126 and 148); “usually to use current sources also using the lecturer’s products if available.” (Student 133); “text books and online searching using OPAC” (Student 212); and “the Internet and e-books” (Student 78).

The following responses were provided by LSU students: “print and online resources” (LSU student 54), “hard copy books and journal articles” (Student 10,12,56,65,and 70, LSU), “e-learning or e-service where most of the current and old journals are found” (Student 50, LSU), “Internet e.g. Google scholar” (Student 55 and 68), “Both hard copy and soft copy resources” (Student 73), “LSU subscribed databases e.g. SAGE, TAYLOR AND FRANCIS, JSTOR, AGORA” (Student 43), “Internet and computers for typing assignments” (Student 50), “up-to-date journals, thesis and dissertations” (Student 32, LSU), and “research papers” (Student 66).

5.4.2.2. Rating services and resources offered

A closed-ended question required students to rate their library's services. At NUST, 140 (94%) students ranked their services moderate, and nine (6%) students ranked their services high. Several 221 (95%) MSU students rated their services moderate while 11 (5%) students rated their services high. Sixty-five (89%) LSU students rated their services moderate, and 8 (11%) students rated their services high/very high.

A closed-ended question required students to rate their library resources. At NUST, 144 (97%) students rated their resources moderate while five (3%) students rated their resources high. About 220 (95%) MSU students ranked their resources moderate, nine (4%) ranked the resources poor while three (1%) students ranked their resources high/very high. Sixty (82%) LSU students rated their resources moderate, 10 (14%) students rated their resources high and three (4%) students rated their resources poor.

5.4.2.3. Rating of technology provision at the library

A closed-ended question requested students to rate their library technology. Several 140 (94%) NUST students ranked their library's technology as moderate. Explanations provided were: "because most services and resources are provided online making it easy to access them even if you are at home" (similar views were mentioned by 15 NUST students); "all sources I want are available" (mentioned by 19 NUST students); "WiFi is always available" (13 Students at NUST made this point); Twenty-one NUST Students commented that "computer labs are available for students". "Even though there is shortage of computers at least they allow use of WiFi connection on personal laptops, mobile phone and tablets" (18 NUST Students made similar comments); "I stay off campus but I am able to connect to the WiFi which shows how strong the connection is" (Student 105, NUST); and 17 Students at NUST said that "although we expect a lot from our library, the current situation in the country does not allow them to provide the best/current technology".

Nine (6%) NUST students ranked their library's technology as poor. Comments provided were as follows: "limited resources" (Student 137, NUST); "not adequate desktops in the computer lab. The WiFi router is 4/10 poor. The technology equipment used is outdated" (Students 118;125;128, NUST); "few computers available and slow Internet connectivity" (Student 139, NUST); "Internet

connection is very slow and the resources are very limited and in some instances scarce” (Student 110, NUST); “In as much as there is some Internet access and online portal, students are not educated or told about it and the staff are even reluctant to use the tools, they are resisting innovation” (Student 115, NUST); and “not up to standard” (Student 130;149, NUST).

About 192 (83%) MSU students rated technology at their library high/very high. The following explanations were provided “Internet is always available” (mentioned by 14 MSU students); “everything used is electronic” (Students 7;74;122, MSU); “very high WiFi frequencies” (Students 2;19;67;80;109;143, MSU); “there are dedicated computer labs for student use and WiFi connection for personal devices accessible on campus and areas near campus” (10 MSU students).

Forty (17%) students rated technology moderate. The following explanations were given: “the computers at times succumb to technical malfunctions that take long to be addressed” (Student 115, MSU); “there are few machines, they do not cope with the number of students” (Students 5; 10;29;36;44;55;69;104;116;126;129;143, MSU); “some of the computers have no keyboards and mouse, the computers are limited, Internet connection is not that fast” (Students 9;18;27;49;57;67;99;141;101;107;150, MSU); “the computers are limited, computers lack some of the components e.g. mouse, the Internet connection is not that fast” (Student 78, MSU); and

They do not have that up-to-date technology that makes the library easier to use. There are at times those limited editions (books) in the library and at times they do not have electronic copies of those books so that every student might be able to access them. They do not have electronic assistances at the shelves that might make a student know where he/she may find the books he/she is looking for without inconveniencing the librarian or other students in the library (Student 19, MSU).

Sixty (82%) LSU students rated their library’s technology as moderate. “Poor WiFi network and desktops” (LSU student 17); “they use face to face interaction and face to face accommodates everyone” (LSU student 6;16;29;39;58;62;73); “information staff is available online so it’s moderate” (LSU student 3;11;15;26;31;50;67;71); and “Internet is not as reliable” (LSU student 65).

Thirteen (18%) LSU students rated their library’s technology high/very high. “Provide computers (desktops)” (LSU student 9;13;32;40;51;60; 68); and “very high because it manages to provide with all the necessary information that we need (LSU student 7;19;28;43;56)”.

5.4.2.4. Off-campus access to e-resources

Students were asked to state whether their library offered off-campus e-resources. At NUST, 140 (94%) students stated that they always access e-resources off-campus while nine (6%) stated that they access e-resources almost every time. At MSU, 218 (94%) stated that they always access e-resources off-campus, nine (4%) students highlighted that they access the service almost every time and five (2%) students maintained that they occasionally accessed the service. At LSU, 40 (55%) students said that they always accessed e-resources off-campus, while 33 (45%) students maintained that they occasionally accessed this service.

5.4.2.5. Library's solicitation of students' opinions on services and resources

Students were asked if the library requests their opinion on services and resources offered. At NUST, 128 (86%) students mentioned that the library does not request their views with regards to services and resources offered. Comments along these lines were made: “changes occur without our knowledge or input”.

Twenty-one (14%) NUST students stated that the library does ask for their opinion. The following explanations were provided “Recommendations on some online resources, which may not be registered with the library” (Student 11;19;26;37;41;60;72;84;96;109;117;131;139, NUST); “for the sake of improvement of services they offer” (Students 3;14;25;34;40, NUST); “Feedback sessions done at departmental level with library personnel” (Student 38;50;69, NUST).

Most 202 (87%) students at MSU stated that the library does ask their opinion in relation to the library services and resources offered. Forty-four (44) MSU student pointed out that the library mainly used social media tools such as WhatsApp and Facebook to ask their views and comments, for example, see the following comments: “there is a librarian on desk duty where you can submit your opinions and the library provides a WhatsApp number students can use to communicate with the library” and “WhatsApp platform where students send their requests and complaints, there is a Facebook page where students communicate with the librarians”.

Thirty (13%) MSU students revealed that the library does not consider their opinions. The following comments were provided: “There is no dialogue whatsoever between library

management and students. Rules and policies are just broadcasted to students without any consultation of student's opinions” and “they do not have service centres”.

Fifty-two (71%) LSU students stated that the library does request their opinions. Views expressed went along these lines “they normally give us a questionnaire asking about their services and what they can do to improve them”; “some questionnaires are at times distributed requesting the opinions of the students”; “comments on the website or suggestion box”; “through Facebook and the website”; and “in person when we visit the library”.

Twenty-one (29%) LSU students mentioned that the library does not request their view. The explanations ranged from “I have never had an opportunity to express my views especially with the slow connections on the Internet” to “they think what they are offering is enough” and “in my four years of using the library they haven't requested for my opinion”.

They do not attend to student problems, for example we told them that sockets are not all functional but they did not repair all of them up until now and students are having challenges. This shows that at some point they do not take priority to attend to students' complaints or opinion (Student 45, LSU).

They have never because if they did we should be seeing either posters on the walls or anything in request for our opinions on our LSU website page. Or maybe they could have requested from the postgraduate students and leaving out undergraduate students hence they should ensure that they collect every student's opinion and reach out to every student rather than being selective (Student 54, LSU).

5.4.2.6. Librarians' online availability

Students were asked whether librarians were always available via the e-reference option. At NUST, 120 (81%) students mentioned that librarians were occasionally available online, 18 (12%) students stated that librarians were never available online and 11 (7%) students highlighted that librarians were always available through the online reference option.

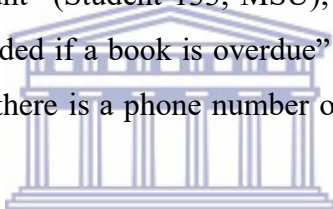
About 192 (83%) MSU students stated that librarians were occasionally available, 37 (16%) students stated that librarians were always available online and three (1%) mentioned that librarians were available almost every time.

Several 54 (73%) LSU students stated that librarians are occasionally available online, 11(15%) students maintained that librarians were always online and eight (11%) students highlighted that librarians were never available online.

5.4.2.7. The library communication modes

At NUST, all 149 (100%) students highlighted that the library used social media and face-to-face communication modes, while three (2%) stated that the library used e-mail. Other communication modes were: “Notices stuck on the library premises” (Student 130;122); and “I usually get notifications on my student library account” (Student 38, NUST).

All 232 (100%) MSU students said the library used social media and face-to-face communication, and four (2%) mentioned e-mail. Other: “face to face but not through formal meetings” (Student 212, MSU); “student library account” (Student 133, MSU); “there is an e-learning account for every student where you are reminded if a book is overdue” (Student 114 and 143, MSU); “use Facebook and WhatsApp because there is a phone number on the library website” (Student 115 and 145, MSU); and



They do have a WhatsApp platform but people barely know about it as you actually require a phone number so as to be able to receive notifications and be able to make inquiries without having to actually go to the library in person (Student 117, MSU).

Seventy-three (100%) LSU students stated that their library used social media and face-to-face communication, while four (5%) used e-mail, and three (4%) a mobile phone. Another communication mode mentioned was that “they visit lecture rooms sometimes to explain new research methods and other resources that we do not know and how to access” (Student 54, LSU).

In summary, section 5.4.2 shows that NUST academics encouraged students to use the OPAC, textbooks, journals, WiFi, e-learning platform and theses. MSU students were advised to use the IR, e-resources, Google scholar, print media and the Internet while LSU students were motivated to access print and online resources, e-learning platform, Internet, specific databases, e-services, computers, theses and research papers. Nearly all NUST and LSU students ranked their library technology moderate while most MSU students rated their technology high/very high. While the majority of students stated that librarians were occasionally available for the online reference option, all students were always able to access e-resources off-campus.

Most students at all institutions rated their library's services and resources moderate. The majority of students at MSU and LSU stated that their library requested students' views. Almost all students at NUST denied that their library requested their opinions with only a few students agreeing. All students stated that their library used social media and face-to-face communication. Other modes of communication mentioned at NUST were notice boards and library accounts. At MSU, they used informal face-to-face meetings, student library accounts, the e-learning platform, Facebook and WhatsApp. At LSU, the library visited lecture rooms. The next section examines students' views on transformation in academic libraries.

5.4.3. The skills and competencies of the 21st century academic librarian

Section C consists of four questions where two were closed-ended questions and the other two were open-ended. Data collected under this section revealed whether librarians were approachable or friendly, rating the librarians' knowledge and skills, and students' views of librarians' teaching skills in relation to information literacy training and orientation sessions.

5.4.3.1. Librarians' approachability or friendliness

A closed-ended question required students to choose from a list of answers whether their librarians were approachable/friendly. At NUST, 123 (83%) students were neutral about whether their librarians are approachable or friendly, and 26 (17%) students agreed/strongly agreed that their librarians were approachable. At MSU, 193 (83%) students were neutral and 39 (17%) students agreed/strongly agreed that their librarians were approachable or friendly. At LSU, 37 (51%) students agreed that their librarians were approachable or friendly, while 36 (49%) students were neutral about their librarians being approachable or friendly.

5.4.3.2. Rating the knowledge and skills of your librarians

A closed-ended question asked students to rate the librarians' knowledge and skills on a Likert scale from very poor to very high. At NUST, 115 (77%) students rated their librarians' knowledge and skills moderate, while 34 (23%) students rated their librarians high. At MSU, 193 (83%) students rated the librarians' knowledge and skills moderate, and 39 (17%) students rated the

librarians high/very high. At LSU, 42 (58%) students rated their librarians moderate, and 31 (42%) students rated their librarians high/very high.

5.4.3.3. Opinions on librarians' teaching skills in relation to information literacy training sessions

An open-ended question requested the views of students on librarians teaching skills when delivering information literacy training. At NUST, the following comments were made: “good” (Students 25 and 123); “they are able to clarify the basic knowledge and one is able to understand how to use the library resources” (Student 137); “better”(Student 10); “they have always come up with helpful answers once I approach them”(Student 86); “I always attend these sessions because they benefit me through understanding how to access and use e-resources which are wider and up to date” (Student 97); and “this has proved helpful in my paper writing and finding most recent journal articles” (Student 86). Only a few students were not satisfied with librarians’ skills by stating that “librarians should change their attitude” (Student 129) and “librarians’ teaching skills are very inadequate” (Student 123).

On another note, some students never knew what information literacy training entails or even that their library offers such a programme. This is exposed in the following comments: “never heard of that at NUST so I don't think that they are keen to that” (Student 19, NUST); “I did not receive such training” (Student 8, NUST); “If given the chance I would like to attend these sessions” (Student 129, NUST); and “We have never been invited to any of the training sessions, so I would not know really” (Student 122, NUST).

MSU students provided the following comments: “They are high” (Student 78; “Acceptable” (Student 15); “very good” (Student 145); “Moderate” (Student 212); “ok I guess” (Student 189); “fairly fine”(Student 208); “Fair”(Student 173) and “there is a module that all first year students take that helps with the necessary skills”(Student 126 and 133).

Notably, some MSU students complained about the approaches taken by librarians when teaching, see for example the following comments: “librarians are not as clear when teaching and I suggest that in this time and era the library should introduce smart boards for teaching, may be this might improve their teaching skills or even make the sessions interesting to follow” (Student 132). “Despite the fact that they may be qualified academically, they rather lack the required professionalism that allows them to be approachable by students if need for enquiries arises”

(Student 89); and “they are highly skilled but they failed to understand that not all students are computer literate usually for the first-year session they just rush but we fail to master to anything, as a result I familiarized myself with the library as years went by” (Student 148).

LSU students gave the following views: “they know their job” (Student 65), “extremely good and appreciated” (Student 70), “Fair” (Student 12), “they are skilled enough” (Student 53); “Not that bad” (Student 66); “good” (Student 56); “high because they are able to provide useful answers” (Student 43)); and “I understand the instruction, not as bad” (Student 32).

Some students revealed that librarians are not skilled enough and one has never attended IL sessions, see for example: “some of them are computer illiterate, as a result if a student has a computer problem the librarian would not fix it” (Student 68, LSU); “I think they should introduce such sessions” (Student 54, LSU); “they need to be equipped” (Student 50, LSU) and “they should treat students as their number one priority” (Student 73, LSU).

5.4.3.4. Opinion of the librarians' teaching skills in relation to orientation sessions

An open-ended question asked students to provide their views on their librarians' teaching skills in relation to orientation sessions. Students at NUST, provided the following comments: “Understandable” (Student 19); “librarians teach new students how to use the WiFi” (Student 25); “50/50 I think they are doing what they can”(Student 38); “they are good”(Student 115); “In terms of orientation they are just okay not that good not too bad” (Student 78); “Perfect”(Student 89) and “I have never attended the sessions” (Student 126 and 141);

MSU students revealed the following: “High, precise and to the point at all times” (Student 173); “they must be lenient to the learners, avoid humiliating learners; there is a module that all first year students take that helps with the necessary skills” (Student 189); “Comfortable”(Student 3); “very good” (Student 208); “there are practical lessons on how to access certain e-resources”(Student 89); “Moderate”(Student 78); “too shallow or should I say vague rather”(Student 126); and

When I attended orientation this year the librarian seemed to be very articulate, and the librarian used a projector to show specific visual pictures on how to access specific services on the library website, so I would say the librarians' teaching skills are on point, no complaints (Student 115).

LSU students gave the following views: “Excellent” (Student 12); “it is not bad, they should allocate more time for orientation” (Student 45); “good and acceptable” (Student 53 and 133); “not

bad” (Student 66 and 68); “average” (Student 70); “they never conduct these, not sure” (Student 32) and “I think they should do it” (Student 65).

In summary, section 5.4.3 disclosed that most NUST and MSU students were undecided (neutral) about their librarians being approachable whilst LSU students agreed that their librarians were approachable. Several students at all universities rated their librarians’ knowledge and skills moderate. Quite a number of NUST students stated that their librarians’ teaching skills in information literacy and orientation sessions were good. Some NUST students revealed that they do not have any idea what information literacy sessions entail. Students at MSU rated their librarians’ information literacy teaching and orientation skills both very high and moderate. LSU students rated the librarians’ information literacy teaching and orientation skills very high and fair. The next section is based on students’ current needs and expectations of the 21st century academic library.

5.4.4. Students' needs and expectations of the 21st century academic library

Section D presents four closed-ended questions. The section gathered data on students’ research needs, current learning needs, students’ library collaboration needs and rating of the library’s role in meeting students’ requirements.

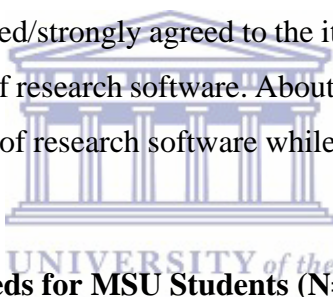
5.4.4.1. Current library research support needs

A closed-ended question required students to rate their current research needs on a Likert scale from strongly disagree to strongly agree. All 149 (100%) NUST students agreed/strongly agreed that they required provision of links to internal and external research funding agencies, provision of information on specific accredited OA journals and books, provision of RDM tools or software, flexible online booking for research training whenever needed, access to open scholarly publications, regular and instant updates on latest publications related to their field of specialty, access to institutional research output statistics, provision of research software, provision of well-equipped working spaces for research, links to student exchange opportunities, information on digital research and citation management tools and access to print resources. Table 5.10 shows current research needs.

Table 5. 10. Current research needs for NUST Students (N=149)

Research needs	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Access to institutional research output statistics	6	4	143	96	0	0	0	0	0	0
Access to Open Scholarly publications	6	4	143	96	0	0	0	0	0	0
Provision of information on specific accredited Open Access Journals and Books	7	5	142	95	0	0	0	0	0	0
Information on digital research and citation management tools	7	5	142	95	0	0	0	0	0	0
Access to print resources	7	5	142	95	0	0	0	0	0	0
Provision of research software	7	5	142	95	0	0	0	0	0	0
Provision of Research Data Management tools or software	10	7	139	93	0	0	0	0	0	0
Provision of links to internal and external research funding agencies	12	8	137	92	0	0	0	0	0	0
Flexible online booking for research training whenever needed	7	12	142	92	0	0	0	0	0	0
Regular and instant updates on latest publications related to your field of speciality	7	12	142	92	0	0	0	0	0	0
Provision of well-equipped working spaces for research	7	5	142	92	0	0	0	0	0	0
Links to student exchange opportunities	19	13	130	87	0	0	0	0	0	0

All 232 (100%) MSU students agreed/strongly agreed to the items of current research needs listed in Table 5.11 except for provision of research software. About 180 (78%) students agreed/strongly agreed that they required provision of research software while 52 (22%) students disagreed. Table 5.11 reveals the actual figures.

**Table 5. 11. Current research needs for MSU Students (N=232)**

Research needs	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Access to Open Scholarly publications	5	2	227	98	0	0	0	0	0	0
Provision of information on specific accredited Open Access Journals and Books	8	3	224	97	0	0	0	0	0	0
Regular and instant updates on latest publications related to your field of speciality	8	3	224	97	0	0	0	0	0	0
Provision of well-equipped working spaces for research	8	3	224	97	0	0	0	0	0	0
Provision of links to internal and external research funding agencies	9	4	223	96	0	0	0	0	0	0
Flexible online booking for research training whenever needed	12	5	220	95	0	0	0	0	0	0
Links to student exchange opportunities	17	7	215	93	0	0	0	0	0	0
Access to institutional research output statistics	32	14	200	86	0	0	0	0	0	0
Information on digital research and citation management tools	32	14	200	86	0	0	0	0	0	0
Provision of Research Data Management tools or software	47	20	185	80	0	0	21	27	0	0
Access to print resources	52	22	180	78	0	0	0	0	0	0
Provision of research software	30	13	150	65	0	0	52	22	0	0

All 73 (100%) LSU students agreed/strongly agreed that they required the research needs listed in Table 5.12 except for RDM tools which all 73 (100%) students disagreed/strongly disagreed with. See Table 5.12 for actual figures.

Table 5. 12. Current research needs for LSU Students (N=73)

Research needs	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	f	%	f	%	f	%	f	%	f	%
Information on digital research and citation management tools	7	10	66	90	0	0	0	0	0	0
Links to student exchange opportunities	10	14	63	86	0	0	0	0	0	0
Provision of information on specific accredited Open Access Journals and Books	10	14	63	86	0	0	0	0	0	0
Provision of links to internal and external research funding agencies	12	16	61	84	0	0	0	0	0	0
Access to Open Scholarly publications	12	16	61	84	0	0	0	0	0	0
Access to institutional research output statistics	12	16	61	84	0	0	0	0	0	0
Provision of research software	12	16	61	84	0	0	0	0	0	0
Access to print resources	12	16	61	84	8	11	0	0	0	0
Regular and instant updates on latest publications related to your field of speciality	13	18	60	82	0	0	0	0	0	0
Provision of well-equipped working spaces for research	13	18	60	82	0	0	0	0	0	0
Provision of Research Data Management tools or software	0	0	0	0	0	0	23	32	50	68
Flexible online booking for research training whenever needed	16	22	57	78	0	0	0	0	0	0

5.4.4.2. Current learning support required from the library

A closed-ended question required students to state their current learning needs. All 149 (100%) NUST and 73 (100%) LSU students agreed/strongly agreed that they required flexible learning spaces within the library, equipment loan to facilitate mobile learning and provision of OERs. While 232 (100%) MSU students agreed/strongly agreed to most learning support the library could offer, 180 (78%) students agreed that they required equipment loan from the library to facilitate mobile learning and 52 (22%) students strongly disagreed.

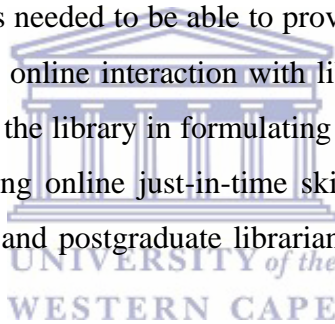
Collaboration requirements from the library

Students could choose from a list of seven items describing collaboration between them and the library. At NUST, 149 (100%) students required providing their views on specific required resources and services; 134 (90%) students required flexible online booking for information literacy; establishing a student service network in support of library pilot studies; and having an undergraduate librarian and postgraduate librarian to design specialised services and programmes; 130 (87%) students required having a presence on an e-learning platform, and regular online

interaction with librarians; 125 (84%) students required establishing close ties with the library in formulating dissertation working groups, and teaching online just-in-time skills.

At MSU, 228 (98%) students needed to provide their views on specific required resources and services, establishing a student service network in support of library pilot studies, having an undergraduate librarian and postgraduate librarian to design specialised services and programmes, and establishing close ties with the library in formulating dissertation working groups. Two hundred and twenty (95%) students needed flexible online booking for information literacy and having a presence on e-learning platform, regular online interaction with librarians, and teaching online just-in-time skills.

At LSU, 67 (92%) students chose flexible online booking for information literacy, establishing a student service network in support of library pilot studies, and having a presence on an e-learning platform. Sixty-five (89%) students needed to be able to provide their views on specific required resources and services and regular online interaction with librarians. Sixty-four (88%) students needed establishing close ties with the library in formulating dissertation working groups. Sixty-two (85%) students needed teaching online just-in-time skills, and 57 (78%) students needed having an undergraduate librarian and postgraduate librarian to design specialised services and programmes.



5.4.4.3. Rating the library' role in meeting students' needs in the current information landscape

A closed question requested students to rate their library in meeting their needs. At NUST, 144 (97%) students were undecided about their library meeting their needs while five (3%) students stated that their library slightly meets their needs. Two hundred (86%) MSU students were undecided, 27 (12%) students mentioned that their library meets their needs very much and five (2%) students stated that the library slightly meets their needs. Sixty (82%) LSU students were undecided, ten (14%) students stated that the slightly meets their needs while three (4%) maintained that the library meets their needs very much.

In conclusion, section 5.4.4 showed that students' research needs included accessing the institutional research output statistics, access to Open Scholarly publications, provision of information on specific accredited OA, journals and books, information on digital research and

citation management tools, access to print resources, provision of research software, provision of RDM tools, provision of links to internal and external research funding agencies, flexible online booking for research training whenever needed, regular and instant updates on latest publications related to their field of specialty, provision of well-equipped working spaces for research and links to student exchange opportunities. Only LSU students did not require RDM tools. Current students' learning needs at all institutions were flexible learning spaces within the library, equipment loan to facilitate mobile learning, and provision of OERs.

Library collaboration needs for all students were the provision of their views on specific required resources and services; flexible online booking for information literacy; establishing a student service network in support of library pilot studies; and having an undergraduate librarian and postgraduate librarian to design specialised services and programmes; having a presence on e-learning platforms, and regular online interaction with librarians; establishing close ties with the library in formulating dissertation working groups; and teaching online just-in-time skills. Most students at all three institutions were neutral about the library's role in meeting their needs. The following section discusses the findings from librarians.

5.5. Questionnaire responses from the academic librarians in Zimbabwe

The academic librarians' Web-based questionnaire had a total of 33 questions of which 21 questions were closed-ended and 12 questions were open-ended. The questionnaire is divided into six major sections, Section A is based on the librarians' background information, Section B is about the extent to which the 21st century information landscape has shaped the Zimbabwean academic library, Section C highlights the librarians' attitude towards new changes, Section D focuses on skills and competencies of the 21st Century academic librarian and Section E highlights on the library patrons' needs and expectations of the 21st Century.

5.5.1. Librarians' background information

In total, 25 out of a sample size of 41 librarians completed the questionnaire making the response rate for all librarians 61%. Fifteen female and ten male librarians responded. Two librarians at NUST and LSU have had a master's degree for longer than 10 years while seven attained theirs between one and five years ago, with one librarian attaining it less than a year ago. Thirteen

librarians hold an honour's degree in LIS, of whom three have had the qualification for six to ten years and ten attained the qualification between one and five years ago. Two librarians hold a diploma in LIS attained less than five years ago.

A total of eight (five females and three males) out of 15 librarians responded to the questionnaire at the NUST Library. Three of the librarians have more than 10 years' work experience, while the other three individuals have between six and ten years' experience and two individuals have between one and five years' experience. Three respondents have a master's degree in LIS and five have an honors degree in LIS. Job titles ranged from deputy librarian to assistant librarians/ faculty librarians/subject librarians.

At the MSU Library seven out of 10 librarians answered the questionnaire of whom four were females and three were males. Four respondents have between six and ten years' work experience while three have more than 10 years' experience. Four have a master's degree in LIS, and three have an honour's degree in LIS. At the MSU Library job titles mentioned were senior assistant librarians and assistant librarians.

Ten out of 16 respondents at LSU Library answered the questionnaire. Six were females and four were males. Six respondents have between six and 10 years' work experience while four have between one and five years' experience. Three are in possession of a master's degree in LIS, five have an honour's degree in LIS and two have a diploma in LIS. At LSU Library respondents' job titles included deputy librarian, acting sub-librarian, systems librarian and assistant librarians/ faculty librarians.

5.5.2 The extent to which the 21st century information landscape has shaped the Zimbabwean academic library

Section B has four open-ended questions and two closed-ended questions. The focus of this section is on the librarians' views on teaching and learning, research and specific services and resources offered by their libraries. These views will help define the 21st century academic library in the Zimbabwean context.

5.5.2.1. Knowledge of the current changes in the nature of teaching and learning

An open-ended question required librarians to state what knowledge they have of the current changes in teaching and learning. Librarians at NUST believed that there is a rise in the use of ICTs which has resulted in the advent of e-learning platforms and remote educational learning channels. Other librarians at NUST highlighted that the current teaching and learning environment is characterized by high usage of online journals and books. This is evident through the following comments:

“Changes have been brought about mainly by the increasing use of ICTs, resulting in e-learning and availability of off-site educational learning channels” (Librarian 8), and (Librarian 5) made a remark that “I try to keep up with developments through reading journal articles online since this has become common amongst professionals”

Similarly, at LSU, librarians mentioned that the new trends in teaching and learning are defined or influenced by information technology (IT) and e-learning. A librarian explained that electronic means are taking precedence over the traditional ones in this current teaching and learning environment. One respondent stated that the librarian has become a mediator in the technological environment where learning resources are in digital formats and therefore there is an increase in the need for digitally literate users. This points to the librarian’s role as a teacher in this modern environment. This is backed-up by the following statements:

“I am very knowledgeable, I work with faculty on a daily basis and its part of my tasks to bridge the gap between teaching and learning by being a mediator in this IT environment where learning resources are now digital and need digital literate individuals to use” (Librarian 1), “E-learning is the trend” (Librarian 4), and “It has since become IT related” (Librarian 9).

Librarians at MSU highlighted that higher education gives priority to the student rather than the lecturer. University education is changing from print resources to online resources. This is depicted in the following comments: “Nowadays teaching and learning is student centered and not as before” (Librarian 1), and (Librarian 6) noted that “there is a visible shift from hard copy materials to e-resources”.

5.5.2.2. Knowledge of current changes in the nature of research

This subsection presents answers from an open-ended question. The question required librarians to state what knowledge they have of the current changes in the nature of research.

A librarian at NUST was of the view that the speed of disseminating research has accelerated since the deluge of ICTs. (Librarian 3) reported that “research has also been affected by the introduction of ICTs, thus quick dissemination of research results, e.g. early sites”.

At LSU, librarians asserted that the current research environment is characterized by specific issues such as online publishing, OA, RDM, research skills demanded by the IT environment, and collaborative research is now encouraged. This is seen from the following reports made by librarians: “Research has become electronic based” (Librarian 2), “I am quite abreast with issues of online publishing, OA, RDM and research skills required in IT environment” (Librarian 10), and “co-publishing is now common amongst professionals” (Librarian 8).

MSU librarians pointed out that the growing curiosity about research has resulted in mass production of information; this demands skillful reasoning and responsive minds. Another individual mentioned that the research environment is currently dominated by issues to do with OA or Open Science, as indicated by the following comments: “an increase in research interest has resulted in an avalanche of information” (Librarian 5), “the research environment requires individuals to have a keen critical mind when carrying out research” (Librarian 2) and Librarian 3 adds that “the current research environment has a sudden interest in OA or Open Science”.

5.5.2.3. New trends used for offering services and resources

A question required respondents to select responses from a list of new trends for service delivery. All eight (100%) librarians at NUST used mobile technologies, the social web, open scholarly resources, and Libguides for service delivery. One person used flexible library spaces and another individual used RDM. Other trends used but not on the list were “tablets in IL classes” and a “data projector” for orientation programmes.

Every (seven or 100%) MSU Library respondent used mobile technologies, the social web and open scholarly materials. Only a few (two out of six) of the respondents used Libguides, flexible library spaces and RDM tools.

At the LSU Library all 10 (100%) respondents utilized open scholarly materials. Nine (90%) librarians utilized mobile technologies for service delivery. Seven (70%) librarians used the social web, flexible library space, and RDM for offering services and resources, while two (20%) used Libguides for service delivery.

5.5.2.4. Extent to which libraries offer specific services and resources

Question 12 asked respondents to choose the best responses on a Likert scale to questions related to services and resources their libraries offered. As can be seen in Table 5.13, at the NUST Library all eight (100%) respondents mentioned that the library often linked patrons to reliable OA journals and books, used social media for regular communication with library patrons, offered online IL programmes, supported OA to educational resources and provided off-campus access to e-resources. All eight (100%) librarians often/very often offered online marketing services, made OA publications discoverable and mobile device access to services. Furthermore, all (100%) NUST librarians were neutral about the availability of well-equipped workspaces and equipment, and the library did not offer equipment loan. All eight (100%) librarians indicated that they sometimes or never linked users to internal and external funding for research purposes and provided access to research software. At the NUST Library most (88%) librarians stated that they offered online reference services very often while one (12%) librarian disagreed. Six (75%) NUST librarians often provided citation management training but two (25%) librarians were neutral about this service. About five (62%) librarians at NUST highlighted that the institution did not offer RDM while three (38%) were neutral about this service.

Table 5. 13. Specific services and resources offered at NUST Library (N=8)

Library Services and Resources	Very Often		Often		Neutral		Sometimes		Not at all	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Off-campus access to e-resources	8	100	0	0	0	0	0	0	0	0
Linking patrons to reliable open access journals and books	0	0	8	100	0	0	0	0	0	0
Use of Social media for regular communication with academics and students	0	0	8	100	0	0	0	0	0	0
Offering online information literacy programmes	0	0	8	100	0	0	0	0	0	0
Supporting open access to educational resources	0	0	8	100	0	0	0	0	0	0
Offering online reference services	7	88	0	0	0	0	1	12	0	0
Making open access publications discoverable	7	88	1	12	0	0	0	0	0	0
Online marketing of your services and resources	6	75	2	25	0	0	0	0	0	0
Mobile device access to library services and resources	6	75	2	25	0	0	0	0	0	0
Well-equipped work spaces and equipment	0	0	0	0	8	100	0	0	0	0
Linking users to internal and external funding for research purposes	0	0	0	0	0	0	6	75	2	25
Provide access to research software	0	0	0	0	0	0	6	75	2	25
Providing citation/bibliographic management software training	0	0	6	75	2	25	0	0	0	0
Offering research data management services	0	0	0	0	3	38	0	0	5	62
Equipment Loan	0	0	0	0	0	0	0	0	8	100

Table 5.14 shows that all (100%) MSU librarians often/very often used social media for communication with library users, offered online reference services, offered off-campus access to e-resources, made OA publications discoverable, conducted online marketing of services and resources, linked users to OA journals and books, offered mobile device access to library services and resources and supported OA to educational materials. All seven (100%) librarians disagreed/strongly disagreed that they did not offer equipment loan. Over 80% of respondents revealed that they often provided access to research software and provided citation management software training, and one individual was neutral about both services. Six (86%) MSU librarians denied that the library offered well-equipped work-spaces while one (14%) librarian agreed. More than 80% of MSU librarians stated that they did not offer links to internal and external funding for research while only one (14%) librarian was neutral about the service. Less than half (43%) of the librarians stated that the library offered online IL programmes while 57% of the librarians were neutral about the service.

Table 5. 14. Specific services and resources offered at MSU (N=7)

Library Services and Resources	Very Often		Often		Neutral		Sometimes		Not at all	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Use of Social media for regular communication with academics and students	7	100	0	0	0	0	0	0	0	0
Offering online reference services	7	100	0	0	0	0	0	0	0	0
Off-campus access to e-resources	7	100	0	0	0	0	0	0	0	0
Online marketing of your services and resources	6	86	1	14	0	0	0	0	0	0
Supporting open access to educational resources	6	86	1	14	0	0	0	0	0	0
Mobile device access to library services and resources	5	72	2	28	0	0	0	0	0	0
Offering online information literacy programmes	3	43	0	0	4	57	0	0	0	0
Linking patrons to reliable open access journals and books	2	28	5	72	0	0	0	0	0	0
Well-equipped work spaces and equipment	1	14	0	0	0	0	0	0	6	86
Making open access publications discoverable	0	0	7	100	0	0	0	0	0	0
Provide access to research software	0	0	6	86	1	14	0	0	0	0
Providing citation/bibliographic management software training	0	0	6	86	1	14	0	0	0	0
Offering research data management services	0	0	2	28	5	72	0	0	0	0
Linking users to internal and external funding for research purposes	0	0	0	0	1	14	0	0	6	86
Equipment Loan	0	0	0	0	0	0	1	14	6	86

As shown in Table 5.15, all 10 (100%) LSU librarians indicated that they often/very often provided links to reliable OA journals and books, supported OA educational resources and made OA publications discoverable. All (100%) librarians sometimes or never loaned equipment. Nine (90%) respondents stated that the library conducted online marketing of services and resources often/very often and one (10%) respondent was undecided about this service. Nine (90%) librarians revealed that the library often/very often carried out online reference services while one (10%) librarian stated that the library did not offer this service. Nine (90%) LSU respondents were neutral about RDM services while one (10%) librarian maintained that they did not offer RDM at all. Eight (80%) librarians very often used social media for communicating with patrons while two (20%) librarians believed that the library did not use social media at all. Eight (80%) of the LSU librarians maintained that they often/very often provided citation management software training and off-campus access to services and e-resources while two (20%) respondents were either neutral or claimed they sometimes offered the service. Eight (80%) librarians indicated that they sometimes/never provided access to research software, while one (10%) was neutral and the other respondent mentioned that they often offered this service. Six (60%) LSU librarians highlighted that they often/very often offered well-equipped work-spaces, whereas four (40%) respondents were undecided about the service. Seven (70%) of the respondents asserted that they did not offer online IL programmes and mobile device access to library services and resources whilst three

(30%) respondents maintained that they provided these services often/very often. Seven (70%) of the LSU librarians cited that they did not offer links to internal and external funding for research while two (20%) librarians were neutral and one (10%) respondent maintained that the service is often offered.

Table 5. 15. Specific services and resources offered at LSU Library (N=10)

Library Services and Resources	Very Often		Often		Neutral		Sometimes		Not at all	
	f	%	f	%	f	%	f	%	f	%
Use of Social media for regular communication with academics and students	8	80	0	0	0	0	0	0	2	20
Online marketing of your services and resources	7	70	2	20	1	10	0	0	0	0
Off-campus access to e-resources	7	70	2	20	1	10	0	0	0	0
Providing citation/bibliographic management software training	7	70	1	10	1	10	1	10	0	0
Linking patrons to reliable open access journals and books	4	40	6	60	0	0	0	0	0	0
Mobile device access to library services and resources	2	20	1	10	0	0	0	0	7	70
Offering online information literacy programmes	2	20	1	10	0	0	0	0	7	70
Well-equipped work spaces and equipment	2	20	4	40	4	40	0	0	0	0
Offering online reference services	1	10	8	80	0	0	0	0	1	10
Supporting open access to educational resources	1	10	9	90	0	0	0	0	0	0
Making open access publications discoverable	1	10	9	90	0	0	0	0	0	0
Linking users to internal and external funding for research purposes	0	0	1	10	2	20	0	0	7	70
Offering research data management services	0	0	0	0	9	90	0	0	1	10
Equipment Loan	0	0	0	0	0	0	1	10	9	90
Provide access to research software	0	0	1	10	1	10	4	40	4	40

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Other services offered in line with the 21st century

An open-ended question asked librarians if they offered any other services. At NUST and LSU librarians mentioned “research support” (Librarian 7, NUST) and “research assistance” (Librarian 6, LSU) respectively. Other services mentioned at MSU were “information literacy skills training for first level students” (Librarian 7, MSU) and “training on usage of electronic resources” (Librarian 4, MSU).

5.5.3. Academic librarians' attitude towards new changes

This section (Section C in the questionnaire) consists of four closed-ended questions which examined the attitudes of librarians with specific reference to their views on changes in higher education vis-à-vis academic libraries, keeping pace with new trends, factors affecting them from keeping up and describing how they personally adopt new concepts.

5.5.3.1. Changes in higher education that affect academic libraries

Librarians were asked to respond to the statement “I feel overwhelmed by the changes in higher education that affect the academic library”. These results are shown in Figure 5.4. Librarians at NUST did not feel threatened by the changes in higher education or the academic library as most (100%) disagreed/strongly disagreed with the statement. At MSU, while the majority (72%) strongly disagreed with the statement, there were a few (28%) who were feeling overwhelmed by the changes in higher education. LSU librarians had quite mixed feelings ranging from disagreeing/strongly disagreeing (60%) to agreeing/strongly agreeing (40%) to the statement.

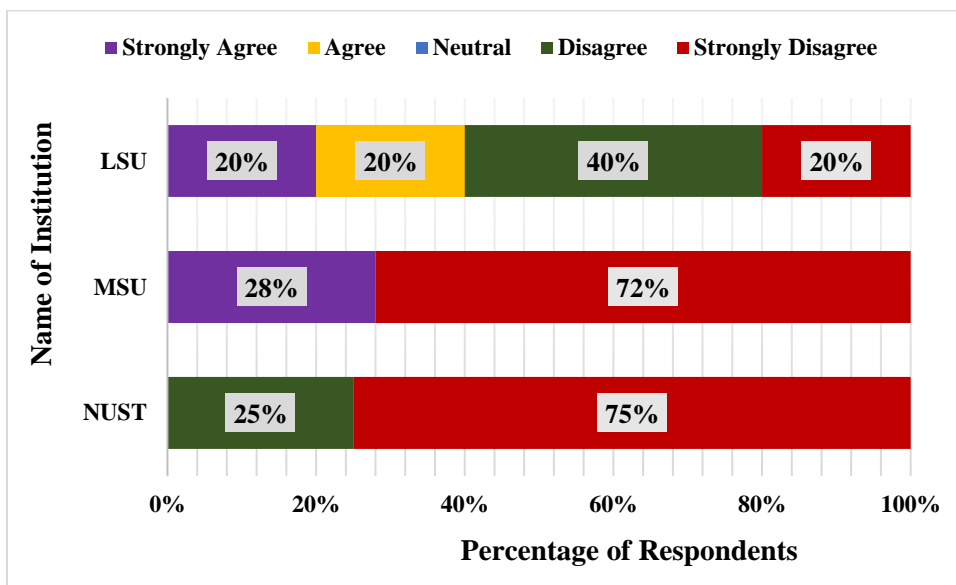


Figure 5. 4 Attitude towards changes in higher education that affect the academic library

5.5.3.2. Following new trends in academic libraries

The next question explored the extent to which librarians valued new trends in academic libraries. All (100%) respondents at the NUST, MSU and LSU Libraries felt that keeping up with current issues in academic libraries is either valuable or extremely valuable.

5.5.3.3. Barriers that keep librarians from following new trends

The following question identified factors that hinder librarians from keeping up with current trends. According to Figure 5.5, every (100%) NUST librarian disagreed/strongly disagreed that ineffective access to the Internet, constant outages, as well as lack of knowledge hinder them from keeping pace with current trends. All eight (100%) NUST respondents agreed that inadequate funding for the library blocked them from catching up with current trends. At the NUST Library six (75%) respondents did not think that limited time due to multi-tasking and lack of guidance because of undefined organisational culture are barriers; however, two (25%) librarians agreed that lack of guidance was a barrier and two librarians were neutral about multitasking being a hindrance in catching-up with new trends. Five (62%) NUST librarians disagreed that the slow uptake of new concepts within the library was an obstacle to following new trends while three (38%) agreed that this factor affected them.

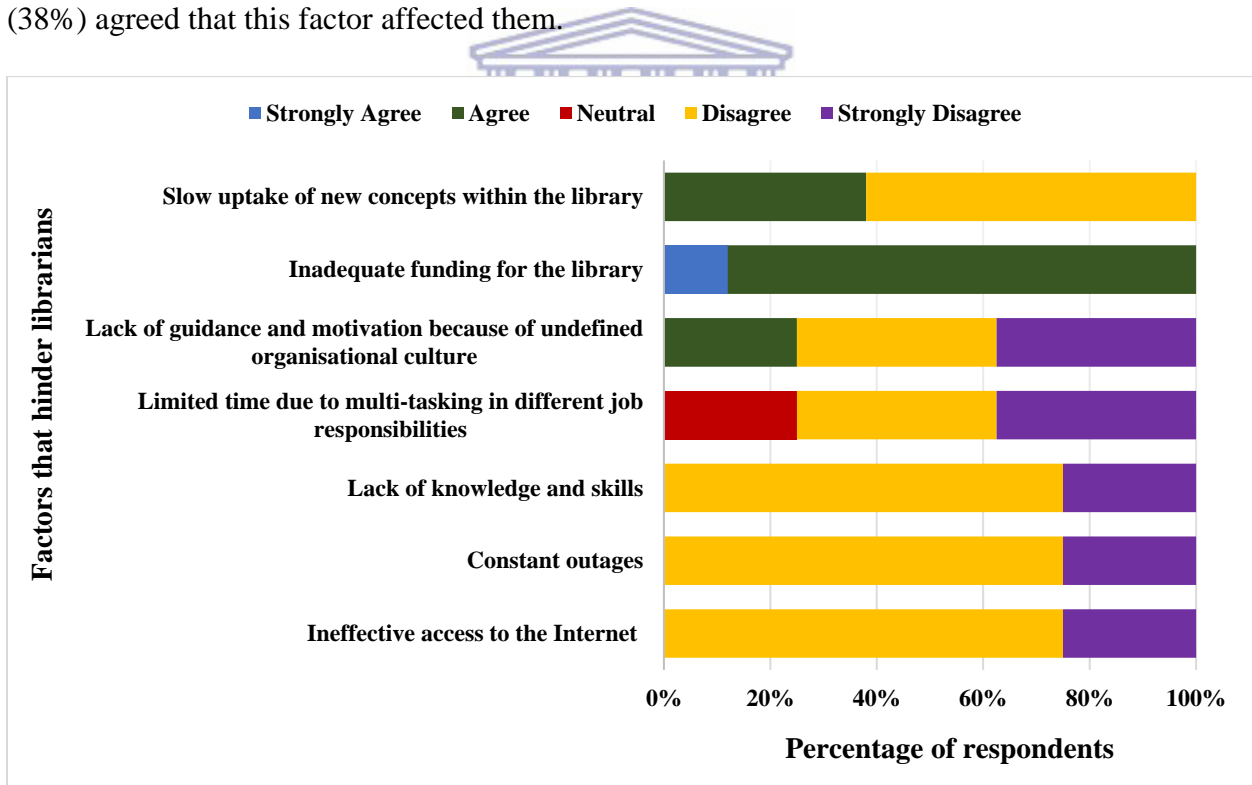


Figure 5. 5 Barriers for NUST Librarians (N=8)

Every (100%) librarian at MSU believed that lack of knowledge and skills as well as limited time due to multi-tasking were barriers for keeping up with new trends. All (100%) MSU librarians strongly disagreed that constant outages were one of the factors that blocked them from keeping

pace with change. More than half (57%) of the MSU librarians agreed that inadequate funding was a hindrance and only three (43%) librarians strongly disagreed. Five (72%) respondents agreed that slow uptake of new concepts within the library blocked them from keeping up while two (28%) respondents disagreed. Five (72%) librarians disagreed/strongly disagreed that lack of guidance because of undefined organisational culture and ineffective Internet were setbacks in keeping up while two (28%) librarians agreed/strongly agreed. Refer to Figure 5.6 for specific responses.

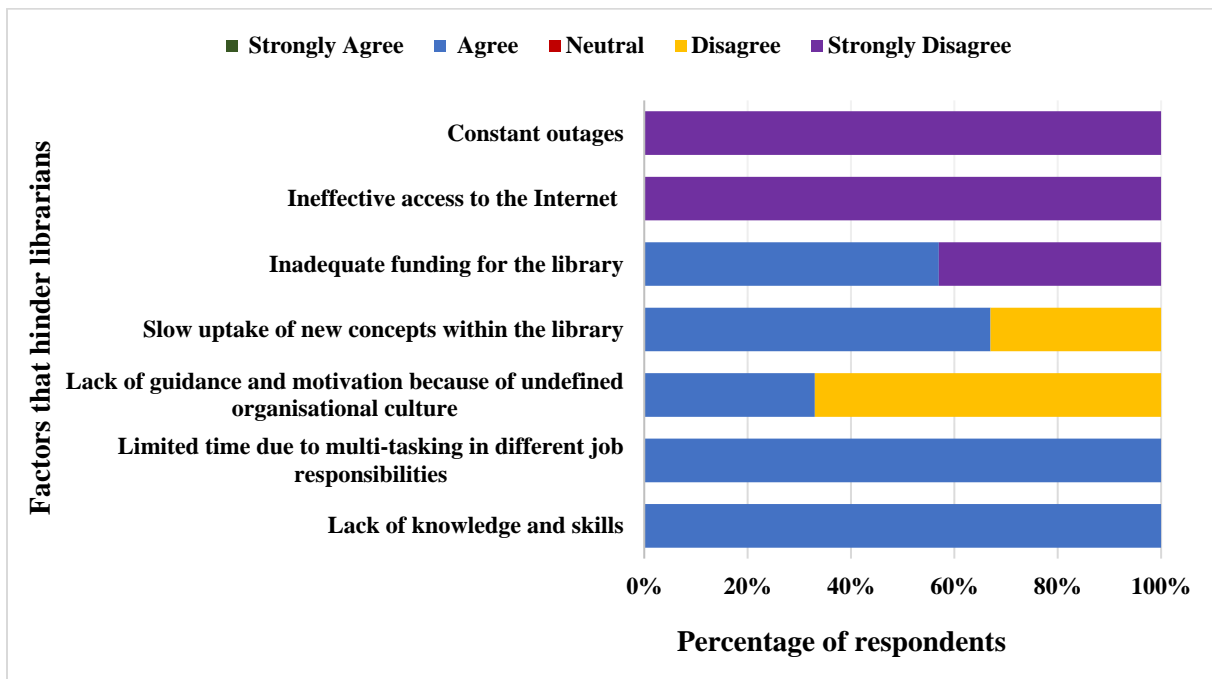


Figure 5. 6 Barriers for MSU Librarians (N=7)

Figure 5.7 illustrates that all ten (100%) LSU librarians agreed/strongly agreed that they were hindered by limited time due to multitasking in different job responsibilities. Eight (80%) of the LSU librarians agreed/strongly agreed that inadequate funding for the library was a barrier while two (20%) respondents were neutral. LSU Library’s eight (80%) respondents believed that slow uptake of new concepts within the library was a hindering factor whereas two (20%) respondents disagreed. Six (60%) LSU librarians accepted that lack of knowledge and skills was a barrier in keeping up whilst four (40%) respondents disagreed. Four (40%) librarians strongly disagreed that the undefined organisational culture, constant outages and ineffective Internet access were hindering factors while four (40%) LSU respondents were neutral about the factors, and two (20%)

LSU librarians agreed/strongly agreed that the factors blocked them from catching up with new trends.

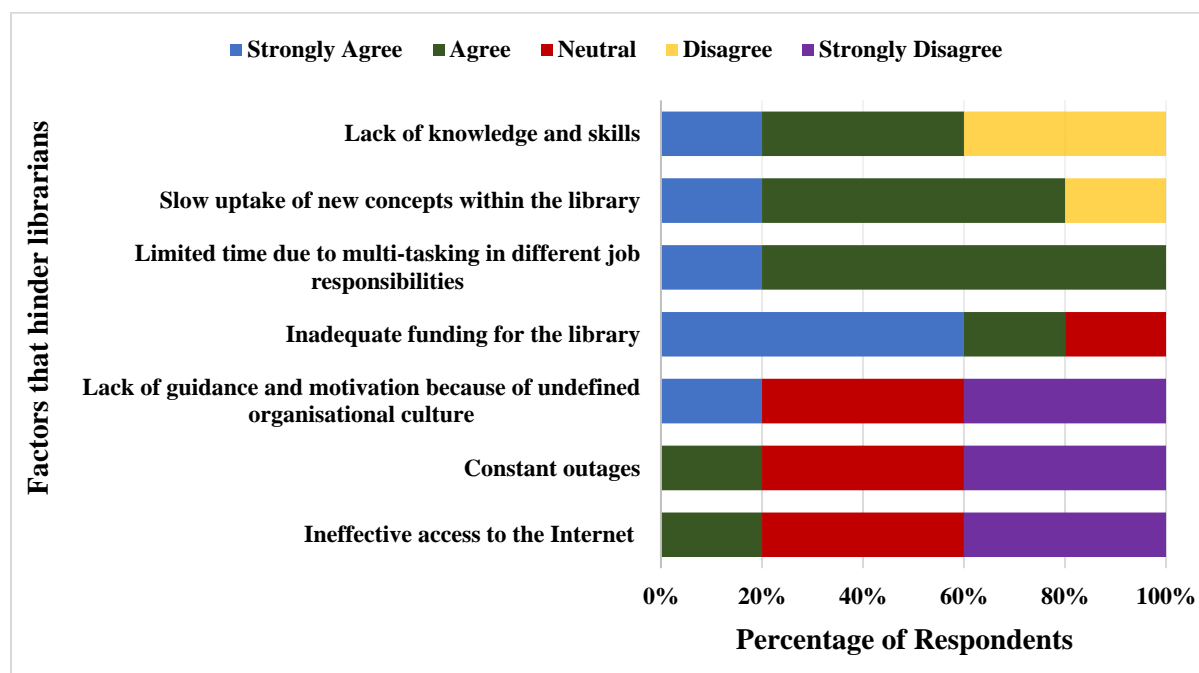


Figure 5. 7 Barriers for LSU Librarians (N=10)

5.5.3.4. Statements that describe librarians

Librarians were given five statements regarding attitudes to change and asked to rate themselves on a scale from strongly disagree to strongly agree. Every (100%) librarian at NUST agreed/strongly agreed that “they are always keen to adopt new concepts at work”. All (100%) the NUST librarians disagreed/strongly disagreed that “they are cautious when adopting new concepts”. Six (75%) librarians at NUST disagreed/strongly disagreed that “they adopted a concept after it gains popularity amongst colleagues” and that “they were not willing to adopt new concepts even if it meant conforming to the library’s requirements” whilst a few (25%) librarians were neutral. Six (75%) NUST librarians disagreed, while two (25%) librarians agreed that “they adopted new concepts because they are required to do so by their library”.

All seven (100%) MSU librarians disagreed that they “were a bit cautious when adopting new concepts at work”, “waited until a new concept gains popularity amongst their fellow colleagues before adopting it” and “were not always willing to adopt new concepts even if it meant not

conforming to the library's requirements". All seven (100%) MSU librarians accepted that "they were always keen to adopt new concepts at work". Five (72%) MSU respondents strongly agreed that "they adopted new concepts because they are required to do so by their library" while two (28%) were neutral.

All 10 (100%) LSU librarians were "always keen to adopt new concepts at work". Eight (80%) LSU librarians opposed the statement that "they were a bit cautious when adopting new concepts" while two (20%) librarians agreed. Six (60%) of the librarians at LSU strongly disagreed and four (40%) librarians agreed that "they always wait until a new concept gains popularity amongst fellow colleagues". Six (60%) librarians stated that "they were not always willing to change even if it meant not conforming to the library's requirements" while four (40%) respondents were neutral. Most (60%) LSU librarians concurred "they adopt new concepts because they are required to do so by the library" while two (20%) were neutral, and two (20%) strongly disagreed.

5.5.4. The skills and competencies of the 21st century librarian

Section D consists of five closed-ended questions and four open-ended questions. The section analyzes the modern skills and competencies of librarians. This is illuminated through a close examination of the value of the LIS degree in job performance, skills and competencies of a modern university librarian, specific skills and competencies held by Zimbabwean university librarians, programmes offered by libraries which support continuous updating of librarians' skills and competencies, examining whether librarians are continuously upgrading their skills and competencies and the managements' expectations pertaining to skills and competencies.

5.5.4.1. The importance of the LIS degree

Librarians were asked to rate the value of the LIS degree in their current work. All (100%) LSU and MSU Librarians rated the LIS qualification as extremely valuable while all (100%) NUST librarians rated their LIS degree as either valuable or extremely valuable in their job.

5.5.4.2. Skills and competencies for modern academic librarians

Librarians had to choose from a list the skills and competencies modern librarians needed. All eight (100%) NUST respondents strongly agreed that a modern librarian should teach IL online,

design IL teaching materials, have research skills for supporting patrons and scholarly communication expertise. Concerning skills for managing and marketing OERs, partnering with the campus community, RDM skills, assessing research output using altmetrics and specific subject expertise, all (100%) NUST librarians agreed/strongly agreed that these skills are requisite in the modern environment. Most (6 or 75%) librarians at NUST were neutral about conducting personal research and publishing skills while only two (25%) strongly agreed. See figures in Table 5.16.

Table 5. 16. Skills and competencies for 21st century of NUST academic librarians (N=8)

Research requirements	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Teaching information literacy online	8	100	0	0	0	0	0	0	0	0
Designing information literacy teaching materials	8	100	0	0	0	0	0	0	0	0
Research skills for supporting patrons	8	100	0	0	0	0	0	0	0	0
Scholarly communication expertise	8	100	0	0	0	0	0	0	0	0
Partnering with campus community to create high quality services and resources	7	88	1	12	0	0	0	0	0	0
Managing and marketing open educational resources	7	88	1	12	0	0	0	0	0	0
Research data management skills	2	25	6	75	0	0	0	0	0	0
Using altmetrics for assessing research output	2	25	6	75	0	0	0	0	0	0
Specific subject expertise/ speciality	2	25	6	75	0	0	0	0	0	0
Conducting personal research and publishing skills	2	25	0	0	6	75	0	0	0	0

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Table 5.17 illustrates that at MSU, all seven (100%) librarians strongly agreed that teaching IL online, designing IL teaching materials, RDM skills, partnering with campus community, research skills for supporting patrons and specific subject expertise are mandatory in the 21st century. All seven (100%) librarians agreed/strongly agreed that managing and marketing OERs, conducting personal research and publishing skills, scholarly communication expertise and using altmetrics for assessing output are required in the modern library environment.

Table 5. 17. Skills and competencies for 21st century of MSU academic librarians (N=7)

Research requirements	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Teaching information literacy online	7	100	0	0	0	0	0	0	0	0
Designing information literacy teaching materials	7	100	0	0	0	0	0	0	0	0
Research data management skills	7	100	0	0	0	0	0	0	0	0

Partnering with campus community to create high quality services and resources	7	100	0	0	0	0	0	0	0	0
Research skills for supporting patrons	7	100	0	0	0	0	0	0	0	0
Specific subject expertise/speciality	7	100	0	0	0	0	0	0	0	0
Conducting personal research and publishing skills	6	86	1	14	0	0	0	0	0	0
Managing and marketing open educational resources	6	86	1	14	0	0	0	0	0	0
Using altmetrics for assessing research output	5	72	2	28	0	0	0	0	0	0
Scholarly communication expertise	5	72	2	28	0	0	0	0	0	0

Table 5.18 shows that every (100%) librarian at LSU claimed that teaching IL online and RDM are part of the academic librarians' skills in the 21st century. Every (100%) librarian at LSU agreed/strongly agreed that partnering with campus community, managing and marketing OERs, designing IL teaching materials, scholarly communication expertise and research skills for supporting patrons are meant for modern librarians. Most (80%) respondents maintained that specific subject expertise is one of the modern librarians' skills while two (20%) librarians were neutral. Six (60%) LSU respondents strongly agreed that using altmetrics to assess research output and skills for conducting personal research and publishing are important in the modern environment while four (40%) respondents were neutral about the two skills.

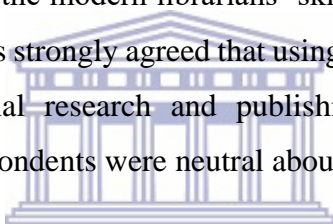


Table 5. 18. Skills and competencies for 21st century of LSU academic librarians (N=10)

Research requirements	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	f	%	f	%	f	%	f	%	f	%
Teaching information literacy online	10	100	0	0	0	0	0	0	0	0
Research data management skills	10	100	0	0	0	0	0	0	0	0
Partnering with campus community to create high quality services and resources	9	90	1	10	0	0	0	0	0	0
Managing and marketing open educational resources	9	90	1	10	0	0	0	0	0	0
Research skills for supporting patrons	9	90	1	10	0	0	0	0	0	0
Designing information literacy teaching materials	6	60	4	40	0	0	0	0	0	0
Scholarly communication expertise	6	60	4	40	0	0	0	0	0	0
Specific subject expertise/speciality	6	60	2	20	2	20	0	0	0	0
Using altmetrics for assessing research output	6	60	0	0	4	40	0	0	0	0
Conducting personal research and publishing skills	6	60	0	0	4	40	0	0	0	0

5.5.4.3. Specific skills and competencies possessed by librarians

An open-ended question required librarians to indicate the specific skills and competencies they themselves possess from the list provided in section 5.5.4.2. A total of eight (100%) NUST librarians mentioned that they have skills for partnering with campus community, teaching IL

online as well as managing and marketing OERs. Six (75%) NUST librarians said they have skills for designing IL teaching materials and research skills for supporting patrons. Only two (25%) NUST librarians stated that they have skills for conducting personal research and publishing, as well as scholarly communication expertise. None of the NUST librarians mentioned having RDM, altmetric and subject specific expertise.

Only five (50%) out of ten LSU librarians responded to this question. All five LSU librarians said they have research skills for supporting patrons, specific subject expertise, managing and marketing OERs. Two (20%) LSU librarians stated that they have skills for teaching IL online, designing IL teaching materials, RDM skills, using altmetrics for assessing research output, partnering with campus community to create high quality services and resources, conducting personal research and publishing skills including scholarly communication expertise. One librarian is in possession of computer programming skills and basic computer maintenance skills.

At MSU every (100%) respondent revealed that they have skills for designing IL teaching materials, research skills for supporting patrons and specific subject expertise. One (14%) respondent at MSU has scholarly communication expertise and partnering with campus community to create high quality services and resources. MSU librarians did not have skills for teaching IL online, RDM skills, using altmetrics for assessing research out, conducting personal research and publishing, managing and marketing open educational resources and specific subject expertise.

5.5.4.4. Other skills and competencies required by the 21st century academic librarians

An open-ended question invited respondents to mention other skills and competencies for modern librarians. At the NUST Library, respondents mentioned that knowledge management skills, agricultural information systems skills and skills for assisting researchers are critical in this current environment.

Librarians at LSU stated that the modern university library requires computer savvy individuals and professionals who are abstract thinkers. Librarian at LSU also mentioned that modern librarians should continuously renew their skills and keep track with current ICTs for libraries.

At MSU, a respondent commented that a modern librarian is expected to conduct research.

5.5.4.5. Strategies and programmes which ensure continuous updating of librarians' skills and competencies

A question asked librarians to select programmes and strategies that their institution provided in support of their skills and competencies. All eight (100%) NUST librarians mentioned that they attended training workshops or seminars on the job or off, and have received funding for attending professional conferences. Six (75%) NUST librarians mentioned that their organisation offered academic upgrading/staff development programmes. Only one individual mentioned that librarians receive support in conducting research on patron community needs. Another NUST librarian stated that the library allowed the creation of a community of practice within the library.

Six (60%) LSU librarians opined that their institution exposed them to training workshops or seminars on the job or off and academic upgrading or staff development programmes. Four (40%) librarians mentioned that they received funding for professional conference attendance.

All (100%) MSU librarians mentioned that their library offered training workshops or seminars on the job or off and academic upgrading or staff development programmes. One respondent said that the library provided funding for professional conference attendance and another individual revealed that the institution allowed the creation of a community of practice within the library.

At NUST and MSU there were no other strategies mentioned but at the LSU library, librarians are exposed to staff exchange programmes and contact leave. Contact leave is a fully funded attachment for the library management (head librarian and the deputy librarian). The librarian is given the opportunity to visit any university library outside the country usually in South Africa where they learn about the institution's activities for a month or two. They are then expected to go back and operationalize within their libraries.

5.5.4.6. Strategies and programmes undertaken in the past 12 months

An open-ended question asked librarians to mention which programme they had attended in the past 12 months. At the NUST Library one of the respondents organized a workshop for all library staff and another librarian attended academic upgrading or staff development programme.

At the LSU Library three separate respondents mentioned that they attended a professional conference, went through academic upgrading by studying towards a masters in library and

information science, and another individual attended a workshop organized by the university on academic writing and presented a paper at the Zimbabwe National Book Fair (ZIBF).

Two out of seven MSU librarians mentioned that they individually attended a professional congress in Uganda from the 17 – 21 October 2016 and training workshops and seminars on the job in the last few months.

5.5.4.7. Updating of skills and competencies

Librarians were asked to disclose if most of their colleagues regularly renewed their skills and competencies. More than 70% of librarians at NUST stated that their colleagues often updated their skills and competencies while two (25%) of the librarians stated that their workmates occasionally updated their skills and competencies. At the LSU Library six (60%) respondents maintained that their colleagues occasionally upgraded their skills while two (20%) librarians stated that they often updated skills and the other two (20%) maintained that they updated their skills almost every time. All (100%) MSU respondents said that their colleagues updated their skills and competencies almost every time.

5.5.4.8. Management expectations of updating skills and competencies

A question asked librarians whether their management expected them to constantly renew their skills and competencies. All eight (100%) respondents at NUST agreed/strongly agreed that their institutions' management expected them to constantly update their skills and competencies. At the LSU Library, eight (80%) respondents were neutral about their institution's management expectations while two (20%) respondents claimed that their management expected them to have up to date skills and competencies. Seven (100%) MSU librarians stated that their management expected them to constantly update their skills and competencies.

5.5.5. Library patrons' demands in the 21st century

This section (Section E of the questionnaire) had three open-ended questions and three closed-ended questions. It focuses on patrons' requirements in the current environment. This was achieved by asking respondents how regularly they gather patrons' views on services and resources, which communication platforms they used to interact with users, their opinions on the services required

by the library users, and the influence of patrons' requirements on the skills and competencies of librarians.

5.5.5.1. Frequency of gathering patrons' views on library services and resources

A question asked respondents how often they gathered patrons' views on services and resources offered by the library. At NUST, five (62%) of the librarians mentioned that they gathered library users' views often or almost every time and three (38%) occasionally collected library users' opinions. Six (60%) librarians at LSU often or almost every time requested users' opinions whilst four (40%) librarians stated that they occasionally gathered users' views. Every (100%) librarian at MSU highlighted that they often gathered library users' views.

5.5.5.2. Forms of communication used to gather library user opinions

Respondents were asked to select from a list what forms of communication they used to interact with patrons. All eight (100%) respondents at the NUST Library said they used staff e-mail, social media, the library website, and face-to-face for interacting with users. Six (75%) NUST librarians claimed that they used student email and a suggestion box while two (25%) of the librarians said they used the telephone for communication.

All ten (100%) librarians at LSU stated that they used face-to-face communication with library patrons. At LSU Library eight (80%) of the respondents claimed that they used social media and a suggestion box to stay in touch with users. Six (60%) LSU respondents said they used the telephone to communicate with users while only two (20%) librarians mentioned that they used student email and the library website.

More than half (4 or 57%) of MSU librarians mentioned that they used staff e-mail, social media, face-to-face, library website announcements, the telephone and suggestion box to communicate with library patrons.

Other forms of communication used to gather views

Only LSU librarians answered this question. They used "hand-distributed questionnaires" (Librarian 10) and "focus group interviews" (Librarian 4) to gather library users' opinions.

5.5.5.3. Services and resources required by library users in this dynamic environment

A question required librarians to choose from a list of services and resources meant for patrons in this modern environment. Eight (100%) librarians at NUST agreed/strongly agreed that modern patrons required OA teaching and learning materials, online reference services, information on digital research and citation management, access to RDM tools, regular updates on latest research in their fields, booking for IL lessons when required, research software packages and information on publishing in reliable OA journals and books. Six (75%) librarians at NUST agreed/strongly agreed that patrons required equipment loan, links to exchange programmes and a student service network while two (25%) librarians were neutral. Six (75%) librarians were neutral about patrons' needs for interlibrary loan services while only two (25%) librarians strongly agreed. Five (62%) librarians at NUST strongly agreed that the library users required well-equipped work-spaces, while three (38%) of the respondents were neutral. Five (62%) NUST librarians were neutral about RDM services, while only three (38%) librarians were positive that RDM services are a requirement for modern library users. See exact illustration in Figure 5.8.

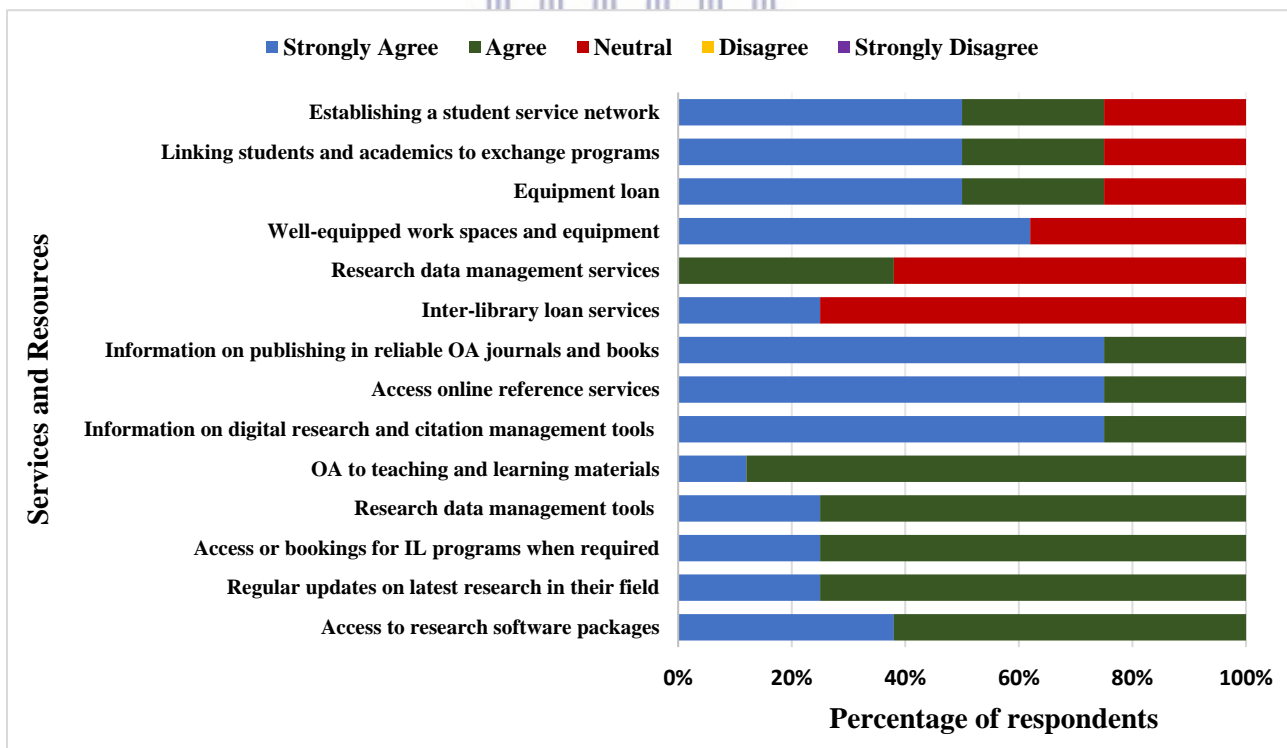


Figure 5. 8 Services and Resources required by patrons at NUST (N=8)

Figure 5.9 shows that all seven (100%) MSU respondents concurred that 21st century users required regular updates on the latest research in their field, information on publishing in reliable OA journals and books, well-equipped work spaces and equipment, OA teaching and learning materials, information on digital research and citation management tools and interlibrary loan services. All seven (100%) librarians agreed/strongly agreed that modern patrons required bookings for IL programmes when required, access online reference services, RDM services, linking students and academics to exchange programmes, RDM tools, equipment loan and access to research software packages and establishing a student service network.

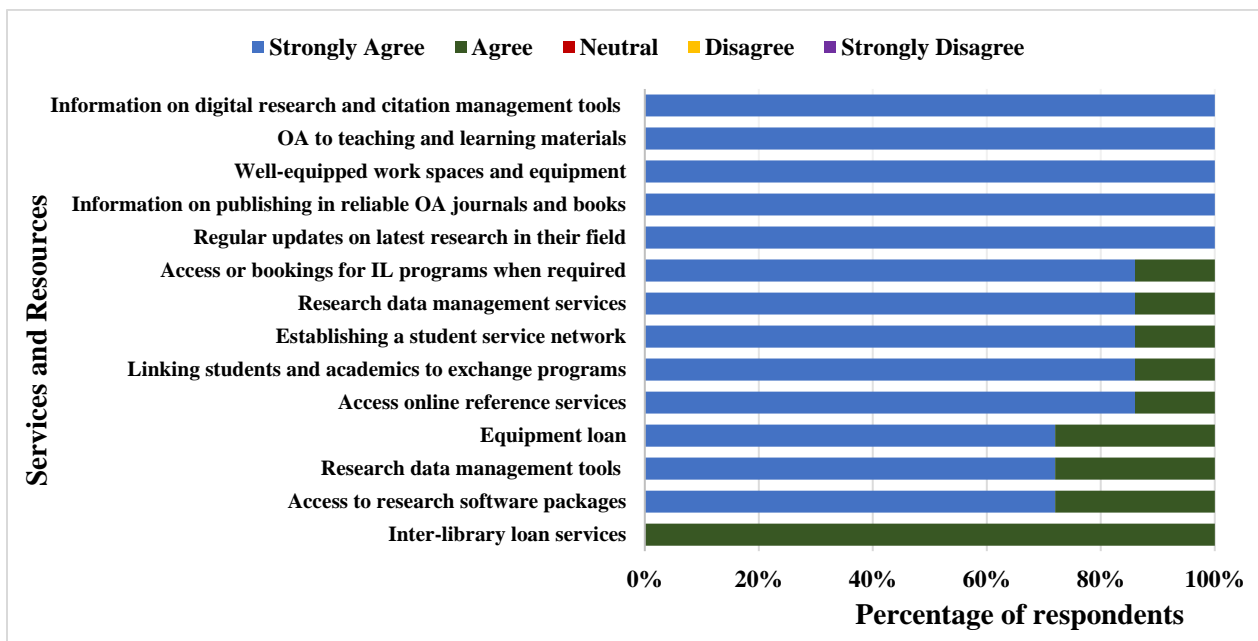


Figure 5. 9 Services and Resources required by patrons at MSU (N=7)

Figure 5.10 illustrates that all 10 (100%) librarians at LSU noted that patrons required regular updates on the latest research, information on digital research and citation management tools plus well-equipped work-spaces and equipment. All 10 (100%) LSU librarians agreed/strongly agreed that library users required bookings for IL programmes when needed, access to online reference services, access to research software, information on publishing in reliable OA journals and books, OA to teaching and learning materials, RDM services, RDM tools, equipment loan and a student service network. Eight (80%) LSU respondents agreed/strongly agreed that users required links to exchange programmes, but two (20%) individuals were neutral. While six (60%) librarians agreed

that interlibrary loan was meant for modern library patrons, the other four (40%) individuals were neutral about this service.

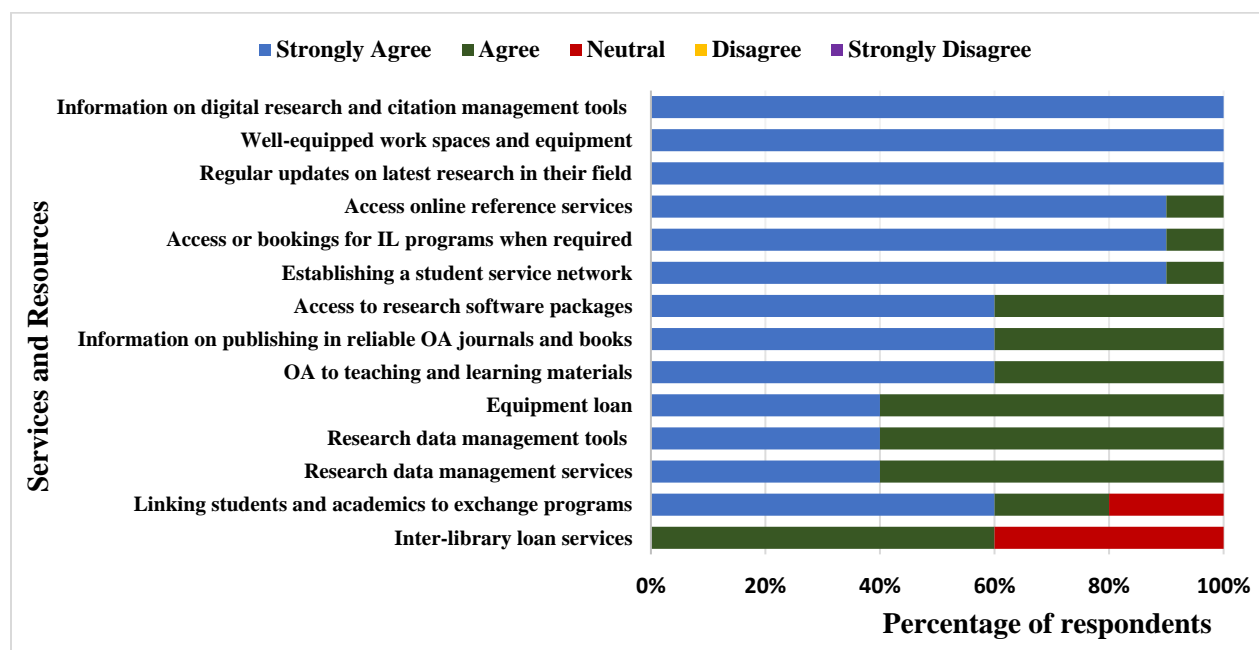
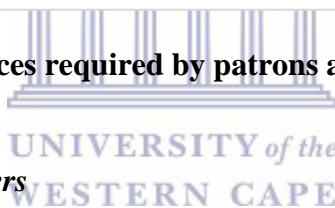


Figure 5. 10 Services and Resources required by patrons at LSU (N=10)



Other requirements for library users

Other library patrons’ requirements mentioned at NUST were “subject guides” (Librarian 4) and “research workshops for postgraduate students, final year students and academics” (Librarian 7). At LSU Library respondents stated that current library patrons required “training on basic use of computers and Internet” (Librarian 9), and “have an IL course as part of their module” (Librarian 5).

5.5.5.4. The influence of patrons’ needs on librarians’ skills and competencies

An open-ended question asked respondents if patrons’ requirements have made any demands on their skills and competencies. One librarian at NUST mentioned that, “because of the user demands the librarian has to constantly keep-up with issues happening in the field” (Librarian 8). Another NUST librarian stated that, “because of the demands of patrons I have spent a lot of time updating my skills so as to offer relevant services” (Librarian 1).

At the LSU Library two respondents stated that they have been forced to keep up with user needs. Respondents commented that: “I always try to keep up with user needs” (Librarian 10), “it keeps me up to date” Librarian 8), and

I have been kept up on my toes and expected to work hard and be able to deliver because my patrons were not so keen on digital resources but after continued marketing of e-library service and information literacy training, there is increased buy in and now high demand for prompt and accurate service hence the need to stay relevant and support patrons fully. Am just forced to always be 10 steps ahead of users' needs and requirements (Librarian 4)

At MSU, one librarian expressed that “the needs of our patrons have in a great way altered the service provision as they have 21st century needs which need a 21st century librarian to cope with” (Librarian 7).

In summary of section 5.5, librarians state that there is an increased demand for online-based teaching and learning methods. The role of a librarian as a mediator and teacher is revealed. Less than half of MSU librarians preferred online IL training while most LSU librarians preferred face to face IL training. Librarians in all three institutions did not feel overwhelmed by changes in higher education that affects the academic libraries. Librarians used communications such as face-to-face, social media, suggestion box, library website, telephone and staff email.

The general feeling amongst librarians was that current library user needs have altered their skills in that they constantly have to keep pace or even stay ahead of trends in order to adequately address the user demands. The next section discusses the responses from librarians' interviews.

5.6. Presentation of follow-up interviews with librarians

This section presents follow-up individual interviews. The questions were drawn by identifying gaps from an analysis of questionnaire responses. In total, there were 12 interviewees, comprised of four librarians from each institution (view interview schedule and interview guide in Appendix I and J). This section presents data from some of the participants. To view all individual interviews, see Appendix K. In terms of gender there were four females and eight males. The researcher applied thematic analysis for identifying, analyzing and reporting patterns (themes) within the interview data. Thematic analysis helped interpret data using themes that are associated with the research questions of this study. The researcher used pseudonyms to ensure participants' anonymity and confidentiality. This is important because the use of pseudonyms provides

protection of confidentiality and anonymity of a research participant (Given, 2008). The interview data presentation is based on the following related themes: current 21st century librarian skills and competencies; academics' and students' needs and expectations; librarians' keeping up with new trends; and modern librarians' attitudes towards user needs and expectations.

5.6.1. Current 21st century librarian skills and competencies

This sub-section presents the 21st century librarians' skills and competencies as construed by librarians themselves which are fundamental to their day to day work routines. These are shaped by their qualifications, and they include ILS teaching, online reference, research support, collaboration with faculty, marketing and advocacy, research impact assessment, and creating new knowledge (publishing).

5.6.1.1. Emphasis on paper qualifications

The analysis of the questionnaires (sent to academics, students and librarians) revealed that the Zimbabwean higher education focuses on paper qualifications rather than the actual skills. Gurria (2012) agrees that more or advanced education doesn't automatically translate into better skills. A follow-up interview question which asked librarians to elaborate on this notion revealed the finding as true. Refer to the comments made below.

Ndaba (LSU): *What I have discovered in the years that I have delivered IL is that user instruction is a skill but then we sit in meetings and we say not everyone can teach IL you have to have a degree but you find someone with a diploma in LIS being able to deliver....In universities with a diploma you have nothing we can't call you to meetings. Assistant librarians or Faculty librarians we expect them to have a master's degree so things are changing and now even the minister of higher education himself says to academics if you don't have a PhD by 2017 you are done so it's about the paper qualification.*

Terrence (NUST): *I think it's quite true because if you do not have the qualifications I can give an example of some staff members who have been working in the library for years. Some were the pioneers who set up this library even before the current librarian came but those individuals are still holding the same positions when they came in because they did not upgrade their skills.... The current university system is such that you cannot get to be promoted just because you have acquired some skills which are not backed up by any kind of paper qualification.*

Tendai (MSU): *If you are to look at universities it's very tricky for us to consider skills ahead of qualifications because these are institutions for higher learning so the entry*

qualifications they will be looking at your academic qualifications and then maybe we go on to look at your own skills. If we look at the health Industry we have so many old people who are very skillful and are doing their duties most of them they don't have qualifications so at the end of the day you will realize that those people will not be promoted because they don't have papers. In universities, if truth be told, nowadays people are acquiring bachelor's degree/masters but they are not able to deliver but yes universities consider paper qualifications ahead of skills.

5.6.1.2. Continuous education skills

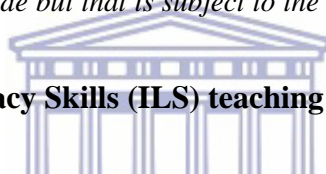
Questionnaire findings revealed that most Zimbabwean academic librarians were upgrading their qualifications to meet the demands of their institutions and that of the modern library patrons. An interview question was asked to find out what motivation (in terms of incentives/position upgrading) is offered by their institutions for completing their courses. Some of the views are presented below:

Pauline (NUST): *Normally when you get a new qualification we let human resources know. They do the grading and what have you but for now government has frozen everything. During our time if I had a new qualification I will probably get notches each notch has a salary attachment. For my masters am not sure how many notches, maybe three notches but government has frozen all that. There is nothing that is happening right now although we still forward the information to HR they just record for now; there is absolutely nothing unless if there is a vacancy within the library and the person has to go for interviews and if they get the post then. But for now, the vacancies are frozen as well if somebody leaves right now we can advertise and probably do the interviews and wait until the government says NUST for this quarter you are getting three or four new positions and it's determined by the economic situation and the government is our sponsor. We used to get a grant for operations and a grant for salaries now we are just getting a grant for salaries and most of the positions were frozen so nothing is happening right now. Previously the norm was that you get a few notches if there was a position that arises you apply for the position and you can be upgraded accordingly. It's not happening right now and it's not the university's fault it's because of the economic situation in the country.*

Ndaba (LSU): *In this set up of university it's not mandatory that the fact that you have an extra qualification you are therefore entitled to a promotion, it's not a must. You only get that promotion if there is a post or a vacancy. But in the academic side its different (teaching assistant, Lecturer, Senior Lecturer, Professor) because when you come in you are a teaching assistant you have your undergraduate then you upgrade yourself and get a Masters, you are a lecturer; you upgrade yourself, you get a PhD you are a senior lecturer automatically just by attaining those you just upgrade yourself even now the issues of teaching assistant to lecturer. It's also a problem now even if you get a Masters they might say no you get an interview you can lose the job someone else can come in from outside but now that depends on the processes and your abilities probably as an interviewee.*

On the administrative side I came in here as an assistant librarian here at LSU in 2009 after attaining my Masters. I think I stayed for many years still as an assistant librarian although they will send me to be the acting sub-librarian here and there then from there I acted as a deputy then I was appointed. But I have guys (subordinates) that have done Masters; almost everyone is now a Masters holder but they are still assistant librarians. They (institution management) will tell you that (one) there is a staff freeze, (two) there is no vacancy, (three) the university is still growing we can't have a full management system in the university administration. The deputy librarian and the librarian can work while the university grows. The issue is, here the structure that we have is (Librarian, deputy librarian, a line with technical services, the systems services, user services and the research services) all those sections are supposed to be headed by sub librarians those that are holding fort now and say they are heading those sections they are supposed to be sub librarian positions.

Tendai (MSU): *One challenge is that if you are to look at the institution as a whole we have got a freeze from the government whereby they are saying we are not supposed to be employing or upgrading staff up until we have our economy stable. But the thing is the incentive is there yes when somebody has upgraded himself educationally they are also promoted to the next grade but that is subject to the availability of a vacant post in that grade.*



5.6.1.3. Information Literacy Skills (ILS) teaching

After analyzing academics' and students' questionnaire responses the researcher discovered that some patrons did not know about the existence of IL programmes in their libraries and that they required digital literacy training. It also came to light that lecturers were willing to collaborate with librarians in teaching ILS while librarians were neutral about forging partnerships with campus units. A follow-up question on IL programmes offered by all libraries was asked. Some of the opinions are as follows:

Terence (NUST): *One thing for sure is that we as librarians we believe that it's our job to teach ILS and we believe that it is not what academics are able to do best because we are the professionals and unfortunately here at NUST we have been barred from formalizing ILS training to make it mandatory and for us to be in position to teach it university wide. Academics feel it's their job. We have been at logger heads for so many years and up until now nothing has been done to resolve the situation, academics say give us the materials then we can teach but that is not the trends worldwide whereby librarians are actually teaching IL university wide that is happening e.g. UZ and MSU.*

It's a good question that you have asked. Actually, we were thinking about teaching digital literacy seriously that maybe we might need to come up with an e-version of IL tutorials where we get to deliver IL via e-learning platform like Moodle, Sakai or the Google classroom. The IT manager, I think he has come up with something. It's still being developed but it's something that is being projected to come out but it hasn't been implemented. He will be using Moodle; it's something that we are still trying to

investigate the possibilities but we haven't really done anything in terms of delivering ILS via some of these tools electronically but we are still investigating the possibility of using Moodle to deliver ILS. We would be using a projector am sure it's a technology. We also do some hands on in the e-resources where we actually give students some tasks to do hands on after the theory session so we do teach them in a kind of a practical way.

Pauline (NUST): *All along we have tried to encourage the university to allow us to teach ILS, we had a pilot with the Faculty of Communication and Information Science. We did that for a year and the then VC was not happy about it; am not sure whether there's something that the faculty did not do to inform the university. The thing we have been trying to encourage them only lately they started to take it seriously. They are in the process right now of coming up with a training programme which involves fluency in English and introduction to computers and information skills as far as I know those are the three subjects that will be covered. I know locally MSU is teaching across the board and examining, University of Zimbabwe (UZ) is teaching but its only particular faculties not campus wide. What they do is what we do right now, we talk to lecturers and say like beginning of the year after we are done with orientation please can you bring your students so that we teach them ILS, give us maybe two periods of your lecturing and it's not examined.*

I don't think we are using social media or any software to teach that, they just use slides and they project them. Although we are talking about it, the IT technician was supposed to be doing a demo this week but hasn't come back to tell me when he is ready to do that demo. He will be using either SAKAI/ Moodle for teaching ILS but it's something in the pipeline. We don't really get a lot of support from academics but we are trying.

Ndaba (LSU): *... It was an encouragement of ZULC that each and every university has to embed ILS into their curriculum and for the past seven years that I have worked at LSU, I have been fighting that battle to say let's infuse IL within introduction to campus and formalize it; even to employ the faculty librarians was a hassle.*

For teaching we have a projector as a library. Last week when we had an open day I was showing all the electronic resources that we have as listed on our website, teaching even the high school how to access the open source resources. We try also with WiFi, for example, we connect everyone, all patrons' devices will be connected we have a policy which we call "The bring your device policy" with ICTs where we are saying bring your device to the library we are going to connect you to the Internet, then our systems for malware and put firewalls through the systems. Students have their own devices; the university doesn't have any new technologies e.g. this is my personal laptop almost everyone has and we hardly use the desktops.

Lindelwe (LSU): *I am not embedded in the faculty. Students have to come and look for me if students have a training session. I contact the lecturer, he gives me a slot on their teaching schedule. There is no designated slot for ILS. ILS was rejected to be formalized due to organisational politics and last year (2016) ZIMCHE recommended that it should be formalized but still nothing is happening. So currently I check the faculty once in a while because I need statistics. I would talk to two/three lecturers whom I am friends with to slot me for training sessions with three/four groups roughly about 300 students; then*

I write a report. We don't have a formal ILS programme, what we are just offering are one-hour training sessions once a semester and it doesn't target all students.

At MSU, the situation was totally different as librarians already hold the teaching staff/academic status. See the MSU librarians' views:

Tendai (MSU): *If you are to look at the online thing, we might not use it because if you are to look at our lecturers they might not find some time to go onto the Internet and have those online tutorials. Same applies with students; the only effective way is to teach them face- to-face in a formal set up whereby we are having a lecture teaching them ILS. The online thing I don't think it's effective.*

We faced a challenge when we tried to introduce the ILS programme back in 2010. They were saying that librarians cannot teach in fact what they were saying was that teach us what you want to teach our students so that we can teach them. But the then chancellor understood that we are supposed to be regarded as academics because of the issue of supporting the core function of the university which is teaching and learning. Fortunately, when the chancellor went to France and he used to seat on the UNESCO board he saw a lot of universities in France as well as in the USA where librarians were teaching and when the librarian wanted to introduce the programme he was the first person to say go ahead I have seen this in other universities and it's supposed to be an examinable module. That's why we are regarded as teaching staff.

Tanaka (MSU): *We use face to face when we teach information literacy because that's the first part we teach all the first years how to access information from all the sources that we have, whether electronic or non, that's face to face. Whenever anyone comes across a problem, that's when the electronic part comes in where they can ask on WhatsApp, where they can ask on Facebook, but the main thrust is in that module then the refresher courses that we offer for those senior students for example those who are coming from attachment and they have forgotten how to access resources. We ask them to formulate groups and attend face to face tutorials.*

Our first years have a compulsory module for IT and ILS which we share half-half with the faculty of science. We work together in teaching, in view of the module we offer the library went on to purchase laptops and projectors that are used for the ILS training whether it's the module or the refresher courses. The e-learning platform we post our learning material on the platform for the students to access. We conduct our lectures in the labs and some of the students will fail to get machines (computers). Those ones use their laptops or tablets, that's what we encourage because when they are in their hostels whether you have a laptop or a phone or tablet you can access our resources; we emphasize that.

Nyasha (MSU): *It's face to face first then complemented by some online materials that we post on our library website. These ones do have a chapter in our IL skills module where we teach them about digital literacy, all the types of literacies that are needed in the 21st century.*

Our ILS training is so formal that we are taken as academics, actually all members of the library at MSU are classified as academic staff. Such that if I am to present a paper

in the USA, I am given the same amount of funding with lecturers. And it means that a student cannot graduate without that part fulfilled.

5.6.1.4. Online referencing services skills

Results from academics' and students' questionnaires stressed that librarians were occasionally online for reference communication using social media or their reference platform. A follow-up interview question required librarians to state how their online reference platforms are managed. Various insights from librarians are presented below.

Ndaba (LSU): *First you will have to understand that the situation as is in Zimbabwe is quite precarious in terms of staff. Actually, we do not have a reference librarian at the point, all the assistant librarians and every library senior management are the ones that are then becoming reference librarians. We have our duties that we deal with administrative issues. There has been a staff freeze I think for the past three years in Zimbabwe so we have not been able to employ or engage anyone who is to be a reference librarian. The ones who are subject librarians/ faculty librarians over and above what they do most of the time they have to be with faculty being embedded and they attend faculty meetings, so for them to keep up with giving real time responses on Facebook is quite difficult.... When we recently moved to Lupane (main campus) we did not have any more staff complement. We had to cut the staff that we had and share it with the Lupane campus so we had to really close technical services for a while until we had to find our groove. But of course, I am not trying to run away from the fact that probably we are not as real time as the lecturers and students would want us to be, I think we can do better.*

Dumisani (LSU): *The issue of multitasking is a problem because assistant librarians are subject librarians and faculty librarians and reference librarians. All those roles require enough attention and input. It's not easy to deliver. The issue of social media in Zimbabwe has never been a serious matter or something that's official to say I can make an announcement or advertisement about the university and put it on Facebook and say "we hereby inform you that the university will be closed on this date", do you think people will take it seriously? So, the uptake of social media has always been for fun and chatting.*

Terence (NUST): *To be honest we do have social media platforms that are there but they are not official in a sense because there is no policy framework which guides as to exactly who is responsible for managing them. It was just an initiative of a person and it was accepted. When it comes to a person who is really responsible, there are no guidelines in place to say what exactly is to be posted; that's why they are not as effective as you might want them to be and it's no surprise that patrons are talking about them that way. We have ZOH chat facility. It's an open source tool. And normally assistant librarians while stationed at the helpdesk are expected to login and interact with users while sitting at the help desk using this chatting facility. Of course, some are using it and some are not but again maybe it's because of things to do with policy again because as long as they are not backed up by some policy, sometimes people are not really obligated to use them in a sense*

Pauline (NUST): *Our assistant librarians sit at the reference desk and they log in and that facility is open while there is a librarian sitting; there they go off to tea come back normally our duty roaster is such that in the morning at 9am-1pm there is someone 1pm to 4:30pm somebody takes over and the person who is in charge of the evening duty is supposed to be there from 4:30pm until the library closes. So according to our policy there should always be someone logged on whenever you go and sit at the reference desk, you log on. And there is always someone to respond to any queries online/social media that's the way I understand it but it's the purview of the IT technician to see whether people are logging in or not.*

Tendai (MSU): *What we are doing now is we have got a WhatsApp platform installed on a computer at the information desk and we respond to questions from 9am to 22:30 and the Facebook page as well. ASK-A-Librarian is on our website but to tell you the truth that platform is not being utilized to the full extent; maybe it's because the students don't know about that. I would not know but in our ILS we normally teach them about it. But it's being underutilized to be frank with you.*

We have a systems analyst and a research services librarian. Those two individuals are responsible. The research services librarian is responsible for e-resources and the systems analyst is responsible for the technical bid. So what happens is with the Facebook page the systems analyst he manages the page but the heads of sections they are allowed to respond we just use one username and password so when we are responding you would not know which faculty librarian is responding. What we normally do is we take turns to manage the information desk so whoever is there is responsible to respond to every WhatsApp query and on the Facebook page so I can't really say it's one person who is responsible for the management of the social media platforms, but we rotate.

Marketing and advocacy skills

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Based on findings from the questionnaires, some patrons from all universities seemed not to know about the online reference platforms. A follow-up question was asked in this regard and it required librarians to state ways in which they advertised their online reference platforms. Librarians' perceptions are presented below:

Ndaba (LSU): *The first thing to say is that the student/lecturer attitude of a library in Zimbabwe is different from other countries, in most cases students only come to the library when they really have to. And we realized that the whole semester these two floors of the library will be empty, one or two people, but just a month before exams you wouldn't find any space to sit. So that's why I am saying they use the library when they really have to, we now open even on weekends Saturdays and Sundays and they will be full. You would have to practically drag them out of the library when we have to close, see what I mean that's the first thing that really attributes to the fact that they don't know much about the library. We went to the direction of having marketing and advocacy, advocacy being the effort that we put to the top management then marketing we market to the users as it were and we have come up with several strategies to try to market the*

resources and we have e.g. done OA week celebrations; people come and lecturers they do come and its surprising that most of them say they don't know about the resources. Faculty librarians sit on Faculty boards, they sit also on departmental boards, sometimes if there is a need and I sit on research boards, I sit on computer committee and publications committee. See all those information and research related committees I sit on and being an open-minded person, my boss sits on the bigger committees like senate but we speak the same language throughout.

Pauline (NUST): *We really depend on our assistant librarians because they are the liaison officers for us they attend faculty boards and we also have the library committee where faculty members are coming in and we talked to them about it, so it's up to the faculty representatives to go and talk to their colleagues because by right, according to the university regulation, if I attend a meeting representing the library I will go back and report, for instance I will report to our management meeting about whatever transpired in that meeting if there is anything that relates to the library. That's the way it's supposed to work but our Faculty librarians are our liaison officers because they attend the faculty board meetings and whenever a faculty has a problem they are able to phone that person and talk to them and make sure that whatever they require is attended to and that person will then report to the sub-librarian and the sub librarian will report to management. But if it's something urgent, if there is a resource that they want, we encourage them to tell us about the resources they want. The ZULC actually purchases the e-resources and we try and find common ground if we are looking at sciences we consult the other members and see how many members would like to get that resource, so we pay for it as a group but if I have a resource that the other members are not really interested in I can purchase that resource using the facility but you purchase an individual. Our staff members are aware that they can actually tell us about the resources that they want and we can purchase them through the ZULC but for a particular library. If they have any queries we encourage them to communicate with our faculty librarians. Faculty librarians are the main link between the library and the faculty.*

Tendai (MSU): *Social media right now we have Facebook, we are using it to market our e-resources and the library services in general. The core purpose of having that Facebook is to market our e-resources because if you are to look at the way we are moving as libraries we are trying to have sort of a hybrid service whereby we are using the traditional i.e. the hardcopy materials as well as the e-resources and services in general and we are also using that platform to have some sort of feedback from our clients as to how we are faring in terms of service provision.*

Tanaka (MSU): *For students basically our first years they have a compulsory module for IT and information literacy skills the other part which is taken by the library staff and in that module that's where everything concerning the library is highlighted to the students; we catch them as they come and throughout their years in university we hold refresher courses to keep them updated with what is happening at the library. For lecturers all this is posted on the staff portal so they have the information there. Students also have the information in their e-learning accounts because we post on our e-learning as well.*

Nyasha (MSU): *We use various methods the traditional way is the brochure that spells out all library services, that is where our WhatsApp number is found. We have also posted that information on our library web page so it's a matter of somebody visiting our library website and finding the information so it also means we also need to market our library website so that our users pay frequent visits to the website. But we also have a Facebook account that we post important events notices, things like workshops and speeches anything event that happens at the library like OA week celebrations and the like.*

5.6.1.5. Collaborations (Faculty and Librarian) skills

The questionnaire results revealed that academics were willing to collaborate with librarians in terms of promoting awareness of library services through motivating students to use them, teaching IL in context and assessment, co-hosting workshops and conferences and collaborative publishing or co-authoring research whereas a combined average of 52% of librarians across the three universities were neutral about forging partnerships with campus units. Based on the difference in opinion between the librarians and lecturers, a follow-up interview question requested librarians to describe their relationship with academics. Specifically, the following sentiments were provided:

Ndaba (LSU): *Personally, the problem is when it comes to collaboration efforts academics are very much willing as long as they know they are going to benefit. The person who benefits more from a publication is the academic. As a librarian I will enjoy or write for fun but it's not for my day to day immediate livelihood. I get paid the same amount whether I publish or not but an academic has to publish for him to continue getting paid so it's different that's why you are finding this inclination to say they need to collaborate with librarians because they know that we can find information, they know that we can organize the paper in a proper manner. Some lecturers give us their research papers to help with referencing, presentation and citation. In terms of collaborative teaching, some lecturers allow us to teach ILS during their lesson slot. That's how we are surviving we are not part of the time-table we survive on understandings with individual lecturers.*

Pauline (NUST): *Am not sure if there is anything currently happening but am aware that at least one person has tried to collaborate and present a paper with an academic from the library school but she was dumped by the partner and she had to go and present this paper on her own. She was actually telling the story during a training workshop on how to present a conference paper. Yes, we would like to collaborate but we have had a nasty experience where she was working with somebody and they did the abstract together and the other person withdrew and she had to do the paper on her own. An attempt has been made and it had disastrous results.*

Lindelwe (LSU): *I think one disadvantage that we have is in as much as they would want to collaborate with the library and work together the kind of service that we are*

offering is a service whereby faculty has to look for me in the library I am not embedded in the faculty. I don't have a schedule to say I am at Faculty work station there. Students have come and looked for me. I contact the lecturer and he gives me a slot on their teaching schedules. In terms of research there are two lecturers that I have been working with but unfortunately issues of time.

There is not much of faculty-librarian collaboration because the faculty tends to distance themselves from the librarians. A few individuals will always associate and interact with the librarian but most of them they think they can do it themselves but a few maintain a relation with the library

Terrence (NUST): *One thing for sure is that we as librarians we believe it's our job to teach ILS. Unfortunately, we do not teach ILS formally and we have failed to collaborate with lecturers, but in terms of partnering with academics in research yes I would like to do that but maybe I personally think I have tried to collaborate with one or two people but I feel maybe some of us are not doing enough to engage them to really work together much more seriously. It's really a possibility in fact they like it but also feel that at times they might also want to take advantage because if you are collaborating with someone they want you to do all the donkey work and they just append their signature, but at the end of the day we also want it to be a fair game we always want you to bring in the other half and the librarian provides the other half.*

Sometimes it's hard to connect because there is no support from lecturers. It can be disheartening at times because if you want to teach academics ILS about e.g. accessing e-books they say they are busy we don't have time for that. Generally, faculties don't have high regard for librarians so at the end of the day the kind of relationship that we have is strained. I think maybe it has to do with policy that there is no policy to guide relationships between the librarian and faculty so sometimes there is no obligation on that part of the faculty to take you seriously or to take you on board for you to do what you want within the faculty. But we do try to engage them especially with book acquisitions, past exam papers and research projects but there is no 100% cooperation on their part. Of course, we do have one or two requests to say come and teach our students ILS.

Tendai (MSU): *With our lecturers it's very hard to sit down and try to forge partnerships because they don't see us as people who can have an impact when it comes to supporting their teaching but I wouldn't want to paint the whole divide with the same paint. Because there are some other individuals though a few who are willing to get into partnership with us. But in terms of writing papers to tell the truth we haven't received requests from lecturers to say that they want to write papers with us and so forth. I know we are supposed to be writing papers with people from history because we can talk of indigenous knowledge systems and people from archaeology because we talk about records management and so forth but we haven't received some requests from those individuals.*

Right now, we are not functioning as faculty librarians as it should be because we are supposed to be attending faculty board meetings but at the moment to tell the truth we are not attending those faculty board meetings. I think it's not our problem but the faculty administrators they are not communicating with librarians to say we have a meeting on

this date because you can't just attend a meeting to which you have not been invited. When we liaise with faculties we only do that when we want some wish list from lecturers what books they require to be purchased by the library. That's the only time we interact, so we don't really have strong links.

Nyasha (MSU): *we teach the ILS module together with faculty. In terms of writing papers, I think we need to find common themes or research areas that will enable librarians and academics to collaborate especially in writing papers or conducting research. So far there hasn't been any collaboration in terms of research publications.*

We do have faculty librarians here but the relationship that is there is not really concrete in terms between librarian and faculty. The relationship that's there is between faculty and students, for example I teach ILS in my faculty. But that is not the ideal situation that we should be having because as faculty librarians we should be going out to the faculty asking them their needs and problems with the library and vice-versa. But we do have faculty representatives from each faculty who represent the library and those who represents the faculties in the library committee so that is the relationship that we have.

5.6.1.6. Research impact assessment skills using altmetrics

The findings from the librarian questionnaire showed that librarians were using social media for communicating with users but they were neutral about using altmetrics to assess research impact for their academics. A follow-up interview question asked librarians whether they were familiar with altmetrics and if they use these metrics for assessing their academics' research or submit such kind of metrics to the research office. The librarians' responses exposed that in Zimbabwe, altmetrics was a new concept which has not gained much popularity amongst academic libraries since most of them maintained that they were not familiar with the concept. But NUST librarians are knowledgeable about the concept because they had recently hosted a workshop where an invited guest presented about altmetrics. All three libraries usually compiled statistics on e-resources usage and at MSU, used journal impact factors to make recommendations to lecturers on the most suitable journal to publish their works. See for example the responses below:

Ndaba (LSU): *I will give you statistics of the electronic resources we really use say for a platform like Emerald and JSTOR we really would want to know what the user demands on particular databases. But now you are talking about altmetrics. These are statistics on research impact assessment but here in Zimbabwe you go out there and ask who has a Twitter account and is trending you find a few or non. You would have to realize that Zimbabwe is still behind and that social media is not so prevalent. When I was doing my research, I discovered that access to the Internet for you to get bundles for your smartphone you will have to pay for an arm and a leg. That's why you see bundles that are compartmentalized for WhatsApp, Facebook and Twitter so that one can choose to say am going to stick to this platform.*

Terence (NUST): *Yes, I'm familiar with alternative metrics. They work mostly via social media where you are looking at how many people are talking about a particular research and how many people are sharing it. But we haven't had any kind of demands from academics or the research office because we have been talking about it recently we were saying it can be a good thing for researchers to be aware that we also have these kinds of metrics that can help them see how they are doing in terms of their research impact other than using traditional measures such as h-index. We were discussing it but I don't think we have had requests of researchers saying can you try to implement this for us, I doubt if they are even aware of it.*

Nyasha (MSU): *Those are the usage statistics. Yes, I am. We haven't used that since it involves social media. What we use is the metrics for journal articles and research articles we normally use SCOPUS to check for impact factor for journals and their ranking then we also advise our lecturers and researchers the journals or publishers that they can approach in order to publish their research articles. Academics or the research office rarely request for personal articles' impact assessment. What they normally do they come here and ask for the right journals or the appropriate journals in which to publish so we have got a number of indices like the SCOPUS, the Science Citation Index, the social science citation index and the IBSS. So, we normally give them those indexes and they have got clear signs because they are actually divided it tells you the impact factor, then the subject coverage, the publisher, the journal title and everything.*

5.6.1.7. Creating new knowledge (publishing) skills

A librarian acceded to the notion that librarians should be actively involved in conducting research and well exposed to what is happening internationally. Refer to the various insights provided below:

Terrence (NUST): *So, you also need to be involved in some kind of research as a librarian so that you can be able to appreciate this and myself that's what I am trying to do I recently attended a conference in the USA it was the International association of Science Information Services and Technology. It's an organisation that really is into data but I think it's quite a challenge for now because I did a study personally where I was looking at RDM practices of researchers at NUST mainly Applied Sciences and Faculty of Communication and the sentiments that I received is that people really do not want to share their data, why because they are afraid that maybe someone might be able to scrutinize their data or they feel someone might use their data to write publications and they are at a disadvantage or they might use their data in some other way that they do not like. Those are the kind of sentiments that I got from that particular research.*

Ndaba (LSU): *At LSU, it's not fair for the institution to say as a non-academic/librarian I have a concept and I want to write a paper with an academic when they get there they will change to say I can't be the main/principal author because my entitlements to the research boards funds are limited, in fact they are not there. See as a non-academic they would want academic people to be the ones that are entitled to the research money first then the research paper.*

As non-academics, librarians are not allowed to claim research funding, it's quite a queer kind of approach that's why you see librarians are really in a neutral e.g. there was an issue where one faculty librarian was supposed to present a paper at the university of UKZN, she was denied money even from the research board because we tried to say alright give her from the research board, they said no she is not entitled she is not an academic. You can't take money as a non-academic in fact you are employed and you are qualified for that job don't try and want to produce papers. It's quite a queer kind of approach. So that's why you see librarians being neutral I'm sure and many other universities we face almost the same situation. Academics its ok for them to think hugely and say we can collaborate with anyone but then the limitation now comes when academics are mixed with non-academic they will start being pinpointed you people are the ones that are supposed to do this and not these ones.

Pauline (NUST): *It's very difficult because as a library there are very few opportunities for funding at NUST for conferences. The tendency is that the librarian attends all international conferences and unless you are presenting a paper you can't attend. Even if you are presenting a paper the research board is the funder for such things. Our staff or non-academics are not catered for by the research board, we fall under non-academic. They are not catered for normally if somebody has to attend a conference we have to go to the registrar and ask from his training vault to support us but that training vault covers the whole university and given the constraints that are there right now maybe two or three people in the university can be funded from that grant/budget. So, there are constraints in as far as funding is concerned. We don't have a source of funding unless you get a workshop that is fully funded the university gives you 10% to say at least have some money contingency fund like if you go to the USA they probably give you 300 dollars as contingency fund only if it's a fully funded workshop. Well our members have benefited from that where they can get a fully funded workshop thus not conferences but workshops. But international I don't know whether it's the structure of this university but international conferences are attended by the librarian and not any of the other members not even me. When she attends she has to come and implement that's the idea.*

Tanaka (MSU): *The Midlands State University does fund librarians to attend conferences. Currently we have two guys who are in Malawi attending a workshop on the thesis and dissertations for the IR this whole week they are out fully funded. Last year I attended the Association for Health Information and Libraries in Africa (AHILA) conference for medical librarians in Uganda and the institution funded everything.*

5.6.2. Academics' and students' needs and expectations

This section highlights services and resources that were demanded by library patrons at the three state universities in Zimbabwe. The library patrons' demands were linked to research support requirements. Academics and students who answered the questionnaire indicated that they required RDM, equipment loan, software provision, new library spaces and e-links to research funding. These services and resources are not currently offered at any of the three university

libraries. A follow-up interview question required librarians to provide their view on the role of the library in providing these resources/ services.

5.6.2.1. Research Data Management (RDM)

A scan of library websites showed that none of the three libraries has links to RDM services. See comments made by librarians below:

Nyasha (MSU): *I have enquiries regarding to SPSS that is the one that I have had quite a significant number of enquiries. I know of the concept of RDM I normally read widely about LIS and I have some material with me but we have not yet implemented it. It's only that the concept is rather new here in Zimbabwe as a whole but in other developed countries it's something that they have been doing all along.*

RDM is quite a new concept in Zimbabwe but I think it needs to be taken up and get rolled out. But I think also our researchers do not know about this. I think it's a matter of first of all teaching them what it is and also teaching other librarians so that if the lecturers come and ask, our staff will be able to confidently answer what RDM is all about.

Terence (NUST): *I believe this is an opportunity for librarians to expand services that they are currently giving to their user community for particular researchers and it's also an opportunity for them to upgrade their skills so that they can be able to operate in this environment where they get to deliver research data management. Because in terms of RDM services what it means is that the librarian really needs to be familiar with the whole process of research so that they can be able to assist researchers, so what it means is librarians themselves need to be good researchers. I feel it's an opportunity for us to prove to the academics that we have a role to play in terms of helping them with managing their data. We are there to help them for example coming up with data management plans (DMPs), some funders who are now requiring researchers to do data management plans as part of their research at proposal stage. So I believe that librarians should be in a position to assist researchers in terms of best data management practice, how to draw up a DMP and how to carry out the specifics of managing their data, for example version control, data gathering, documentation to teach researchers about some of these things it's an opportunity that is there that we really need to fully exploit as librarians but for now very few librarians are familiar with some of these things because maybe they are not really keeping pace with what is happening out there. So, it's going to be hard work for us to try and convince the researcher that it will be good for you to make known your research data. There are so many advantages of doing that. At the end of the day science is going to progress which is what research is all about, sharing.*

Ndaba (LSU): *The data sets and the maps that researchers collect and the raw data sheets that they create when they are in the field. They will never give you that. I tried to talk to them at some point. I have been here for quite some time. Every one of those services that you are talking about I started them myself here from IR. Do you know that, for example, talking about research papers academics at LSU have been refusing with their papers. I can even show you the minutes of the library committee meeting then you*

will see that I'm not lying until we had to engage the Pro Vice Chancellor. I was a subject librarian at some point until we had to ask the Pro Vice Chancellor to write an email to everyone to say that if you are not going to submit your papers to the library for IR we are not going to consider any paper that will be coming from nowhere for promotion. After they heard about promotion then they started responding positively. So then if somebody cannot give you the final product (a research paper) that has been published in a particular journal, can they give you a data set, they can never. I mean can you give someone this recording if you can't give them your PhD document.

Personally, I'm for RDM. We are still fighting the battle of articles coming to the institutional repository really do you think I can escalate the fight to the fight of data sets and win while am still battling with IR. So, we still have to grasp it ourselves probably we will visit a university or two in South Africa probably Stellenbosch or CPUT and get to understand how they do it. We have to first convince ourselves and the team then we start propagating it to everybody else and say this works like the open access movement. We had to really embrace it ourselves and move with it then we started moving it to the lecturers making them understand.

Lindelwe (LSU): *I think one other thing that really affects or impedes our operations is that most of the things that are adopted and done here are ZULC oriented so if really no one at ZULC has started doing we can't take initiative to say we need to take up this and start doing this. We will see maybe if the University of Zimbabwe starts it and MSU and NUST. So, it's all about the influence of other affiliated institutions. If ZULC doesn't do it then we won't adopt it. So far, the strategic plans for the next two or four years there is nothing based on that. And also taking from the issue of IL since 2010 efforts to try and formalize it have been knocking so something hasn't happened for the past 7 years that's why am saying RDM I don't see that happening.*

5.6.2.2. Equipment loan

Due to the poor economic situation, all librarians stressed that their institutions had limited funding which does not allow them to purchase equipment for loaning to their users. Academic librarians further opined that it was the role of the library to offer equipment and that under normal circumstances this would add more resources for their clientele. One librarian at LSU believed that loaning equipment was the role of the research office because the library is a non-academic department. At MSU, they had in the past loaned Kindle devices for distance learners but that has since stopped after a library was set up for those patrons.

Terrence (NUST): *You know what, it will be a good thing but currently our staff members do not have good machines to work with, their desktops are not as reliable, sometimes they freeze. So, I don't think the economic situation right now allows us to buy some laptops to loan out to students whilst our own staff do not have anything to use which is effectively deficient. It's a good thing to have, I mean I travelled recently outside the country I appreciated some of the things they do. Yes, they loan out laptops in fact their libraries are so big that you can just walk in and use the library regardless of the*

fact that you are not a member of the university as long as you reside within the community and you have proof of ID that you stay at number what so ever; you just freely walk into the library and use WiFi, you can borrow a book even if you are not a member of the university itself. But the situation here is different. We have limited resources. We are facing challenges so really to be able to provide such kind of nice services for now I think it's quite impossible although we would like to do those things in the future if things stabilize in the country but for now we are not thinking along those lines.

Lindelwe (LSU): *The research office is the one that focuses on instituting most of these resources, issues of statistical packages, and loaning of equipment that's more academic rather than non-academic so research office could be coordinating that for academics and students.*

Tendai (MSU): *With regards to that I think I will keep referring you to the issue of this comatose economy, we are facing some challenges. If you are to look at our ILS programme I think in the library we have about eight/ nine individuals who are teaching the ILS programme but we are supposed to be having laptops and projectors but right now we are sharing two projectors and two laptops within the library. So, you can just imagine we as librarians are sharing those two projectors and two laptops, we can't manage to loan those to our students who are close to 24 000, it's very difficult. It is the role of the library to loan equipment, under normal circumstances we are supposed to be doing that but we can't because we don't have the resources.*

Nyasha (MSU): *Loaning laptops, we do not do that, what we tried to do in the past was to loan the Kindle readers, those are the ones that we used to loan. We have got a multi campus approach dotted around the country so we used to loan them mostly to our students who are in Harare because in the past we did not have a library in Harare but now we have one in Harare which caters for students who are based in Harare. So, for the Kindles we are no-longer loaning those. Because they can now access the library and they have all the services that are available here in the main library.*

5.6.2.3. Research Software provision

University libraries were offering referencing management software such as Mendeley but not statistical packages such as SPSS because they believed that this should be done by the research office or IT Department. See some of the librarians' perceptions below:

Ndaba (LSU): *We have a department called the learning services but It's an entity I sit in that committee, that one is meant to augment all departments with several software because I remember even in the computer committee we agreed that because the university doesn't have enough money we are going to go the direction of open source software. SPSS, I know it has been procured but now maybe it's just an issue of them not knowing who to talk to because we have stuff on GIS and SPSS which are really universal kind of approach software that are used by many. Then we have people in accounting who would want to use PASTEL in their learning. We have actually agreed to go open direction for instruction purposes because PASTEL is expensive and for us to be*

subscribing US\$100 000 or more every year it's too much, so if we go the direction of open source it's the best e.g. us as the library we took up open source Dspace for our IR, COWA for our management system because millennium NUST is paying 30 000/26 000 per year for subscribing to that but we just had to embrace open access. So that one is being emphasized university wide, through our e-learning platform we are going to embrace open access.

Lindelwe (LSU): *When it comes to issues like managing their research, we as the library have a software that is able to manage one starter and its open access MENDELEY and we introduced it to them, we have introduced and trained all of them. SPSS the library cannot provide that we need a viable research office to institute that research office should coordinate that I think with some universities like at Solusi University the research office does that, even their students' projects some are even housed there. One copy for the research office, for the library and for the department.*

Pauline (NUST): *SPSS should be available because my son used it in 2014. That's what he used for his project and it's not in the library. I think it's with ICTs because that is open for everybody. I'm not aware of the software that the university has but the software is supplied by ICTS even if we want new software we go through ICTs, it's not the library that provides it. But the university has got faculty labs the people that work in those labs are the one they should approach to say this is the software we need then they apply as a department SPSS is available as it is.*

Tendai (MSU): *I haven't done any research to see if other university libraries offer such software but at the moment in our library we are not offering those software. Maybe the ITCS department should be offering those. What I can say is that we have got some books on SPSS and Pastel but in terms of giving the packages I don't think it's our mandate because we don't have the knowledge so it's very difficult for us to have the software, giving it to students and so forth when we don't know what we are giving them. I think it will be a disservice to our students but maybe if they are coming from departments or maybe ITCS department.*

5.6.2.4. New library Spaces

A website content analysis revealed that information on new library spaces was not available. Librarians agreed that their current library buildings were old and had limited space. See opinions provided below:

Ndaba (LSU): *virtual spaces-- now what we have done the website has been removed from being manned by the library and have given it to the university web designer. First, I wanted the library website to be the same as the university's because you will realise that you open the library website you realise that it's like a different institution it has to move with it the colouring, the presentation and the standards. Another thing being it's going to be ok for us to just take advice to look at other university web pages and say we want this and we should not worry ourselves how it will be done. Another thing is of us being able to bring the content on the table we just focus on changing the content and*

updating the content each and every day without worrying about the graphics and the presentation. Another web designer will be having a different view, an outsider view, of how the website should look like it's not compromised so that's why we believe that the web designer might be really able to assist us and we are still working on giving him the data, more information to try to populate that website.

Nyasha (MSU): *one way that we went around that problem of spaces was to invest in a very big electronic library. I think in Zimbabwe we are number one in providing electronic resources that include e-books (e.g. E-book central, Proquest central, Safari business books online, Routledge online, Ebscohost, Project muse e-books, Springer link e-books, etc.) and e-journals. We do subscribe to those and we provide around the clock service. We have built quite a number of e-resource centres that are networked with computers, so if someone is unable to come to the library they can always use those electronic resource centres and access the information that they want. That is one way that we tried to go around the problem of spaces. But in the mean time we have got two huge projects for building new libraries. We have got one library that will be based at the graduate school of business leadership, it's a very big and modern library and the other one which will be here on campus and it is very big and modern. Everything the petitioning has been worked out, it's a matter of the project just lifting off the ground and I think the problem of spaces will be dealt with because as you can see this is a very old and archaic building which was built somewhere around 1965 so when it was inherited we were only able to expand the wing for the e-resource area and the book stacks the Eastern wing and the Western wing.*

Nigel (NUST): *If you look at NUST our library here there is not much space to talk about, no space for reading commons because the library is limited. If we are to move to campus to that bigger library, I think the spaces were actually factored in on the design of the library to include national trends but it goes again to the issue of funds as long if there is no money nothing moves, the unfinished library building has been around for years and it is still at the very same stage so as long as you don't have money even if you have dreams those dreams cannot be fulfilled because there is no funding. So yes, we want to have things that is happening in South Africa or Europe but we can't do it because there is no money. The money that the university gets from students they use it to run the university operations and then they are left with nothing to contribute towards development, yet in other universities the funds that students pay is supposed to go towards infrastructural development for the benefit of those students but it's not the case in Zimbabwe because of our economic challenges.*

5.6.2.5. E-links to research funding

All three libraries do not have links on their website related to research funding. See specific views below:

Thandiwe (LSU): *For lecturers I can say we have provided somethings, for my faculty I have once done that. It was funds from Author Aid through International Network for the Availability of Scientific Publications (INASP). I actually emailed those links to the chairperson but I don't think they responded positively because maybe sometimes the*

issue is the funding will be on a specific field and not relevant to others. They don't bother to send to the whole department so it's the lack of communication among themselves. We may not be doing much but what we discover or what we find out we also involve them. Because I remember as well there was once a sponsor through OA where they would write papers about OA, what it is but they never, not one, I don't remember anyone writing any paper responding to that but I had informed them that there is funding from OA to write a brief story on OA, what you know about OA and we just gave them highlights on what they are supposed to do but they seem not to be interested. At the end of the day although you don't give up but at times it is discouraging to see opportunities for our lecturers but they don't respond, they prefer to use their own platforms that they know not the ones that we provide. They don't even try if I can say because I don't remember anyone responding to say I have applied or I got funding from the organisation that you forwarded but they just kept quiet.

Pauline (NUST): *We do have a department called research and innovation these things are published by that department. It doesn't go to students but it does go to lecturers. Each Faculty is represented in that committee. It meets every month unlike most of the committees at the university they meet quarterly. It meets every month and each faculty is represented and the director is somebody who is very keen. He sends out a lot of information. They have a newsletter that they also put out. As I'm talking we are preparing for a research day at the end of July. We normally participate by taking posters, try and explain in between times to people what we do, that's how we participate in there but that's the purview of the RIO, but that doesn't stop us from finding the information. It's something that we can look into and probably do. But certainly, that department deals with lecturers and postgraduate students should be covered because I suppose we can put it this way. They will be covered if they are working within the university but for students who are working for other organisations they are not covered. What we had before was student tutors. Most of them had a contract for two years. They come in and do their masters and while they are doing that they are tutors. The government has decided to phase those out; they are saying student tutors should be employed by the university and not by the government and right now the university has no resources to pay them because we don't have the grants that we used to get.*

5.6.3. Links between the research office and the library

A follow-up interview question was asked to find out about the relationship between the library and their research offices. It became apparent that all three libraries had different names attached to their research offices e.g. at NUST, it's called the Research and Innovation Office (RIO) whereas at LSU, it is the Research Information Services Office (RISO) and at MSU, its known as the Research and Postgraduate Office (RPO). Refer to comments made by librarians below:

Lindelwe (LSU): *There is a link with the Research Information Services Office (RISO) at LSU, as far as it is I can't say much because they deal with the bigger bosses from my level. There isn't much of communication we are not involved with the RISO department but from the librarian side, we once held a workshop whereby we approached faculties*

to teach them how to access resources from the databases that we have and we also taught them how to use Mendeley reference manager.

Terrence (NUST): *Well yes, we do have some kind of relationship that I think I personally was trying to build because when the IR was started there was realization that we really need to work hand in hand with the research and innovation office because we wanted to create a policy such that when one does research and they are obligated to submit their research paper and we should be able to upload it in our IR, and as long as it has been funded by the Research and Innovation Office (RIO). So, the RIO at NUST is there to enforce that kind of a policy so that's the kind of relationship that we have now. Although we are trying to build it further to include RDM.*

We do host workshops for academics, in fact what is supposed to happen is we host them on a regular basis but currently this hasn't been happening. But at times we also take advantage of some international events e.g. OA week if we get some funding we also get to organize some workshops showcasing some of the products that we have in our IR promoting OA. We have tried to do that with Mendeley but it has been a long while but we did try it out even with some postgraduates we really tried to organize some workshops but this year it didn't happen. Because I personally have used Mendeley for quite some time and am also a Mendeley advisor on my profile.

Nyasha (MSU): *Mostly we work hand in hand we complement each other because we manage the IR from the library side but the Research and Postgraduate Office at MSU provides funding for our researchers to conduct their researches and when they write their papers we communicate with the research office normally every week so that they send us soft copies of those researches whether research papers/workshops papers or research articles in journals that have been funded by the university so that we upload that on to the IR. All research comes through the research office not from individuals but of course individuals may bring but what we know is that when it comes through the research office it means that particular research article/conference paper has been sponsored by the university. And also, when we do trainings for staff workshops like the recent workshop which took place on Tuesday, we worked with the research office to mobilize resources and also to invite participants so that they come in their numbers to ensure everyone benefits at the end.*

5.6.4. Keeping up with new trends

This sub-section presents findings on keeping up with current trends and these include technological improvements (Internet and electricity), gathering of new skills and competencies (workshops, conferences and qualifications upgrading).

5.6.4.1. Technological changes (improved Internet and power outages)

The questionnaire analysis showed that more than 70% of the librarians mentioned that ineffective Internet and constant outages were not barriers in following new trends. In this regard, a follow-up interview question requested them to elaborate on this opinion. See comments below:

Ndaba (LSU): *We no longer have those. Our Internet is fairly fine compared to Zimbabwean standards. I think our bandwidth has been improved even at the main campus in Lupane we are going the direction of having another backup Internet Service Provider (ISP) to complement, to say like if Telone is down you can switch on to Liquid WiFi (Econet service provide) without a problem but power is also no longer a problem because, for example, here we have a generator. When the power goes the generator starts so we are good we are always connected. It has been a lingering problem, I remember when I came in here years back it was hard to want to open a document to have to click and go and come back we use to connect through antennas connect our different sides but when fibre optic came in we just had to go the fibre route and we are fine.*

Terrence (NUST): *As a library we are at an advantage because we are in town and mainly power outages they do happen not to a larger extent like at campus, for example, so because we are in the central business district (CBD), it's kind of a benefit in that sense most of the time we are always up but, in the event that we are down, we have a generator, a very big one it can provide electricity for this whole block. Most of the time we are up unless if it's a technical fault at Telone or Powertel. Of course, the bandwidth it's a slow connection but I think we can do with it.*

Pauline (NUST): *We have a generator outside which is run whenever electricity goes off and it can run for eight hours with the Internet. Unfortunately, it's not our responsibility it's the responsibility of ICTS. I think the limitations its more of funding the university used to get a grant from the government for operations now we rely solely on tuition fees. Each student pays about 300 dollars. We have tried to put an IT levy but we need computers, we need accessories, that fund is 10 US dollars per student, it's not enough. We have increased our bandwidth in the last quarter. They put two extra WiFi points in the basement as well as the medical library including at the accommodation or medical students but it's not enough we are restricted by the funding. We also use two service providers. They have their own problems so really, we are not in control. We depend on ICTS and also, they depend on availability of funding. The impression we have been given is that it has improved. We talk about it in our weekly management meeting and the impression that we were given is that it's not enough but it has improved.*

Tanaka (MSU): *For Internet services we used to have one service provider which is Powertel and they were facing problems and we had to have backup and they also introduced liquid which is provided by Econet. When Powertel is down liquid is up most of the time so there are no problems there. We don't have times where we say our Internet is down. For power outages we have generators in all campuses when electricity goes the generators start.*

Tendai (MSU): *What we have done with the library, we have got a generator which services the whole campus. When we have some power outages the generator*

automatically starts running but we have realised that there are some instances whereby the generator won't be functioning, in instances where there is no diesel, so what we have done is, we bought some solar lamps when we have got some power outages we use those and we had acquired an Uninterrupted Power Supply (UPS) but right now it's not functioning and it hasn't been repaired but when it was functioning at times when we had some power outages you wouldn't even realise that is if it would be in the afternoon because the UPS only functions with the machines but not the lighting. So, if it's in the afternoon students will be coming to the library to borrow and return books but without the UPS it means no client can borrow books but they can return a book. Internet connectivity the librarian requested that we have WiFi which is specifically for the library building. That WiFi it requires our students to login it's not a hotspot. It means if you come to the library you have to login but we have got some designated areas which are dotted around campus if you go there are WiFi hotspots where you can access the WiFi without logging in but for this building you have to login. We are using ADSL and we are also using the WiFi, that's a strategy that has been put in place to improve with regards to Internet connection.

5.6.4.2. Gathering of new skills and competencies

Some librarians had very inquisitive minds because they located opportunities rather than languish within the limitations of non-available funds for conference attending. See views below:

Ndaba (LSU): *In terms of the Zimbabwean standards I would want to isolate us and not want to lump us with the other colleagues that we have in the region. I think we are keeping up in our own way and our standard as Zimbabweans because with the ZULC we have those platforms where people get to interact, we used to have workshops on each and every current skill. I attended a lot of workshops like the Author Aid, IL, IR advocacy and marketing because those are skills that one would want to develop each and every time as they will be brought by someone foreign so now it takes us having to look outside or when we attend conferences and see what other people are doing and be able to in our own context with our own limited resources and be able to scrape something out of it and do something about it but like I'm saying the issue of RDM is an issue that really is taking toll now and it's a pity because datasets are owned by somebody else and the issue now is the issue of conviction having to convince those lecturers that its fine don't worry your data will be safe give it to me let me keep it for you.*

Lindelwe (LSU): *We have a workshop this week for RDA it's not on a regular basis. I think the challenge is that the institution doesn't fund librarians to present papers. If I have done a paper I'm not funded to go and present at a conference. The institution doesn't have a budget for library to go present papers or attend workshops they consider us as non-academic support staff. So if you are to do that, it will have to be self-funded, that's one challenge. I had a paper that I wanted to present at UKZN last year. I had to let it fall off because last minute I was told there was no funding. I have also been engaging on online courses and Webinars just to keep up and networking with other faculty librarians in my area that's what keeps me updated and also thinking out of the box.*

Nicole (NUST): *On a yearly basis at NUST we have training sessions like we take two or three days whereby we come up with trending topics. Maybe I have my group as an assistant librarian and a few Senior Library Assistants but whom I will be the group leader go through a topic and come up with a presentation and present to other librarians within the library, that way we are able to keep up. Training sessions for faculty librarians outside the library where a certain group goes like if it is for applied sciences I'm the one who goes. If it's for IT a faculty librarian who specializes in that area goes but trainings yearly we get something so that we are kept abreast with what is happening through our own personal research. If you hear about something then you get to read on your own, you learn a lot and workshops. The library management should bring topics that they were trained in in workshops and we take it from there. What they have learnt is supposed to be cascaded through that training. Whatever they have learnt they bring such topics so that we can put them to use through group presentations.*

Terrence (NUST): *Normally I subscribe to a number of professional mailing lists which at times gives a clue? of what is happening out there. The mailing lists for me I think they are the key sources of information. You get to know what is being discussed currently through those mailing lists, I think they are cheap sources of information and I also get to attend some conferences. Sometimes I try to work hard to initiate my own career development by trying to apply for funding to attend these conferences and also to attend some training workshops. I make an effort to apply like this coming week I'm travelling to Switzerland for about two weeks. There is a training that is happening on digital libraries but I also have an opportunity to attend some conferences World Forum on Information Society which is happening in Switzerland. I'm also going to be attending as part of the training workshop and it's a fully funded thing which is not funded by NUST, it's only funded by the European Organisation in Nuclear research (SAN); in fact, I attended the first workshop in Ghana then they only selected six this time to visit Switzerland and I am one of the chosen six so I'm going there and two weeks ago I was in the USA. It wasn't NUST money it was also funded from outside. So, I make an effort to take advantage of these free opportunities that come up. Because if you wait for NUST for sure you are not going to get a thing because there is no money.*

Tendai (LSU): *Personally, I will tell one thing. I'm the Chairperson of the ZIMLA the midlands province so we normally go for some workshops and so forth. Right now, I have been preparing for the conference which is being held in the midlands province at FEMA which starts on Tuesday but on Monday we are here for the school librarians' conference, the big conference. So that experience is giving me what I can call some exposure as to what we are having in the current librarians by virtue of being the chairperson for the ZIMLA. I was co-opted into the in full first GIBF. There are some two gentlemen who have started something like the concept is almost the same as that of ZIBF Zimbabwean National Book Fair. In Gweru they have come up with the Gweru International Book Festival (GIBF) so I was co-opted as the board secretary and the provincial chairperson steering committee, so that exposure, the preparation that I'm involved in preparing the GIBF proceedings, it will be held in September I think at the Town House. It has given me the exposure that I so much want at the field and then here at the MSU I was sent for a workshop, the RDA which was hosted by the LSU. They were teaching us about the RDA and they were telling us about its advantages over the AACR2 and disadvantages. We have to take on board and leave the AACR2. When I spoke to the research services*

librarian he was saying that the librarian was of the idea that we either send two people to South Africa for the RDA training as well or we could ask those guys from SA to come and train people here on campus. That is a training in Resource Discovery and Access which is a new set of instructions in cataloguing. At the moment we are using AACR2 but there is a new system called RDA and then about four weeks back we also had a training in RDA a local one in Bulawayo. Those are some of the things that are helping to be abreast with current trends in our profession.

5.6.5. Librarians' attitudes towards demands of the 21st century academic library

The findings showed that librarians sometimes lose enthusiasm to implement new concepts because of lack of support from the management who in turn have no control over the country's economic situation. Refer to the views below:

Lindelwe (LSU): *In as much as library management could have done something, but it goes back to question that you said before to say that individuals have paper qualification without actual skills. Keeping up with trends also depends on the organisational culture, thus 'if you are not doing something I also won't do it'. But another issue is that, unfortunately keeping up with trends becomes just for my own interest not for work operations such that when you try to host workshops, management will question to say 'when did you start doing this?' Then you get some red tape; it's not as wow as South Africa would make it.*

Terrence (NUST): *For some of these things you see if you do not have the support of management to do some of these things and management standing by you when you are trying to implement. If that support is not there sometimes your zeal to continue to work so hard is reduced because there are some things that you need some support of t in terms of mobilizing people to attend some of these sessions because you cannot do it at a lower level. You might need the librarian herself to also communicate with heads of sections trying to mobilize people to attend if that is not there at times you just say ok we just stop it at that but we try hard. Like me I try so many things here unfortunately at times you are demotivated.*

Nigel (NUST): *In fact, we have not even done that before where I sit down and try to search for funding for students. To me it's none of my business. I haven't done that because I mean it never came to my mind that there are students who might want funding. I only thought that being at NUST it means they getting money from their parents, how then do I go the extra mile to assist them to get funding for their studies. It's a good way of trying to assist students but it has never happened here at NUST Library where the library provides e-links to research funding. I don't know of other universities such as UZ or MSU.*

Nicole (NUST): *We take It, it's not our duty to teach IT skills, they do have lessons on campus. They should come for ILS after they have gone through the digital literacy on campus. Because it really doesn't make sense to start with information literacy when you don't even know how to operate a computer. At least if you are familiar with a computer when someone puts a projector it makes sense maybe the timing may not be proper.*

In summary for section 5.6, universities in Zimbabwe had for a long time considered their employees' qualifications ahead of skills when promoting or appointing an individual hence the reason why librarians were busy upgrading their qualifications continuously. NUST and LSU librarians had little or no financial support from their institutions because the libraries are administrative departments but at MSU the institution does offer research funding to librarians because the library is an academic department. The university consortium (ZULC) and the council for higher education (ZIMCHE) gave approval that librarians should teach ILS. NUST and LSU librarians were teaching ILS informally because they are not scheduled to teach by their institutions. At MSU Library, teaching ILS was formal and it was delivered on a face to face basis. At all three libraries the assistant librarians took turns to service the reference desk and they were expected to log on to all online reference platforms. At MSU Library, they were offering online reference service using WhatsApp and Facebook whereas NUST and LSU librarians had not fully appropriated social media for reference service. Academic librarians were of the view that research software, e-links to research funding and equipment loan should be the purview of the research and/IT departments of all institutions. Librarians were busy building big libraries which could accommodate all the modern spaces required by the 21st century library patron.

5.7. Chapter Summary



All three library websites had no links to new library spaces, RDM, collaborations between the library and faculty, and latest librarians' skills and competencies. Academics describe the 21st century academic library as that which is shaped by continuous changes in higher education which include globalization, social and economic transformation, IT, ICTs, mobile technologies, knowledge, Generation X and Z, and e-learning. In Zimbabwe, there is greater demand for qualifications rather than actual skills and to complement this ZIMCHE has invested in assisting academics to attain PhDs. Zimbabwean academics and students classified resources offered by their library as moderate. Lecturers mostly used e-resources, print resources and the flexible working spaces in their library in support of teaching, learning and research needs. Notably, lecturers at all three universities agreed that the library solicits their views with regards to the resources offered while all students at all three universities were never consulted with regards to services and resources offered by the library. Lecturers from all three universities highlighted that the library mainly used e-mail and face-to-face communication. All students at that the library

used social media and face to face communication modes. Lecturers at three institutions used data projectors and blended classrooms. LSU and NUST academics used mobile technologies while at MSU they used the e-learning platform. Academics and students at MSU, rated technology provision at their library high/very high. NUST and LSU academics and students mentioned that the technology provision was moderate. NUST and LSU lecturers rated their librarians' skills and competencies high and at MSU, lecturers rated librarians' skills and competencies high/very high. Students rated their librarians' knowledge and skills moderate. All three libraries complemented their research offices through depositing and maintaining research produced by their academic communities and co-hosted workshops for their academics. Librarians had a positive attitude towards acquiring new skills and competencies and they achieved this through personally searching for conferences and workshops online. Academic libraries relied on other university libraries within the country when adopting new concepts because their services were ZULC oriented.



CHAPTER 6

DISCUSSION AND INTERPRETATION OF FINDINGS

6.1. Introduction

The key objective of this study was to investigate user needs and expectations of the 21st century academic library at three state universities in Zimbabwe. The study attempted to contribute to ongoing debates on the 21st century academic libraries within the ambit of patrons' needs and expectations as well as skills and competencies of a 21st century librarian in the African set up. In this research the objectives were achieved using the DOI theory and McKinsey 7S theory. This chapter interprets and discusses in detail the findings of the study. The detailed interpretation and discussion of findings is rooted in the objectives of the study and informed by the theoretical boundaries and related studies in Chapter Two. The chapter ends by presenting a brief overview of the findings of this study in a chart.

6.2. A brief summary of the objectives and research questions of the study

Here are the objectives and research questions that guided the study:

- To determine the 21st century information landscape for academic libraries worldwide from a literature review.
Research question: How have academic libraries across the globe embraced changes in the 21st century information environment?
- To examine the extent to which the 21st century information landscape has shaped the Zimbabwean academic library.
Research question: To what extent has the 21st century information landscape shaped the Zimbabwean academic library?
- To identify academic librarians' skills and competencies in the 21st century academic library.
Research question: To what degree are Zimbabwean academic librarians' skills and competencies meeting the requirements demanded by the modern academic library?
- To identify academic librarians' attitudes towards the demands of the academic library in the 21st century.
Research question: What are the Zimbabwean academic librarians' attitudes towards the changes in the 21st century academic library?

- To determine needs and expectations of students and academics of the academic library in the 21st century.

Research question: What are the needs and expectations of 21st century academic library users?

6.3. The 21st century changes in academic libraries across the globe

The first research question inquired, *how have academic libraries across the globe embraced technological changes?* This question is extensively covered and answered in the literature review (Chapter Two). This section gives a summary on 21st century changes in university libraries internationally.

Academic libraries across the world have found creative ways to support patrons through building technology spaces with some still struggling to frame new technology adoption policies (Rosa, 2016). Most academic libraries in developing countries are automated and have basic technological facilities (Nosakhere & Abdelwahid, 2014; Al-Fadhli, Corral & Cox, 2016). In African countries, university libraries are well-resourced compared to other types of libraries, therefore their patrons expect high quality services and resources (Loveday & Gattermann, 2013:169).

In an effort to meet their patrons' demands and expectations academic libraries have recently grown fond of gathering the views of their clientele using electronic catalogue technology. E-catalogues allow user comments, reviews, ratings, added subjects and keywords, which ensure user participation to library collections and services (Tait, Martzoukou & Reid, 2016). Online reading lists have been widely adopted by academic libraries as an effective means for creating, editing, personalizing, updating and integrating reading lists into online teaching and learning materials. E-reading lists connect students seamlessly with the reading resources related to their courses. Academic librarians are now expected to address the collaborative needs of lecturers for ordering books, as well as their training needs for managing and maintaining their OERs.

In the developed world academic libraries are currently offering virtual reality equipment, advanced digital editing software, 3D printers and 'Cut Rate digital signboards' which use large screen monitors, WiFi, and Google docs and this reduces poster printing and allows library staff to remotely update notifications (American Library Association (ALA), 2014; Horizon Report, 2017). University libraries are improving their functionality and services to ensure information

discovery via the social web. The penetration of altmetrics and research repositories is increasing rapidly. Social media platforms such as Twitter and Mendeley provide data (e.g. altmetrics) to expose precursor behaviours (Chabot, Bivens-Tatum, Coates, Kern, Leonard, Palazzolo, Tanji & Wang, 2016). The next section paints a picture of the current Zimbabwean modern academic library.

6.4. The extent to which the 21st century information landscape has shaped the Zimbabwean academic libraries

The second research question asked, *to what extent has the 21st century information landscape shaped the Zimbabwean academic library?*

To better understand changes in university libraries, unpacking the broader spectrum of change in higher education is crucial (Delaney & Bates, 2015). In this study, academics and librarians in Zimbabwe highlighted that the current higher education is influenced by technology. Academics emphasized that the Generation Y (born 1980-2000) and Generation Z students' exposure to information technology and global culture has resulted in demand for more post-modern ways of learning. However, Zimbabwean academics gave criticism that, although the shift towards online based learning is inevitable, they were concerned about two aspects: firstly, the poor student retention of learnt concepts, which result in the production of poorly skilled graduates and secondly, students manipulating technology sometimes better than their lecturers, thus intimidating academics.

In this respect, Allen (2014) comments that student retention should be regularly monitored amongst universities to ensure the production of high quality graduates. The literature (Kirkwood & Price, 2014; Jacob, Xiong & Ye, 2015; Thanaraj & Williams, 2016) warns that academics should make smart decisions when adopting technology for teaching because there is a big disparity between the perceived gains of educational technologies and students' outcomes. Forasmuch as technologies are yet to be proven effective compared to traditional classroom learning contexts, lecturers need to think carefully about when, why and how to deploy and use them (Cambridge International Examinations, 2015). In most cases technologies are deployed without sufficiently addressing the needs of both lecturers and students and this may result in non-use (Kumar & Daniel, 2016).

In Straumsheim, Jaschik and Lederman's (2015) study, faculty indicated a negative attitude towards virtual courses as they felt that they did not match the quality of face-to-face delivery. Some modern academics resist adopting new technology because it takes them out of their comfort zone, they feel intimidated by students' knowledge of technology because technology requires teachers to have a facilitator's role rather than a more directive/authoritative one (Bickham, Bradburn, Edwards, Fallon, Luke, Mossman & Ness (nd). On a lighter note, separate studies conducted by the Centre for Educational Research and Innovation (CERI) (2008), Granito and Chernobilsky (2012), the Horizon Report (2015) and Scott (2015) report that technology does not have negative effects on students' learning instead it helps improve their researching, investigating and synthesizing skills. Some students in the 21st century environment learn better and faster with the help of interactive media that incorporate images, graphics, videos and audio elements.

The two major outcries indicated by academics in this study, relating to "poor student retention" and "techno-savvy students intimidating lecturers" challenge librarians to fully embrace their ILS teaching role and concentrate on digital literacy skills training. Academic librarians in this study asserted that in the current higher education digital literacy skills have become important and librarians were expected to impart technological skills to their library patrons (lecturers and students). In Zimbabwe, digital literacy skills were taught by computer science department academics (IT professionals). A librarian indicated that "We take it is not our duty to teach IT skills, they do have lessons on campus. They should come for ILS after they have gone through the digital literacy on campus" (Nicole, NUST). And "Our first years have a compulsory module for IT and ILS which we share half-half with the Faculty of Science..." (Tanaka, MSU).

Librarians stated further that they were required to adopt the flipped classroom technique when delivering information literacy skills (ILS) programmes in the modern higher education environment. A flipped classroom model will ensure provision of online ILS tutorials that students view on their own and then using scheduled time in the library for students to work with librarians on developing research strategies and searching databases (Brown & Malenfant, 2015). The Horizon Report (2015) explained that the flipped classroom model is highly encouraged by the "bring your own device" (BYOD) concept. The BYOD refers to the practice of students bringing their personal laptops, tablets, smart phones or other mobile devices to class and capitalizing on the use of the Internet (Brown & Pallitt, 2015). In Zimbabwe, librarians utilized the BYOD to deal

with the issue of computer shortages amongst students and encouraged students to use WiFi, for example librarians explained that: "...we have a policy which we call "The bring your device policy" with ICTs where we are saying bring your device to the library we are going to connect you to the Internet. (Ndaba, LSU)", and "We conduct our lectures in the labs and some of the students will fail to get machines (computers). Those ones use their laptops or tablets, that's what we encourage" (Tanaka, MSU). As such, using the lens of DOI theory the BYOD was adopted because of its relative advantage, thus it is convenient and ensures satisfaction among library users and BYOD is compatible with the values, practices, experiences and requirements of librarians.

In the context of globalization and its effects, the higher education system is certainly challenged to refocus its thrust so that it is able to contribute meaningfully to the lives of citizens and the general society. King (2011) and Wegner (2008) attest that globalization is one of the major forces impacting and shaping higher education as it evolves to meet the challenges of the 21st century and this involves the process of integrating an international, intercultural, and global dimension into the functions (teaching, research and learning). Academics drew attention to the Zimbabwean higher education which is slowly becoming archaic and requires to be updated in order to conform to the current socio-economic environment. The Zimbabwean higher education is under reconstruction by upgrading academics to be effective in the future through the acquiring of PhDs and is focused more on qualifications than actual skills. Librarians further confirmed this "... The current university system is such that you cannot get to be promoted just because you have acquired some skills which are not backed up by any kind of paper qualification" (Terrence, NUST) and "...It's very tricky for us to consider skills ahead of qualifications because these are institutions for higher learning so the entry qualifications they will be looking at your academic qualifications and then maybe we go on to look at your own skills" (Tendai, MSU).

Current trends for research support in academic libraries are based on increasing focus on RDM which involves the process of publishing data and managing it throughout the research cycle, and increasing accessibility through OA of research content strengthened by creating IRs, facilitating self-archiving for researchers, and rise of new forms of multidisciplinary research (Canadian Association of Research Libraries (CARL), 2010; The University of Adelaide report, 2015; Afebende, Ma, Mubarak, Torrens, Ferreira, Beasley, Chu & Ford, 2016). New trends demand that academic libraries should alter their systems in ways that interconnect with the publishing

mechanisms that are common on the web (Council on Library and Information Resources, 2008; Bell, Desmpsey & Fister, 2015). The Zimbabwean academics opined that the current research environment is characterized by allowing access to the Internet and this has made it easy to access information for learning, researching and publishing. Librarians were of the view that the current research is defined by the speed of dissemination due to the popularity of the social web, OA, RDM, collaborative research intense skills and critical minds. Academic librarians in Zimbabwe are aware of current changes in research and this represents the first stage of the *innovation decision process* of the DOI.

Various modern services and resources are offered by academic libraries in the 21st century. All three libraries in the study offered links to patrons to reliable OA journals and books, made OA publications discoverable, supported OA to educational resources, provided off-campus access to e-resources, conducted online marketing services, online reference services and provided citation management training. At NUST and MSU they offered mobile device access to library services and resources.

Garofalo (2013), Brown and Malefant (2015) and Harrison, *et al.* (2017) assert that it has become common to use social media such as Facebook and Blogs to communicate with students and to promote library services and resources; for example, Montana State University Library uses social media (Twitter) to engage students and to create avenues for instruction and library awareness. Using the lens of the DOI theory mass media channels are more effective in creating knowledge of new concepts. In Southern Africa, use of social media amongst academic librarians is no longer foreign but the level of uptake differs from country to country, for instance in South Africa use of social media is more prevalent compared to Zimbabwe (Mabweazara & Zinn, 2016). In the present research, website content analysis showed that librarians in all libraries used specific social media to stay in touch with library patrons but the MSU Library were optimally using the platforms while NUST and LSU were not fully using social media. All NUST, LSU, and MSU students used instant and regular communication using the social web whereas only academics used e-mail, face-to-face communication, internal memos, website announcements, staff portal and departmental chairpersons, see section 5.2.2.8. As already noted above by lecturers, students were comfortable with the use of technology compared to their lecturers. The reason for non-use of social media by Zimbabwean academic librarians to interact with lecturers is that social media had never been

given enough attention. This is evident in the views provided by two librarians: Dumisani (LSU) posits that "...The issue of social media in Zimbabwe has never been a serious matter or something that's official" and Terence (NUST) comments that "To be honest we do have social media platforms that are there but they are not official in a sense because there is no policy framework..."

In contradiction, the questionnaire responses revealed that Zimbabwean university librarians in all three institutions applied the latest trends such as mobile technologies, the social web, and open scholarly resources common amongst librarians in all universities. As such, there is a mismatch between the responses in the academics' and librarians' questionnaires and in the interviews. Librarians used these trends to design IL programmes, teach IL classes, communicate with patrons online, market new services and resources and gather patrons' feedback on services and resources. Results in this study confirm the claims made by the IFLA Trend report (2016:7) that librarians in Zimbabwe were now opening up to mobile devices (now owned by an estimated 90% of Zimbabweans) and Internet-enabled smartphones as a vital channel for the delivery of library services in relation to research. Akeriwa, Penzhorn & Holmner (2015:291) concluded that 90% of the library users accessed the Internet via their mobile devices and this means it is justified for the UDS Library in Ghana to implement mobile technologies. Mobile services offered by university libraries are characterized by mobile sites, text messaging services, e-books, mobile access to databases, chats /IM services, and social media platforms (Liu & Briggs, 2015).

Realizing that users can access information and applications through their smart phones, major European libraries are providing such emerging technologies (Afebende *et al.*, 2016). An Australasian Survey of Student Engagement (AUSSE) (2008) revealed that there is very strong evidence to suggest that students tend to be more engaged with learning on the whole if they engage with library resources, interact with library staff and spend time using libraries. Kuh and Gonyea (2015) mentioned that students used the library to study, to request librarian assistance, to use the library's reserve and reference section and used the online database. In the current study, students were more adept at using online reference services unlike their lecturers at NUST and MSU who never consulted librarians using online reference services. However, lecturers and students used both print and e-resources to a greater extent.

In the current environment academic libraries are required to use communication channels preferred by their patrons. Chimah, Nwajei and Akom (2015) and Nicholas *et al.* (2015) opine that

lack of interaction between the library staff and the users is one major problem. Interaction between librarians and patrons may help reduce library anxiety through increasing the patrons' confidence and comprehension of the library. Creating connections with users is necessary in order to create awareness of library resources and services. This may be virtual (via blogs or websites) or face to face interactions by subject librarians to provide support in terms of subject and e-resource expertise. Engagement with users can also be attained through orientation, inception subject workshops and ILS workshops (Wilcox & Chia, 2013; Kiilu & Otike, 2016). Client feedback is particularly significant in the online library environment whereas face-to-face services within the libraries also need to be intuitive, consistent and client centric (The University of Adelaide report, 2015). Two separate studies conducted by Abusin and Zainab, (2010) and Ashaver and Bem-Bura (2013) stressed that the underlying problem of students' negative perception of library services is failure to ask follow-up questions by librarians, general disappointment with the services provided and lack of awareness on how to search for information.

In this study, all academics revealed that the library used email and face-to-face communication with academics. Other forms of communication were memos, website announcements, staff portal, departmental chairpersons and library committee. This gives clear reason as to why most lecturers did not use remote reference services. Findings revealed that all academics acknowledged that the library requested their opinion with regards to resources offered (collection development) through submitting their textbook lists as well as e-resources required. Academics at NUST maintained that the library did not request their input with regards to services offered while academics at MSU and LSU stated that the library requested their opinions with regards to services offered.

All students revealed that the library mainly used social media and face-to-face communication for interacting with them. These results provide explanation as to why all students used instant and regular communication through the social web and online reference services. Other forms of communication were: at NUST, they used the notice board; at MSU, they used student library account, e-learning platform and at LSU librarians visited lecture rooms. Only NUST students stated that the library never requested their opinions on services and resources offered whereas students at MSU said the library requested their opinion during ILS classes and on social media (Facebook and WhatsApp) and LSU students mentioned that the library requested their opinions through questionnaires. When interpreted through the lens of Diffusion of Innovation Theory

(DOI), interaction is a social process that involves interpersonal communication relationships which provide space for the creation of strong attitudes amongst individuals. In this case academic librarians were challenged to devise interpersonal ways of sharing information on library services and resources with their library patrons.

It has become a norm for lecturers globally to utilize various technologies for teaching and learning (Kirkwood & Price, 2014). All (216 or 100%) academic respondents in Zimbabwe used data projectors for teaching and learning. This finding reinforces research conducted by Educause Center for Analysis and Research (ECAR) report (2014) which asserts that lecturers across 13 countries (US, Canada, Egypt, Finland, France, Ireland, Italy, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Morocco and South Africa) find their greatest levels of satisfaction with basic classroom technologies such as data projector systems and WiFi connection.

Only 119 (55%) lecturers at NUST and MSU used an e-learning platform while at LSU this platform was never used because this is a relatively new development amongst Zimbabwean universities and lecturers were still trying to infuse these systems into their everyday teaching as well as teach their students how to use them and also LSU is a rather young university which is still growing. This appears to be a trend in the African settings as Makhokha and Mutisya (2016) accentuate that very few academics in Kenyan public universities were using e-learning platforms due to poor ICT infrastructure and lack of skills. Results also revealed that NUST lecturers used social media tools (WhatsApp and Google groups) and models in engineering for teaching and learning. The Cambridge International Examinations report (2015) identified current trending teaching and learning technologies as interactive whiteboards, software applications for operating on mobile devices, and social media platforms (Blogs, WhatsApp, Wikis, RSS, social networking and Tagging). Ahalt and Fencho (2015) and the Institute for Teaching and Learning Innovation (2016) listed emerging technologies in higher education as computerized grading, e-textbooks, flipped classrooms, Bring Your Own Device (BYOD), Massive Open Online Courses (MOOCs) and learning management systems (LMSs).

Several forms of pedagogies have invaded higher education one of which is hybrid/blended classrooms. This form of pedagogy combines two or more pedagogical approaches, and multimedia tools e.g. videos, images and audio (CISCO report, 2014; The Cambridge International

Examinations, 2015). In this research, 187 (87%) academics used blended classrooms and 19 (9%) lecturers used mobile learning whereas mobile technologies were used by 123 (57%) academics.

This result signals a huge disparity between the number of academics (57%) who used mobile technologies, m-learning (9%) and the number of lecturers who used blended classrooms (87%) in Zimbabwe. There are two major explanations, the first is related to limited resources as one lecturer explains “There are efforts to improve technology for teaching and learning but very often lack of resources affect how these are rolled out, most of the time staff members go out of their way to purchase their own copies of software needed...” (Lecturer 77, NUST)

Newman *et al.* (2016) posit that in the UK, Italy, Sweden and Czech Republic mobile technology penetration is greater than 100% which means that m-learning is more prevalent in such countries. In comparison, even though use of mobile technologies in South African higher education is not new there are concerns that technologically immersed and savvy students and academics are in the minority and represent the elite population of the campus community (Brown & Czerniewicz, 2010; Brown & Pallitt, 2015; Sanderson & Schmidt-Hanbidge, 2017). Zimbabwean academic libraries are faced with inadequate resources due to the poor economic status. Hence students are encouraged to bring their personal mobile devices.

Secondly, an unequivocal reason for this result is that lecturers in Zimbabwe preferred using mobile technology to support blended classrooms rather than offering mobile learning because they felt comfortable with combining online and face-to-face teaching. As substantiated by Mayisela (2013); Institute for Teaching and Learning Innovation (2016); and Soulimane, Kouninef, Senounci and Djelti (2016), mobile technology supports blended classrooms through allowing accessibility and also it solves the problem of computer shortages.

On the one hand, in the present research, students revealed that their lecturers encouraged them to use print resources and e-resources. On the other hand, academics at all three institutions encouraged their students to use e-resources, e-scholarly publications, OERs, IR, online information literacy tutorials, research guides, print resources and remote access to reference services. Given these findings, there was a clear link between library resources recommended by lecturers to their students and what students noted as their lecturers' recommendations.

At Makerere University Library in Uganda patrons mostly used photocopying and reference services (Namugera, 2014:751). Becker, Hartle and Mhlauli (2017) postulate that patrons acknowledge that the services provided by library staff are important and students tend to use the library mainly for individual study, research, and group study. Academic respondents in Zimbabwe wielded direct influence on the kind of library resources used by students simply because lecturers were actively involved in their libraries' collection development process through submitting their required lists of textbooks and e-resources. In separate investigations conducted by Banleman and Adjoa (2017:18) and Brown and Malenfant (2017:12) it was evident that library use increases student success hence the reason why lecturers encourage students to use the library resources and services.

Most academic libraries are shifting towards an electronic library to meet library user needs in a modern environment but it should be noted that technology delivery capacity of universities is often linked to libraries (Pease, 2017). There is an increased need to update academic library technologies because they should no longer focus solely on print publications, but on electronic publications too, to accommodate the hybrid concept (Wilders, 2017). Academics and students at NUST and LSU ranked their libraries' technology facilities as moderate. NUST lecturers indicated that the technology is basic and that they required online instant support services via social media for inquiries instead of relying on telephones while students felt that the economic situation is a major barrier for non-availability of state of the art technologies. LSU academics felt that the library needed to add more e-resources and LSU students indicated that the library still largely relies on face-to-face interaction which accommodates everyone.

On a different note, MSU academics and students ranked their library's technology facility high/very high. MSU academics listed similar explanations as those provided by their students and these were that the library has dedicated Internet bandwidth and the library has computer labs for students, and lecturers added that the library subscribes to a plethora of e-resources. This point is confirmed by MSU librarians who pinpoint that "... the librarian requested that we have WiFi which is specifically for the library building" (Tendai, MSU). "... I think in Zimbabwe we are number one in providing electronic resources and we have got different computer labs around campus and as the library we also have our own computer lab" (Nyasha, MSU). According to library patrons, NUST and LSU libraries were struggling to offer even the basic technology while

at MSU Library patrons felt that the library is providing the very best of the basic technologies. In other terms, the best way to describe MSU Library is that the institution is innovative and DOI theory clarifies that innovativeness is measured based on who adopts new ideas earlier than other members of a social system. In Pakistan, provision of IT equipment, software and Internet connection, are sustaining universities and research. Seven university libraries' level of ICT adoption for operations and services is improving (Qutab, Bhatti & Ullah, 2014). Moreover, academic libraries in the United States are already far off from offering basic technologies since they are implementing 3D printing facilities, citation technologies and Geographic Information Services (GIS) software/mapping technologies to improve their technology offerings to their library patrons (Horizon Report, 2014; Pryor, 2014; Holstein, 2015:39).

As already reflected under section 6.1, students across all three universities used online reference services, and instant and regular communication through the social web as such they were in a better position to know their librarians' online presence. A significant number (366 or 81%) of students revealed that librarians were occasionally available for online reference. The website content analysis showed that social media platforms at NUST and LSU Libraries were never regularly updated, but at MSU all their social media platforms were very current. Academic librarians highlighted various reasons to explain why they were not always online:

Firstly, in all three libraries faculty librarians took turns to be in charge of the desk and log on to online chat facilities. Multitasking was a distraction to their online availability. For instance, LSU librarians cited that due to staff shortages it was not easy to work between various job responsibilities as well as respond to Facebook enquiries. Ndaba (LSU) asserted that "First you will have to understand that the situation as is in Zimbabwe is quite precarious in terms of staff. Actually, we do not have a reference librarian at the point, all the assistant librarians and every library senior management are the ones that are then becoming reference librarians. We have our duties that we deal with administrative issues..."

Secondly, the librarians' preference is for face-to-face interaction with patrons. As indicated by patrons that their libraries use face-to-face, social media (for students) and email (for lecturers) to communicate with them. In particular, it emerged that LSU librarians preferred using face to face reference service because of limited time to constantly respond to online queries. The LSU librarian also suggested that being embedded within departments (given an office within the

Faculty) will ensure close engagement with patrons and increase the library's recognition. "... normally patrons use face-to-face inquiry... we can't talk of online referencing ASK-A-Librarian service it doesn't make sense at LSU when am seating in library" (Lindelwe, LSU).

Thirdly, NUST librarians postulated that faculty librarians were not obliged to log on to online reference platforms because there were no policies in place to govern the use of social media platforms and the ZOHO chat facility. Terence's (NUST) viewpoint: "To be honest we do have social media platforms that are there but they are not official in a sense because there is no policy framework We have ZOHO chat facility.... Of course, some assistant librarians are not using it"

In light of explanations provided by NUST and LSU librarians, they imply that they were more partial to the use of face-to-face reference services rather than online. The McKinsey 7S model makes it clear that the dominant values and beliefs or culture influence librarians' attitudes towards change. That is to say, academic librarians at NUST and LSU are now accustomed to the use of face-to-face reference, hence it is difficult to shift to e-reference services. As endorsed by Jaguszewski and Williams (2013:6); Magi and Mardeusz (2013:614); Kolendo, (2016:250); and Brown and Malenfant (2017:2), in this modern environment students are benefiting more from using face-to-face reference consultations through watching the librarian's demonstration they are able to later replicate the process and increase their learning success.

MSU librarians were officially using the WhatsApp platform which was installed on a computer as a chat facility, they were also active on Facebook and hence the reason why the ASK-A-LIBRARIAN facility was being underutilized by patrons. Tendai (MSU) maintained that "What we are doing now is that we have got a WhatsApp platform installed on a computer at the information desk and we respond to questions from 9:00 to 22:30 and the Facebook page as well. ASK-A-Librarian is on our website but to tell you the truth that platform is not being utilized to the full extent..." Social media platforms bear greater relative advantage at MSU compared to the ASK-A-LIBRARIAN facility when viewed through the prism of the DOI. Academic libraries are advocating for the use of online services, for example Khan, Khan, Malik and Idrees (2017) have it that web search engines are commonly used by librarians to help users (especially research scholars) by providing e-reference services. The University of Botswana Library terminated its ASK-A-LIBRARIAN service after only three years of introduction because of patrons' low usage

and poor librarians' skills and expertise. It is recommended that the library should appoint reference specific librarians (Qobose & Mologanyi, 2015).

Most (421 or 93%) students stated that they access off-campus e-resources, and this is firmly supported by all three libraries' websites. Martin and Hesseldenz (2012:45) reflect that remote access to e-resources is mostly meant for distance/ part-time students. Recent developments reveal that academics and some students are now inclined to use the library remotely (Ball, 2016; Kenney & Li, 2016; Masese, George, Makwae & Moenga, 2016).

In summary, the discussion in section 6.3 shows that the MSU Library has accepted technological change to a greater extent than NUST and LSU libraries. This finding is explained by NUST and LSU Libraries' patrons who rated their technology facilities as moderate while MSU patrons ranked their library technology high/very high. Lecturers across all three institutions used technologies such as data projectors, mobile technologies, e-learning platform, social media tools and WiFi. Library patrons across all three libraries used print and e-resources because of the influence of lecturers. NUST and LSU students appeared interested in the use of online library services but their librarians were only occasionally available because of multitasking, absence of policies to govern online reference facilities, and face-to-face reference services preferred over online. MSU was using a hybrid format: they used social media reference services as well as face-to-face enquiry.

Major shifts in higher education were identified as globalization, socio-economic transformation, technologies, and online teaching and learning that have all altered higher education. Academics were skeptical about technological effects on the quality of graduates produced, as they perceived that it is the reason behind students not retaining knowledge and it exposes their inadequacy as educators since students were techno-savvy. In the same vein, academic librarians were urged to take up their role as teachers to impart digital literacy skills to patrons in need especially academics because unlike students who attend IT classes offered by computer science departments, lecturers might find this a useful move. Results showed that students utilised online library services more than their lecturers i.e. online reference services and instant and regular communication through the social web. In Zimbabwe, academic librarians were well-placed in terms of OA services through initiatives in creation of IRs, and remote access to library resources. Librarians at NUST and LSU still need to improve on the use and uptake of social media tools for service delivery. It

therefore stands to reason that academic libraries in Zimbabwe were in a moderate position in terms of meeting the demands of the 21st century as rated by their patrons. The following section defines the actual skills and competencies held by university librarians.

6.5. Modern skills and competencies for university librarians

There is an increased need for new skills in the 21st century university library due to constant change. As librarianship evolves it is of utmost importance to inquire about the transformations and the actual skills and competencies demanded (Ball, 2016; Raju, 2014; Yang, Zhang, Du, Bielefield & Liu, 2016). The role of the librarian is now continually under review. This is partly due to the development of digital collections and digital repositories. Academic librarians can now influence the development of scientific communication and provide new services relating to e-resources, databases, publishing support and copyright, print or electronic course material, distance education and inter-library loans (Horava, 2010; Nilsson, 2016).

The third research question asked: *to what degree are Zimbabwean academic librarians' skills and competencies meeting the requirements demanded by the modern academic library?*

A significant number (133 or 62%) of lecturers across all three universities rated their librarians' skills and competencies high juxtaposed with 350 (73%) students who rated their librarians' knowledge and skills average (moderate). The difference in opinion is possibly linked to lecturers interacting with librarians at colleague level since they work together in shaping library services and resources whilst students only meet their librarians during orientation, ILS classes and reference inquiries.

Most NUST (123 or 83%) and MSU (193 or 83%) students were undecided about their librarians being approachable/friendly unlike (37 or 51%) LSU students who agreed that their librarians were approachable/friendly. This is attributed to the LSU Library's reliance on face-to-face consultations as already highlighted in section 6.4. DOI theory explains communication through interpersonal channels as more effective in forming and changing attitudes of individuals as opposed to mass media channels which are more effective in creating knowledge/awareness. It is evident in the literature (Holmes & Woznicki, 2010; Islam, Agarwal & Ikeda, 2017; Young & Rossmann, 2015) that proximity and direct contact creates a friendly environment which allows students/faculty members to easily approach academic librarians. Previous studies revealed that

one of the reasons why students expressed dissatisfaction with the library is because of the unapproachable busy librarians (Farrell, 2016:174; Kiilu & Otiike, 2016). Patrons' negative perceptions of librarians arise from librarians' lack of necessary skills and competencies (Baharuddin & Kassim, 2014). There is a close tie between students rating their librarians' knowledge and skills average (moderate) and NUST and MSU students being undecided about their friendliness.

Moreover, most students from all three institutions felt that their librarians' IL skills and orientation skills were remarkable. Most students never had the knowledge about the ILS classes and orientation sessions. These findings are inconsistent since students could not know their librarians' skills if they never attended ILS classes or orientation. This state of affairs emanates from non-formalized ILS training which offers the closest form of interaction with students. At LSU, students mentioned that some of their librarians were computer illiterate hence the reason why IT skills were taught by IT professionals, and they suggested that librarians should treat them as their number one priority. At MSU, some students expressed dissatisfaction by stating that librarians were not as clear when teaching, despite being qualified academically, they lacked professionalism because they were not approachable and they never considered the fact that not all students were computer literate and librarians were considered too shallow or vague. Nevertheless, students suggested that librarians should introduce smartboards to aid in refining their teaching skills and that librarians should be lenient and avoid humiliating learners in class. In connection with the McKinsey 7S model careful analysis of the knowledge and skills gap amongst academic librarians is key to make the required changes. This process entails task analysis and assessment of skills requirement, for academic librarians in Zimbabwe there seems to be a great need for them to acquire a teaching qualification.

Like their students, lecturers maintained the high ranking for their librarians because NUST librarians were said to be suitably qualified, experienced, knowledgeable and helpful within the constrained environment in which they operated. NUST lecturers' pressing demands were that librarians should hone their social media interaction skills instead of using the telephone, make available needed software and services, regularly host seminars for lecturers and constantly upgrade their skills. To accomplish this goal, the McKinsey 7S model states that it is fundamental

for academic libraries in Zimbabwe to have shared values to ensure that librarians work towards a common destination as a coherent team when adopting new concepts.

In comparison, MSU lecturers were confident about their librarians since they were exposed to international practices and have shown competencies. There was little interaction between library staff and academic staff because they used online services which limited interaction. In this current environment lecturers are proactively using online library support which fits well into their busy schedule and they expect an increased online presence from their libraries (The University of Adelaide, 2015: 25). MSU lecturers further emphasized that librarians were always seeking to improve themselves, that their librarians were knowledgeable, trained and have library management qualifications although their services were affected by limited resources. Academics urged librarians to catch up with new technologies so that they could become a source of cutting edge knowledge and to offer diverse ways of answering queries. As explained by the McKinsey 7S model, MSU academic librarians are working towards achieving professional excellence.

At LSU, lecturers felt that librarians were recent graduates therefore possessed fresh ideas, they always attended international conferences which act as refresher workshops and they were always available and eager to share library resources. Lecturers also advised that some librarians needed to improve themselves academically and also build up their experience and become innovative. The DOI theory, regards innovative individuals as those who adopt and accept new ideas earlier than others. In this case LSU academics expected their librarians to be innovative but they were not. Librarians working in the modern environment should be highly creative, be able to search for new trends and apply them within their work contexts. The McKinsey 7S Model explains that libraries need to have a workforce that enjoy embracing new ideas because modern organisations appoint individuals based on their level of contribution towards the success of the institution.

Academic librarians' roles have become both dynamic and challenging, with librarians frequently involved in outreach, management duties and embedded in the classroom, providing instruction in person or via an online management system (Bloedel & Fuchs, 2015). In Finland, the whole of academia shares the mandate that information literacy programmes should serve the needs of industry and government for skilled and competitive individuals (Beilin, 2016). It is suggested that within economic constraints imposed on librarians they must be facilitators of the production of high quality graduates. In the same vein, Zimbabwean academic librarians are expected to deliver

ILS sessions within their constraints and contribute towards the production of higher quality graduates.

The results of this study reveal a marked contrast with Beilin's (2016) suggestion. Although Zimbabwean librarians were showered with praises by their patrons with regards to their IL and orientation skills and even librarians themselves believed IL teaching skills were important in this modern environment, NUST and LSU libraries were still struggling to formally take up their role as teachers/academics because the campus community and universities' management never approved of it. Rather the campus community proposed that librarians should provide the IL materials to academics so that they could teach it on their behalf. As a result, almost every student did not know what IL entails and because of this only a few students benefited from the informal IL programme. This battle was long won by international academic libraries and some African academic libraries. These circumstances are connected to the concerns raised by academics in section 6.3 which affect the quality of graduates produced and poor student retention of knowledge within the Zimbabwean higher education and this may have been triggered by lack of exposure to ILS.

While at the NUST Library they were considering introducing an online IL programme, the MSU Library was reluctant to take such a stance as they felt that face-to-face fits perfectly into the busy schedules of their lecturers and students. Terence (NUST) maintain that "...we were thinking about teaching digital literacy seriously that maybe we might need to come up with an e-version of IL tutorials where we get to deliver IL via e-learning platform like Moodle/ Sakai or the Google classroom" and Tendai (MSU): "...our lecturers might not find some time to go onto the Internet and have those online tutorials. Same applies with students; the only effective way is to teach them face- to-face..."

The DOI theory clarifies that an idea needs to be consistent with the values, experiences and needs of the adopters, as such the form of delivering IL should be compatible with academic librarians and their users. Information literacy should be negotiated within the specific local contexts, thus specific social and economic context in which university libraries function (Beatty, 2015). This implies that academic libraries should embrace critical pedagogy as it is directly shaped by site and time. As such, library pedagogy has varied and unique contours meaning that libraries in developing countries deliver IL in a different manner compared to institutions of higher education

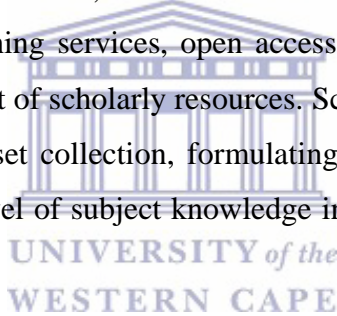
in Europe. Undoubtedly, there is a glimmer of hope for the NUST and LSU libraries to formally take up their teaching role in the near future as the MSU university management already formalized the role of MSU librarians as teachers/academics. Additionally, the Zimbabwe Council for Higher Education (ZIMCHE) and the Zimbabwe University Libraries Consortium (ZULC) were already supporting the librarians' teaching role. NUST and LSU librarians were offering IL classes informally through working with lecturers who were willing to offer their teaching time periods to librarians while at MSU this module was scheduled on the students' time table and all librarians offered face-to-face classes.

DOI theory provides meaning to adoption in the context of the amount of time it takes for a new concept to be adopted within an organisation. It has taken longer for the ILS teaching role to be fully embraced amongst most Zimbabwean academic libraries. According to Rogers (2003), the full adoption/decision making process is determined by knowledge, persuasion, decision, implementation and confirmation. The university management has to be knowledgeable about the importance of formalizing IL programmes, at MSU the university chancellor's exposure to international trends of academic librarianship made him support the idea of librarians teaching and this accelerated change acceptance. As opined by Tendai (MSU): "... Fortunately when the chancellor went to France and he used to sit on the UNESCO board he saw a lot of universities in France as well as in the USA where librarians were teaching...".

Secondly, persuasion may play a major part in encouraging the university to accept librarians as academics for instance NUST and LSU library management may keep lobbying for their teaching role through exposing positive attitudes. Thirdly, in the decision part of the DOI, librarians may engage in activities that may expose/market their skills and support them in convincing university management's decision to formalize IL teaching. Fourthly, after the management has accepted, librarians have to implement the IL teaching programme and finally, librarians have to confirm through evaluating the new IL programme. The DOI theory accepts that individual innovativeness informs the time it takes to adopt a new concept. In this study, the MSU Library adopted a campus-wide mode of IL teaching before other academic libraries in the country and the institution was also actively using social media so they were innovators of new concepts within their social system (which is the Zimbabwe University Library Consortium). Terence (NUST) states: "...unfortunately here at NUST we have been barred from formalizing ILS training to make it

mandatory and for us to be in position to teach it university wide academics feel it's their job..." and Lindelwe (LSU) says that "... Students have to come and look for me if students have a training session. I contact the lecturer, he gives me a slot on their teaching schedule... We don't have a formal ILS programme, what we are just offering are one-hour training sessions once a semester and it doesn't target all students".

The McKinsey 7S model (1982) specifies that librarians need to have dynamic skills and competencies as such libraries should constantly evaluate capabilities and skills held by librarians and take advantage of them to advance the institution. Research conducted in Australia by Howard, Partridge, Hughes and Oliver (2016) suggests that librarians need skills for problem solving, critical analysis, critical reasoning and a passion for understanding their work environment including their patrons. Calarco, Shearer, Schmidt and Tate (2016) provide guidance that, in order to support open scholarly communication, librarians will need to have a broad perspective and understanding of scholarly publishing services, open access repository services, copyright and open access advice, and assessment of scholarly resources. Schmidt and Shearer (2016) state that RDM services (managing a data set collection, formulating policies in relation to RDM) will require librarians to have some level of subject knowledge including basic understanding of the discipline, norms and standards.



All (25 or 100%) librarians in this study rated the LIS qualification is extremely valuable in performing their job activities within the modern information landscape. This concurs with Huvila, Holmberg, Kronqvist-Berg, Nivakoski and Widén (2013:204) who found that Librarian 2.0 is firmly anchored in the traditional core values and competencies of librarianship. Furthermore, librarians in Zimbabwe believed that in the 21st century they should possess IL teaching skills, RDM skills, designing IL teaching, scholarly communication expertise, managing and marketing OERs, partnering with campus community, research skills, specific subject expertise and using altmetrics for assessing research output. However, the study revealed that most librarians in Zimbabwe have IL teaching skills, orientation skills, skills for designing IL teaching materials, continuous education skills, marketing and advocacy skills, collaboration skills and basic research skills to aid patrons in their information search endeavors. Academic librarians never had RDM skills and use of altmetrics.

Owing to the view that librarians were much more concerned about gaining new skills in their areas of expertise, they professed ignorance in developments of other library sections as they believed each librarian had to concentrate on the demands of their specific duties. In light of these developments, this research served as an eye opener for librarians to pay more attention and make time to find out about new developments within different sections of their libraries. As commented by Tendai (MSU) “...but if you are to look at the way we work we are specializing. As for me I am the content manager which is in the technical services. Here in the library the research librarian is the one responsible to compile usage statistics...” and Nakai (MSU) “...The problem is we do specialize and we concentrate on what we are assigned to do. And this is a wakeup call to know what is happening in other sections. Sometimes because of pressure you tend to concentrate more on your specific area.” The McKinsey 7S model advances that enhancing skills implies learning from one’s own and others’ successes and failures and in this vein, it is very important to closely interact with colleagues and find out about their personal experiences.

Other important skills and competencies mentioned by librarians in Zimbabwe were knowledge management systems skills, agricultural information systems skills, research expertise for assisting professional researchers and conducting systematic reviews, high proficiency in computer use, abstract thinker and following new trends in ICTs for libraries.

Professional development is one of the significant trends in academic libraries (Saunders, 2015:288). The McKinsey 7S model clearly specifies that the library workforce is an important tool in improving the organisation’s strategy; management should therefore expose them to rigorous training and mentoring support and push their staff to the limits to achieve its goals. This may increase the quality of workforce and personally boost their confidence as well as uplift the organisation (Sigha & Satpathy, 2017). Most librarians in all three libraries highlighted that their institutions exposed them to training workshops/seminars on the job or off and to academic updating (staff development programme). Librarians mentioned that their colleagues constantly updated their skills and competencies and that their institutions’ management expected them to constantly update their skills and competencies. Eight (80%) of the LSU librarians were neutral about their management’s expectations to constantly update their skills and competencies because they never received financial support for furthering their studies and it was not requisite for them since they were non-teaching/non-academic staff.

A closer interrogation (via interviews) on how librarians constantly update their skills and competencies gathered that some librarians personally hunted for opportunities for international exposure. These are the very same individuals who are referred to as the innovators in the DOI theory because they are risk takers and they have the energy to quickly pounce on new trends. The ZULC allowed university librarians to gather and share new trends that may possibly be adopted. Rogers (2003) refers to the consortiums or associations as the social system which has power to drive adoption of new concepts. Specifically, for keeping current, Zimbabwean librarians held positions in several academic library related associations and activities within the country, shared knowledge within the library through formulating communities of practice (COPs) and joined emailing lists. Librarians complained about lack of financial support from their parent institutions to assist in attendance of international conferences.

In summary, it is clear that the LIS qualification remains important to adequately perform in the 21st century environment and beyond. A few librarians were a bit skeptical about conducting personal research and publishing skills. Librarians had skills for designing IL teaching materials, continuous education skills, marketing and advocacy skills, IL teaching skills, orientation skills, collaboration skills and basic research skills for aiding patrons. Academic librarians at NUST and LSU had an informal mandate to deliver ILS because of this they therefore lacked morale as their teaching skills were being undermined. MSU librarians had the authority to formally teach ILS.

Librarians constantly updated their skills and competencies through exposure to workshops seminars, academics updating and professional conferences. They updated their skills and competencies through attending ZULC, holding positions in associations, knowledge sharing (COPs) and joining e-mailing lists. Academics recommended their librarians to improve and become innovative and cutting-edge sources of information. Judging from the librarians' perspectives their skills and competencies are fairly on par with 21st century academic environmental demands. The forthcoming section describes the librarians' attitudes towards change.

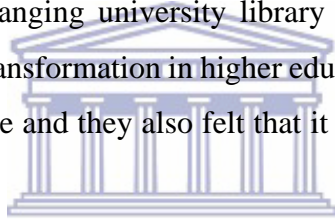
6.6. Librarians' attitudes towards change

Higher education transformation is defined by several pressing requirements which call for major actions (Du Preez, Simmonds & Verhoef, 2016). Academic libraries are now at an early point in a

transition from imposed services to patron-based resources and services (Mavodza, 2011:449). To handle these demands, university librarians should reset their priorities and responsibilities and become attuned to a positive mindset towards rapid changes in their work environment (Tenopir, Sandusky, Allard & Birch, 2012; Barry, Lowe & Twill, 2017).

The fourth research question inquired: *What are the Zimbabwean academic librarians' attitudes towards the changes in the 21st century academic library?*

Alam (2014) stated that academic librarians must be positive and they must always be eager to adopt new techniques to cope with the changes and be ready to do adjustments with the rapidly evolving conditions. Silva, Galbraith and Groesbeck (2017) report that understanding the genesis of academic librarians' attitudes will help individuals to assess their own time spent in the workplace more critically and help become part of productive discussions that pinpoint service to patrons and within the rapidly changing university library environment. In the current study, librarians were not threatened by transformation in higher education that affect university libraries thereby reflecting a positive attitude and they also felt that it was imperative for them to keep up with new trends.



Nevertheless, librarians also reflected negative attitudes as they lost morale due to a lack of support from library management to help implement new concepts. The McKinsey 7S model notes that a positive attitude amongst staff is influenced by the leadership style imposed by the university and library management. The style concept of the McKinsey 7S model holds that library management should help shape the values, beliefs and norms in the face of change. These will later transform into dominant values, beliefs and norms and become relatively enduring features of organisational life. This will assist in change management amongst librarians through creating positive attitudes. Zimbabwean librarians were pushing responsibility to academics, for example teaching digital literacy and providing e-links to internal and external funding, that is to say they were somehow avoiding responsibility and change.

In Zimbabwe, academic librarians contended with major barriers such as inadequate funding for the library, limited time due to multitasking in different job responsibilities, slow uptake of new concepts, knowledge and skills within the library. Noteworthy is that librarians did not think that constant power outages and ineffective Internet access were barriers to keeping up with new trends. Closer investigation revealed that all three institutions have generators and two separate WiFi

providers such that if the one is down they switch to the other network. This was quite a significant finding because the United States Agency for International Development (2015) revealed that in Angola and Côte d'Ivoire most organisations were still facing Internet problems whereas in countries such as Botswana, Gambia, Ghana and Zimbabwe Internet access is growing rapidly as the number of Internet service providers increases and there is wide spread use of smartphones. Afebende *et al.*, (2016) and Wright (2014) still emphasize that African academic libraries grapple with limited funding, lack of technology infrastructure, electrical power and Internet connectivity that impact their ability to catch-up with new trends.

All librarians in Zimbabwe were keen to adopt new concepts at work. Nineteen (76%) librarians adopted new ideas because they were required to do so by their library and they were not always willing to adopt new concepts even if it meant not conforming to the library requirements. This is supported under section 6.5 where lecturers regarded their librarians as non-innovative individuals. An intimate investigation (as revealed in Chapter 5 under sections 5.6.2.1., 5.6.2.3 and 5.6.5) highlighted that librarians fall under the early majority and late majority group. The DOI theory relates to the adoption of new trends in terms of articulating individual innovativeness. The early majority describes individuals who rely on other university librarians affiliated to ZULC before they make the decision to adopt new concepts. As explained within the confines of the DOI theory, this means that they have reservations about the use of new innovations but they adopt them under pressure from necessity (organisational requirements) and peers. They interacted frequently with peers and were therefore, easily persuaded by their peers. The late majority group is a sizable group who adopt after seeing that the majority of the population already has.

The discussion under section 6.5 has shown that Zimbabwean librarians have a positive attitude towards changes to a certain extent as a substantial number of librarians only adopted new concepts because they were required to do so by their libraries. Thus, they exhibited characteristics of the early majority and late majority level of individual innovativeness as explained by the DOI theory. Additionally, they also exhibited negative attitudes due to a lack of management support to help them initiate new concepts, felt that digital literacy should be delivered by IT academics and providing e-links for internal and external funding was not really part of their job. Librarians were frustrated by lack of finance, slow uptake of technology, multitasking due to staff shortages and

limited knowledge and skills which hindered them from keeping up. The next section discusses user needs and expectations and their influence on shaping librarians' skills and competencies.

6.7. Patrons' needs and expectations in the modern academic library environment

It has become obligatory for academic libraries to consider patrons' views ahead of implementing services and resources (Linn, 2013; Neville, 2014). To fulfil the demands of academic library users (students, faculty and administrators), libraries must account for engagement and creativity, ongoing participatory design, ethnographic research as well as efficiency and productivity (Foster & Helbling, 2015; James Madison University report, 2015).

The fifth question asked: *What are the needs and expectations of 21st century academic library users?*

As higher education is reconfiguring, it is experiencing massive changes that the academic library is expected to respond to. Librarians need to step outside of their comfort zone to consider the library in the life of the user (Proffitt, Milchako & Renspie, 2015). It is easy to make incorrect assumptions about users' needs and expectations therefore librarians have to be reliably informed through engaging the users themselves. Librarians in this present study knew exactly what their modern patrons expected as they chose the same services and resources as those preferred by their library users. This was because librarians mainly used face-to-face interaction, social media, and a suggestion box for communicating with users. At NUST and MSU they also used student and staff email, and the library website whilst at LSU and MSU they used the telephone. Other forms of gathering patrons' views at LSU were via print questionnaires and focus group interviews. Höglund (2014) conducted focus group interviews with students and researchers in Finland which proved to be an effective method of gathering views. The findings from the current study are consistent with the McKinsey 7S model which shows that librarians have the knowledge of what their users need because they have the skills to communicate. Other requirements presumed important by librarians for their patrons at NUST were subject guides and research workshops for postgraduates, final year students and lecturers while at LSU digital literacy skills (computer and Internet basics) and a campus-wide IL module.

In Zimbabwe, university library patrons (students and lecturers) mentioned that their research support needs were RDM, equipment loan, software provision, new library spaces and e-links to

internal and external research funding. These were relatively new concepts within the Zimbabwean environment and an analysis of the three libraries' websites revealed that these were not offered in these libraries. Similarly, Islam, Agarwal and Ikeda (2015) found that postgraduate students wished that the library offered a service for archiving research data because they would want to know that their data is safe and available for future generations to access and develop research as well.

Academics are increasingly relying on the social web to monitor and share their research (Metzler, 2013; Otieno & Matoke, 2014; Schmidt & Dierkes, 2015). Lecturers in this study maintained and promoted their personal research using Research Gate, Academia.edu, and LinkedIn. MSU lecturers also used Twitter and Mendeley but never used Refworks, LSU lecturers also used Twitter and Refworks but not Mendeley whilst NUST lecturers were neutral about Mendeley, and they never used Twitter or Refworks.

In supporting their patrons' research needs, librarians in Zimbabwe took major strides through partnering with their academics and research offices to ensure that all research published by academics was uploaded in the IR especially if the research was funded by the university. Librarians worked with lecturers in accessing and uploading students' theses/dissertations into the IR. All three libraries worked with their research offices in co-hosting workshops for their research community. Moreover, all three libraries compiled statistics on e-resource usage and at MSU, the research librarian used journal impact factors to make recommendations to lecturers on the most suitable journal to publish their works. Librarians had not really tapped into altmetrics and described this as a new concept which needed to be explored. Academic librarians in the current study had good collaborative skills which were shaped by environmental demands in which they worked. As explained by DOI theory, the partnerships were consistent with their values and norms and the McKinsey 7S model describes these as having shared values which create harmony between the library and other campus units.

Librarians in this study expressed enthusiasm towards RDM but they felt that they had to first grasp the concept before implementing it. Librarians saw RDM as an opportunity for librarians to prove their unique research skills to the library patrons. Academic librarians also believed that it will be difficult to convince academics to submit their raw data sets to be uploaded in the institutional repository as they had previously encountered problems with convincing them to

submit their research papers. In this regard, librarians felt that it will be a noble idea to wait until other affiliated universities or the Zimbabwe University Library Consortium (ZULC) adopt/s the RDM concept. As already pointed out in the preceding sections, a thorough interrogation showed that librarians were cautious when adopting new concepts. Similarly, Toohey and Poulton (2016) and Meier (2016) attest that when change occurs there are so many factors to consider before implementing new ideas and concepts in academic libraries.

Due to the poor economic situation, all librarians stressed that their institutions had limited funding which barely allowed them to purchase equipment for loaning their library users since librarians themselves were using poor computers. Academic librarians further opined that it was the role of the library to offer equipment and that under normal circumstances this would add more resources for their clientele. The main role of the academic library was clearly articulated as that of providing information on campus units hosting resources such as research software in addition to other resources. Marketing of research information was an urgent need amongst the three Zimbabwean universities since most patrons were unaware of the existence of research resources. Although librarians mentioned that they marketed libraries during the open access week and orientation/ILS classes, through faculty librarians, library management, brochures, library website page, social media e.g. Facebook, staff portal and e-learning platform, these approaches need to be thoroughly reviewed.

Librarians argued that loaning equipment, offering research software and e-links to internal and external funding was the role of the research office or IT department or Learning Services Department. Reasons being that these departments have the capacity and expertise to offer such IT based technologies and also NUST and LSU Libraries were non-academic departments. At MSU, they had in the past loaned Kindle devices to access e-books for distance learners but this has since stopped after a library was set up for those patrons. All three libraries did not have links related to research funding, equipment loan and research software on their websites. In line with the DOI theory, it would be high economic advantage to have access to software and research funding links on the library website.

Librarians in this study agreed that their current library buildings were old and had limited space. Visible action was being taken to rectify this problem. At MSU they were in the process of building two libraries which encompass 21st century design. At LSU, they were busy constructing a library

building at their main campus. A huge NUST Library building has been under construction for years at the main campus but unfortunately, limited funding slowed down the initiative. Librarians also boasted about their virtual spaces, for example at LSU their library website was being revamped and it was being maintained by the university website designer and the MSU librarians drew attention to their strong e-resources collection which assisted them to find solutions to limited space. The literature (Seal, 2015; Cook, 2017) reveals that library space plays an important role in increasing the visibility of university libraries hence the increase in creation of information commons, learning commons, research commons and virtual spaces.

For teaching and learning support, all lecturers and students required online reference services, off-campus access to e-resources, OERs, online IL programmes, interlibrary loan, equipment loan for teaching and learning and flexible teaching and learning spaces in their libraries. An Ulster University report (2015) maintained that teaching support includes lecturers' recommending materials for purchasing, books, e-books and non-book material, journals, collections and information access policy, examination papers and course validation. Academic libraries are now supporting student learning using Massive Open Online Courses (MOOCs) (Wu, 2013). Other specific requirements by NUST lecturers were based on a request for librarians to use social media for instant communication. The research findings (see also sections 6.4 and 6.5) unravel a tightly connected thread pointing to a major requirement by NUST librarians to actively/formally use social media for services, as already recommended in a study conducted by (Mabweazara, 2014:88). Additional NUST academics' requirements were old and new e-newspapers for research (contextual analysis), student access to software for plagiarism and referencing, current publications and research space. MSU lecturers required a well-equipped modernized library, more workshops on the use of technology, collaborative research (interdisciplinary research) with librarians and a specialized library (Science Library). LSU lecturers expected reliable Internet and up to date teaching and learning software.

In a modern environment, the library and its users are no longer separate entities but perform various activities mutually as a form of change management. Collaboration, which can range from simple or informal to more formal approaches, has been highlighted as necessary, desirable, inevitable, and a key initiative and strategic management to cope with changes (Sacchanand, 2012). Salmon and Wright (2014) affirm that faculty partner with librarians to address issues on

opportunity for sharing of knowledge, attitude changes, personal and professional development. It is through collaboration that efficient and effective library and information services can be successfully realized. The need for collaboration between faculty and librarians is due to changes in the higher education environment, a paradigm shift in the library and information profession and the librarians' changing roles.

Zimbabwean lecturers were willing to collaborate with librarians in terms of promoting awareness of library services through motivating students to use them, teaching IL in context and assessment, co-hosting workshops and conferences and collaborative publishing or co-authoring research. Librarians across the three universities were neutral about forging partnerships with campus units. Zimbabwean academic librarians do partner with lecturers in ILS teaching (see section 6.5), and collection development (i.e. submitting lists of textbooks and e-resources, including submission of past examination papers, research papers and theses/dissertations). Lecturers submit their lists of textbooks and e-resources, but there is a fundamental need for faculty and librarians to create more partnerships beyond collection development (Cameron & Siddall, 2015).

Librarians in Zimbabwe were a bit reluctant about conducting research with academics and they cited time constraints, academics not willing to associate themselves with librarians (i.e. negative attitude), and it is not mandatory for NUST and LSU librarians to co-publish because of their non-academic status. Therefore, they feel that they will not benefit. Attempts at co-publishing have been made but resulted in a huge failure because lecturers were not fully committed in the research contribution (Pauline, NUST), academics were open to co-publish with librarians only because they want to take advantage of their referencing and organizing skills (Terrence, NUST; Ndaba, LSU). An absence of policy to guide the relationship between faculty and librarians renders no obligation for faculty to take the librarians seriously, and they have to find common themes or research areas in order to co-author research papers with lecturers. At LSU and MSU librarians may be exposed to multi-disciplinary research as there is no Library and Information Science school. However, NUST librarians are privileged to possibly co-publish with academics in their Library and Information School and additionally be exposed to multi-disciplinary research with academics from other departments.

In line with these findings, a Thailand based study by Sacchanand (2012:6) concluded that both librarians and faculty were dissatisfied by the collaborations. Critical barriers for partnership were

broadly “faculty and librarian culture” - the culture of faculty and librarians’ unwillingness to participate thus faculty and librarians’ failure in the creation of an environment that fosters and enhances collaboration resulting from negative attitudes, established perceptions of the library and attitude towards librarians. Another major obstacle was that of “administrative practices” such as lack of formal policy at the university level, incompatible organisational structure, the complicated and bureaucratic procedures, inter-institutional communication, time-consuming processes, lack of the need to collaborate, lack of motivation, encouragement, self-esteem, and absence of real commitment of one or some partners. This notion is further clarified by the Library Journal and Gale Cengage Publishing (2015) who revealed that academic librarians are more willing to create a good interactive environment than academics.

Worthy of note is that lecturers’ contributions towards library resources and services was clear whereas students’ involvement was non-existent. In this research it is realized that patrons need to be convinced by their librarians through moving out of their comfort zones to show off their skills and innovativeness. Yet librarians bear the mindset that their patrons have negative attitudes towards them. “The first thing to say is that the student/lecturer attitude of a library in Zimbabwe is different from other countries, in most cases students only come to the library when they really have to...” (Ndaba, LSU). And “... if you are to look at libraries/librarians in general it’s a profession that is looked down upon” (Tendai, MSU).

Students required collaboration based on flexible online booking for IL; establishing a student service network in support of library pilot studies; having an Undergraduate Librarian and Postgraduate Librarian to design specialized services and programmes; librarians having a presence on the e-learning platform, and regular online interaction with librarians; and teaching IL online just-in-time skills. Klain-Gabbay and Shoham (2016) maintain the same thoughts to say user groups should be established to identify needs as they emerge and the appointment of a specialised librarian may contribute to the increased involvement of academic librarians in engaging and considering students’ input in shaping library services and resources.

In brief, library patrons’ research needs include RDM, equipment loan, software provision, new library spaces and e-links to research funding. Although these were new concepts in Zimbabwe, librarians were very open to implementing them but they were experiencing limited funding. This shows librarians’ openness and flexibility to accepting change. Patrons’ teaching and learning

needs were online reference services, off-campus access to e-resources, OERs, online IL programmes, interlibrary loan and equipment loan, and flexible teaching learning spaces. Whilst lecturers showed great interest in co-publishing with librarians, librarians were a bit skeptical about allowing such partnerships. Lecturers were already involved in shaping libraries resources through marketing resources to students which makes sense because they were involved in collection development as well as teaching ILS formally at MSU and informally at NUST and LSU. Academics also collaborated with librarians in shaping the contents (research papers and theses/dissertations) of IRs. Students expected a specialized librarian for undergraduates and postgraduates, student network to ensure library patron research and formal groups for guidance in thesis writing.

6.7.1. The influence of patrons' needs on librarians' skills and competencies.

Librarians in Zimbabwe felt that patrons' demands and expectations have resulted in them spending most of their time seeking to update their skills. It has made them realize how much energy they need to apply in order to convince users to accept their online services and resources. These librarians' characteristics are emphasized by the McKinsey 7S model through noting that personal development and continuous learning amongst employees should be encouraged by organisations. They were forced to conduct research on their patrons' requirements to keep pace, and since modern user needs and expectations have altered service delivery, this requires the 21st century librarian skills and competencies. Nyamache, *et al.*, (2011:9) suggest that to avoid being rendered obsolete librarians must prove their value as the heart of the whole university.

Most students were neutral about their library meeting their requirements and expectations. In explaining the role of the library in meeting their requirements and expectations, academics sympathized with their libraries' limited funding due to a poor economic situation. While all academic libraries seemed to have a promising future, it was clear that modern library patrons no longer settled for basic services but they required librarians to show some innovativeness through introducing high quality services and resources. For instance, NUST and MSU academics revealed that librarians never adequately marketed the library (interaction levels are poor), and they tend to stay in the background without aggressively enticing patrons to visit the library. Yet the academic librarians' questionnaires and interviews strongly state that they are marketing their services and

resources. Connecting this to point made earlier about students not knowing about the IL and orientation programmes. There seems to be a visible inconsistency between the views of librarians and that of the patrons. This reflected that librarians should revise their marketing and interaction skills and competencies.

LSU lecturers were worried about their librarians' lack of exposure to international standards. The LSU Library offered a supportive role which was still not enough to satisfy patrons' needs and expectations. Future library staff will be supportive guides and trusted partners able to help clients discover sources anywhere and qualify their academic integrity (The University of Adelaide, 2015). This highlights that librarians should align their skills and competencies with library users' needs and expectations through finding means of gaining international exposure and enhance their supportive role.

Section 6.7.1 concludes that academics and students wielded enough power towards remodeling of services and resources offered by university libraries. Although both lecturers and students complained that the library is not involving them enough, students never played any visible part in shaping library resources and services. Academics emphasized that librarians should actively market their resources and increase their visibility. The general feeling amongst librarians was that current library user needs have altered their skills in that they constantly have to keep pace or even stay ahead in order to adequately address the user demands. It can therefore be concluded that patrons' demands and expectations exert a force that ensure librarians' continuous improvement. The next section presents a brief overview of the research findings.

6.8. A brief overview of the research findings

This section puts into perspective the findings of this study in form of chart (see Figure 6.1. *Factors shaping changes in academic libraries*). The chart adopts a form of metaphor which is defined as “a figure of speech containing an implied comparison applied to an object or chart” (Haslam, Cornelissen & Werner, 2017:325). In this research the chart provides a synopsis of the findings of this study. Recognizing that global trends which affect higher education contribute immensely towards shaping the 21st century academic library, a framework has been designed in the context of African librarianship. Focus on the African setting is important as it brings out unique experiences which differentiate Africa from other continental boundaries.

- *Emerging trends in Higher Education that affect university libraries* - This research considered the latest trends in higher education as a major catalyst towards shifts in academic libraries. A number of research findings (see Abok & Kwanya, 2016; Cox, Kennan, Lyon & Pinfield 2017; Allen & Taylor, 2017; Conner & Plocharczyk, 2017; Lyn, 2017; Montoya, 2017) show that concepts such as open scholarly communication, RDM, faculty-librarian partnerships, social web, library spaces, and new pedagogies are reshaping university libraries (see also Appendix M). In this study higher education trends were characterized by an increased use of technology, by Generation Y and Z students and globalization. The Zimbabwean Higher Education was seen as stagnating and gradually becoming obsolete while technology was affecting student academic performance, there was an urgent need for digital literacy skills amongst academics, students and academic librarians.

- *Academics needs and expectations* - Adjustments in higher education influence academics' needs and expectations which in-turn influence academic libraries. As McGuinn, Stone, Sharman and Davison (2017) observe, academics expect their reading lists to be purchased, although in most cases not every material requested is made available. Academics in Zimbabwe pointed to a number of needs and expectations, including:

Links to reliable open access journals and book publishing; regular updates on new services and resources; e-resources; print resources; flexible working spaces; online reference services; off-campus access to e-resources; OERs; equipment loan; social media communication; old and new e-newspapers; a well-equipped modernized library; more workshops on use of technology; collaborative research (interdisciplinary research) with librarians; a specialized library (Science Library); reliable Internet; up to date teaching and learning software; co-publishing with librarians; co-teaching ILS with librarians; co-hosting workshops and collection development.

- *Students' needs and expectations* - Students also contribute towards change in academic libraries and some of their requirements are influenced by their lecturers. Millennials in particular have greater expectations of their university libraries. Because of these expectations librarians in the UK engage with groups of students to listen to their views

(Estelle, 2016). For instance, Rasul and Singh (2010) write about postgraduate students who required the library to extend its opening hours for physical visits even though they had remote access to resources.

Postgraduate students in the Zimbabwean context required; fourth year undergraduate students and postgraduates required librarians to. However, undergraduate students required all students in Zimbabwe expected resources such as OERs; e-resources; research and information commons; print resources; collaborative learning spaces; a writing centre; flexible online booking for IL; a student service network in support of library pilot studies; user group specific librarians i.e. undergraduate librarian and postgraduate librarian; librarians use of e-learning platform, regular online interaction with librarians; assist in formulating dissertation working groups subject guides; a library website portal; research guides; uninterrupted independent space; IR; research/ETD repositories and teaching IL online. ILS training sessions; assistance with navigating online library resources; library orientation programmes; accessing the library website from a mobile phone; online reference services and links to reliable open access journals and books.

- *New library services and resources* -The introduction of new services and resources in academic libraries is driven by new trends in higher education and patrons' needs and expectations. A number of scholars observe that it is possible to improve library users' expectations over time through finding better ways of delivering information (Mehrjerdi, 2017; Margam & Dar, 2017). The social web, open scholarly communication, faculty-librarian partnership, new library spaces and RDM were requisite amongst library patrons in Zimbabwe. For example, new services offered amongst Zimbabwean university libraries included BYOD, social media/online chat facilities, IR, research workshops, open access week celebrations, and IL programmes.
- *Academic librarians' attitudes towards change* - librarians' attitudes arise from patrons' diverse needs and expectations as well as their personal initiatives (Seal, 2015). Librarians in the present study never felt threatened by changes in tertiary education that affect the academic libraries. Rather, they felt that it was very important for them to keep up with

new trends. Academic librarians perceived themselves as ready to embrace new concepts and thus open to change. They were nonetheless very careful when adopting new trends. However, barriers such as financial constraints, multitasking, limited knowledge and skills and sluggish adoption of new concepts resulted in low morale amongst librarians across all the institutions studied. A number of librarians had negative attitudes towards embracing/implementing new ideas due to a lack of support from library management, especially in helping them to implement new concepts and avoiding change by relegating the responsibility of imparting digital literacy to IT academic staff.

- *Barriers/obstacles preventing uptake of new trends* - Across the three institutions studied, academic librarians struggled to keep up with new trends because of hindrances such as inadequate funding, limited time, slow uptake of new innovations within the library and poor knowledge and skills. This mirrors a related scenario in Kuwait and Oman where funding was a significant hindrance for continuing professional development amongst academic librarians (Al-Fadhli, Corral & Cox, 2016; Aslam, 2017).
- *Uptake of new librarians' skills and competencies* - the study has shown that skills and competencies are influenced by patrons' needs and expectations as well as global/international standards. Elsewhere it is known that upgrading the existing library staff to support the current information landscape has become a primary concern amongst academic libraries (Sputore, Humphries & Steiner, 2015). Various academic librarian roles have emerged as a result of rapid changes in higher education e.g. informationist, IR manager, information/knowledge manager, e-resources librarian, systems librarians, digital curator/research data librarian and IL educator (Cox & Corral, 2013; Federer, 2014). Faced with patrons' persistent demands, librarians have been forced to have a broad understanding of user needs through updating their skills and competencies. In the libraries studied, librarians held IL teaching skills; orientation skills; skills for designing IL teaching materials; continuous education skills; marketing and advocacy skills; collaboration skills and basic research skills to aid patrons in their information search endeavors. As noted earlier, these observations can be summed up as shown in Figure 6.1 below

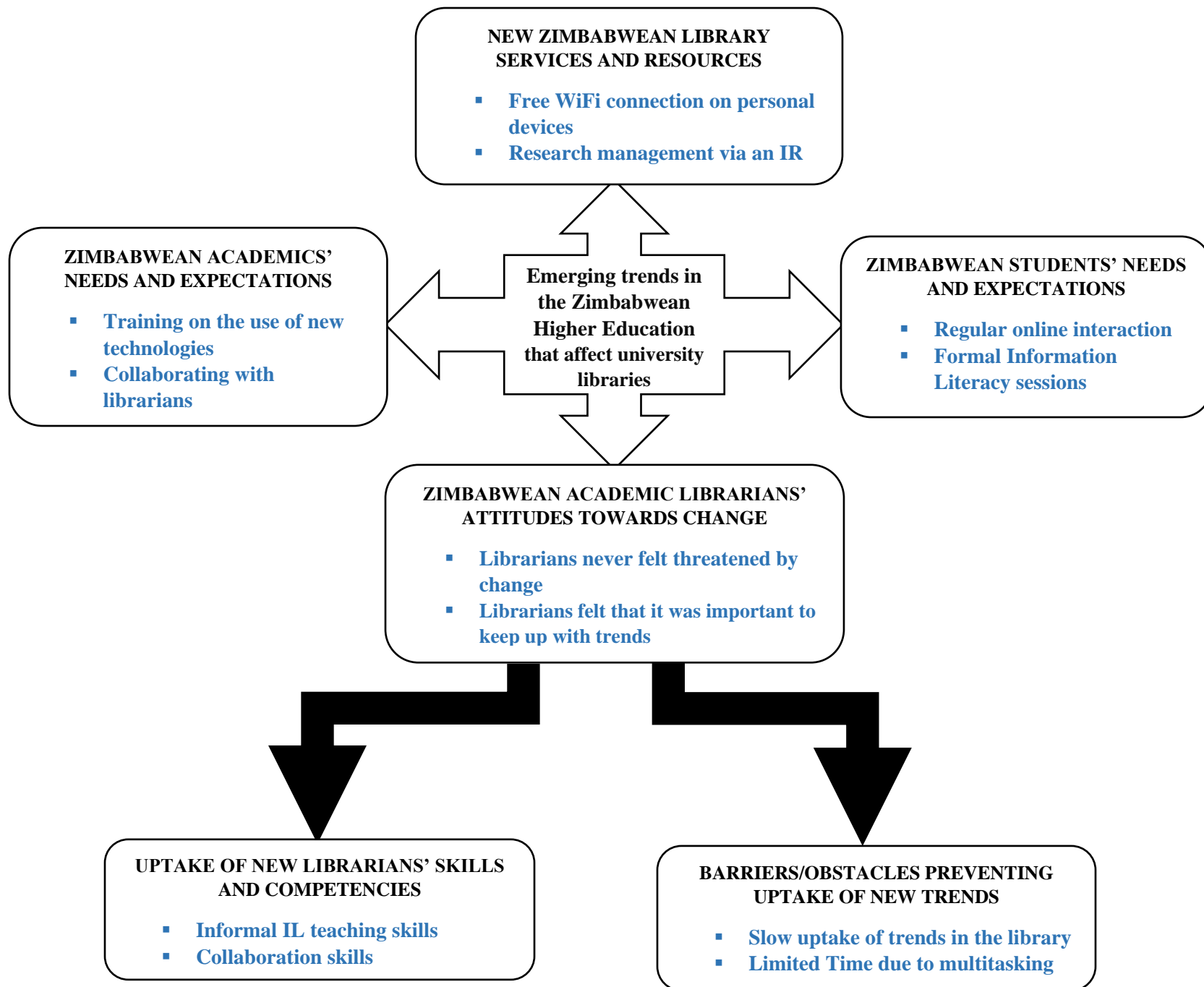


Figure 6. 1. Factors shaping changes in academic libraries

6.9. Chapter Summary

The research findings were satisfactorily interpreted using the lenses of the DOI theory and the McKinsey 7S model. Findings of the study showed that technology is gradually transforming higher education. Academics were using data projectors, e-learning platforms and social media tools for teaching. However, academics were challenged by the onslaught of technology in teaching and learning through stating that students were no longer retaining knowledge and that students were more techno-savvy compared to them. Although the Zimbabwean higher education was gradually becoming outmoded, major strides were being taken to improve it through supporting lecturers to acquire their PhDs.

In Zimbabwe, librarians applied the BYOD concept to ensure that patrons had access to WiFi and curb computer shortages. Academic librarians used mobile technologies, social media platforms, open scholarly resources to design Information Literacy Skills (ILS) programmes, teach ILS, interacted with patrons online, market new resources and gather patrons' feedback. MSU patrons were satisfied by the technology facilities at their library whereas NUST and LSU still wished to improve. Librarians were occasionally available because of multitasking as a result of staff shortages. The ASK-A-LIBRARIAN facilities at MSU and LSU as well as the ZOHO chat facility at NUST were not actively used by patrons. There was no policy for use social media amongst librarians, and librarians mostly relied on face to face reference services rather than the electronic mode.

Librarians in Zimbabwe had IL teaching skills, orientation skills, skills for designing IL teaching materials, continuous education skills, marketing and advocacy skills, collaboration skills and basic research skills for helping patrons' communities. Librarians in Zimbabwe exhibited positive attitudes in that they never felt threatened by changes in higher education and felt that it was a necessity to regularly keep up to date. The negative attitude amongst librarians emanated from frustration and low-enthusiasm due to lack of management support in implementing new ideas and they felt that digital literacy skills training as well as offering e-links to research funding was the role of academics. Major limitations in keeping up to date included limited time due to multitasking, limited knowledge and skills, slow uptake of new concepts and financial barriers. website, print questionnaire and focus groups.

Faculty-librarian collaborations were marketing resources and services to students, teaching IL formally and informally, co-hosting workshops and conferences, depositing research papers and students' theses/dissertations into the IR and collection development. However, librarians were not open to co-publishing with lecturers because of time constraints, academics' attitude towards librarians, not being obliged to publish since they would not benefit, previous failure in research collaborations because of lack of commitment on the part of academics, librarians believed that academics were willing to co-publish so that they may take advantage of their referencing and organizing skills, absence of policy to govern the relationship between faculty and librarians; and identifying common themes in order to co-publish. Results in this study showed that library patrons have immense power to influence librarians' skills and competencies. The chapter finishes off by presenting a chart showing factors that shape changes in academic libraries. The next chapter presents the contribution of the current research towards new knowledge, it provides a summary, conclusions and recommendations.



CHAPTER 7

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1. Introduction

This chapter summarizes findings of the study, details generalizations in the form of conclusions and the recommendations for the solution of problems discovered in the study are addressed to those concerned. The chapter ties together the results and discussions to give meaning to the summary, conclusions and recommendations of the study. The chapter finishes off by clearly stating the contribution of the study.

7.2. Summary of the study

A vivid and unambiguous connection between research findings and the purpose of the study should be shown as this is imperative in revealing a link through-out the chapters.

The study was conducted at three public universities in Zimbabwe namely- NUST, MSU and LSU. The study surveyed 216 academics, 454 students and 25 academic librarians and interviewed 12 librarians' face-to-face in follow-up interviews (See Appendix J). The research applied a case study design and a mixed methods approach (which comprised of web-based questionnaires, library website content analysis and face-to-face interviews). The study was informed by the stratified sampling method which allowed the researcher to group research participants in different segments. The quantitative data was analyzed and presented using SPSS and Microsoft Excel whilst the qualitative data was analyzed using thematic data analysis. Theoretical boundaries were built around the Roger's (2003) DOI theory and Waterman, Peter and Phillip's (1982) McKinsey 7S model.

The major results of the study listed according to research questions are as follows:

1. *To what extent has the 21st century information landscape shaped the Zimbabwean academic library?*

- The Zimbabwean higher education landscape was becoming archaic but there were efforts to help improve the quality of academics through support in attainment of PhDs.

- Academics were skeptical about technological effects on the quality of graduates produced, as they perceived that the infusion of technology in teaching and learning is the reason behind students not being able to retain knowledge and it exposes lecturers' inadequacy as educators since students were techno-savvy. Results showed that students utilised online library services more than their lecturers i.e. online reference services and instant and regular communication through the social web.
- Academic librarians were urged to take up their teaching role to impart digital literacy skills to the patrons in need especially academics. Unlike students who attend IT classes offered by computer science departments, lecturers might find this a useful move.
- Major shifts in higher education were identified as globalisation, socio-economic change, technology and new pedagogies have altered higher education.
- All 216 (100%) academics in Zimbabwe used data projectors for teaching and learning. Only 119 (55%) lecturers at NUST and MSU used the e-learning platform while at LSU this platform was never used since e-learning systems were newly adopted innovations and LSU is a young university. NUST lecturers used social media technologies such as WhatsApp and Google groups and engineering models.
- A hundred and eighty-seven (87%) lecturers used blended learning whereas 19 (9%) lecturers used mobile learning and mobile technologies were used by (123 or 57%) academics. The disparity in preferences amongst academics emanated from lack of resources and some lecturers preferred to use mobile technology to support blended learning
- Librarians used mobile technologies, open scholarly resources to design IL programmes, teach IL classes, communicate with patrons online, market new services and resources and gather patrons' feedback on services and resources. Librarians at NUST and LSU had a poor uptake of social media tools for service delivery while MSU librarians had fully embraced the applications.
- Academics assisted with the marketing of library services through encouraging students to use specific services and resources. The findings revealed a visible link between resources used by students and what was recommended to them by academics.
- Library patrons at NUST and LSU rated the technology provision moderate because lecturers stated that they held basic technologies, they were expected to be active users of

social media for interaction purposes and they were required to add more e-resources while students gave reasons such as poor economic status affects technology provision and they largely rely on face to face communication. Library patrons at MSU rated their technology high/very high since the library had a non-shared WiFi, computer labs and a wealth of e-resources.

- Three hundred and sixty-six (81%) students revealed that librarians were occasionally available for online reference. An assessment of the library websites revealed that social media platforms at NUST and LSU were not regularly updated whilst at MSU they were constantly updated. Librarians at NUST and LSU acknowledged that they were occasionally logged-on for online reference services because of multitasking which never allowed to find time to logon to social media platforms, great preference for face to face reference services and absence of policies hence librarians were not obliged to log on to online reference facilities. MSU library officially used WhatsApp as a chat facility and Facebook for regular interaction.
- Four hundred and twenty-one (93%) students stated that they access off-campus e-resource, and this is firmly supported by the availability of off-campus links on all three libraries' websites.

2. *To what degree are Zimbabwean academic librarians' skills and competencies meeting the requirements demanded by the modern academic library?*

- A hundred and thirty-three (62%) lecturers across all three universities rated their librarians' skills and competencies high and contrasted with 350 (73%) students who rated their librarians' knowledge and skills moderate.
- One hundred and twenty-three (83%) NUST and 193 (83%) MSU students were undecided about their librarians being approachable compared to 37 (51%) LSU students who agreed that their librarians were approachable.
- Most students from all three institutions felt that their librarians' IL skills and orientation skills were remarkable. An outstanding number of students (NUST 70 or 82% postgraduates and 53 or 83% undergraduates) and (LSU 15 or 65% postgraduates and 40 or 80% undergraduates) never had the knowledge about the ILS classes and orientation sessions.

- Academics at all three universities also graded librarians' skills and competencies high since NUST librarians were said to be suitably qualified, experienced, knowledgeable and helpful within the constrained environment in which they operated. However, NUST lecturers expected librarians to hone their social media interaction skills, make available needful software and services, regularly host seminars for lecturers and constantly upgrade their skills. MSU lecturers were confident about their librarians since they were exposed to international practices and have shown competencies, there was little interaction between librarians and academics because they used online services, librarians were always seeking to improve, as well as fully knowledgeable, trained and have library management qualifications although their services were affected by limited resources. MSU academics urged librarians to catch up with new technologies so that they become a source of cutting edge knowledge and to offer diverse ways of answering queries. Academics at LSU felt that librarians were recent graduates therefore possessed fresh ideas, they always attended international conferences which act as refresher workshops and they were always available and eager to share library resources. LSU lecturers also advised that some librarians needed to improve themselves academically and also build up their experience and become innovative.
- NUST and LSU libraries were still struggling to formally take up their teaching role because the campus community and universities management never approved. Rather campus community proposed that librarians should provide the IL materials to academics so that they teach on their behalf. As a result, almost every student never knew what IL is based and only a few students benefited from the informal IL programme. NUST and LSU librarians were offering IL classes informally working with lecturers who were willing to offer their teaching time periods to librarians while at MSU this module was scheduled on the students' time table and all librarians offered face to face classes.
- All 25 (100%) librarians in this study rated the LIS qualification as extremely valuable in performing their job activities within the modern information landscape. Academic librarians held IL teaching skills, orientation skills, skills for designing IL teaching materials, continuous education skills, marketing and advocacy skills, collaboration skills and basic research skills to aid patrons in their information search endeavors. For keeping up to date, librarians held positions in several academic library related associations and

activities within the country, knowledge sharing within the library through formulating communities of practice (COPs) and joining emailing lists. Librarians complained about lack of financial support from their parent institutions to assist in attendance of international conferences.

- Several librarians never had skills for partnering with campus communities, specific subject expertise and managing and marketing of OERs, teaching IL online, scholarly communication expertise, conducting personal research and publishing, RDM skills, using altmetrics for assessing research output, computer programming skills and basic computer maintenance skills. Two reasons were stated *first-* the concepts were new and *second-* librarians were accustomed to concentrating on acquiring skills that were linked to their specific jobs thus ignoring developments in other library sections.

3. *What are the Zimbabwean academic librarians' attitudes towards the changes in the 21st century academic library?*

- In this study, librarians were not threatened by changes in higher education that affect university libraries thereby reflecting a positive attitude and they also felt that it was very imperative for them to keep up with new trends.
- Librarians also reflected negative attitudes as they lost morale due to lack of support from library management to help implement new concepts. Library management should help shape the values, beliefs and norms in the face of change. These will later transform into dominant values, beliefs and norms and become relatively enduring features of the organisational life. Librarians were also pushing responsibility to academics, for example teaching digital literacy and providing e-links to internal and external funding, that is to say they were somehow avoiding responsibility and change.
- Academic librarians were frustrated by major barriers such as inadequate funding for the library, limited time due to multitasking in different job responsibilities, poor knowledge and skills and slow uptake of new concepts within the library.
- All librarians in Zimbabwe were keen to adopt new concepts at work. Several librarians adopted new ideas because they were required to do so by their library and that they were not always willing to adopt new concepts even if it meant not conforming to the library requirements.

4. *What are the needs and expectations of 21st century academic library users?*

- Librarians in this study knew exactly what their modern patrons expected as they chose the same services and resources as those preferred by their library users. This was because librarians mainly used face-to-face interaction, social media, and suggestion box. Communication modes used at NUST and MSU were student and staff emails, library websites whilst at LSU and MSU they used the telephone, questionnaires and focus groups.
- In Zimbabwe, university library patrons' (students and lecturers) research support needs were RDM, equipment loan, software provision, new library spaces and e-links to internal and external research funding.
- In supporting their patrons' research needs librarians in Zimbabwe took major strides through partnering with their academics and research offices to ensure that all research published by academics was uploaded in the IR especially if the research was funded by the university. Librarians worked with academics in uploading students' theses/dissertations into the IR. All three libraries worked with their research offices in co-hosting workshops for their research community.
- Lecturers in this study maintained and promoted their personal research using Research Gate, Academia.edu, and LinkedIn. MSU lecturers also used Twitter and Mendeley never used Refworks, LSU lecturers also used Twitter and Refworks and not Mendeley whilst NUST lecturers were neutral about Mendeley, they never used Twitter and Refworks.
- Due to the poor economic situation, all librarians stressed that their institutions had limited funding which barely allowed them to purchase equipment for loaning their library users. The main role of the academic library was clearly articulated as that of providing information about campus units which maintain resources such as research software and other resources. Marketing of research information was an agent need amongst the three Zimbabwean universities since most patrons were unaware of the existence of research resources. Although librarians mentioned that they marketed libraries during the open access week, orientation/ILS classes, through faculty librarians, library management, brochures, library website page, social media e.g. Facebook, staff portal and e-learning platform these require to be thoroughly reviewed.

- Librarians argued that loaning equipment, offering research software and e-links to internal and external funding was the role of the research office or IT department or Learning Services Department. Reasons being that these Departments have the capacity and expertise to offer such IT based technologies and also NUST and LSU Libraries were non-academic departments. At MSU, they had in the past loaned Kindle devices to access e-books for distant learners but that has since stopped after a physical library was setup for those patrons. All three libraries did not have links related to research funding, equipment loan and research software on their websites.
- Librarians in this study agreed that their current library buildings were old and had limited space. Visible action was being taken to rectify this problem. At MSU they were in the process of building two libraries which encompass 21st century design. At LSU, they were busy constructing a library building at their main campus. A huge NUST Library building has been under construction for years at the main campus but unfortunately, limited funding slowed down the initiative. Librarians also boasted about their virtual spaces, for example at LSU their library website was being revamped and it was being maintained by the university website designer and the MSU librarians drew attention to their strong e-resources collection which assisted them to find solutions to limited space.
- For teaching and learning support, all lecturers and students required online reference services, off-campus access to e-resources, OERs, online IL programmes, interlibrary loan, equipment loan for teaching and learning and flexible teaching and learning spaces in their libraries old and new e-newspapers for research (contextual analysis), student access to software for plagiarism and referencing, current publications and research space. MSU lecturers required a well-equipped modernized library, more workshops on use of technology, collaborative research (interdisciplinary research) with librarians and a specialized library (Science Library). LSU lecturers expected reliable Internet and up to date teaching and learning software.
- The study revealed a tightly connected thread pointing to a major requirement by academics for NUST librarians to formally use social media for service delivery.
- Zimbabwean academics were willing to collaborate with librarians in terms of promoting awareness of library services through motivating students to use them, teaching IL in context and assessment, co-hosting workshops and conferences and collaborative

publishing or co-authoring research. Librarians across the three universities were neutral about forging partnerships with campus units. Zimbabwean academic librarians partner with lecturers in ILS teaching and collection development (i.e. submitting lists of textbooks and e-resources, including submission of past examination papers, research papers and theses/dissertations).

- Librarians in Zimbabwe were a bit reluctant about conducting research with academics and they cited time constraints, academics were not willing to associate themselves with librarians (i.e. negative attitude), it is not mandatory for NUST and LSU librarians to co-publish because of their non-academic status therefore they feel that they will not benefit, attempts have been made but resulted in a huge failure because of lecturers not fully committing in the research contribution, academics were open to co-publish with librarians only because they want to take advantage of their referencing and organizing skills, absence of policy to guide the relationship between faculty and librarians renders no obligation for faculty to take the librarians seriously, and that they have to find common themes or research areas in order to co-author research papers with lecturers.
- Academics' contribution towards library resources and services was clear whereas students' involvement was non-existent.
- Students required collaboration based on flexible online booking for information literacy; establishing a student service network in support of library pilot studies; having an Undergraduate Librarian and Postgraduate Librarian to design specialized services and programmes; librarians having a presence on e-learning platform, and regular online interaction with librarians; establishing close ties with the library in formulating dissertation working groups and teaching IL online just-in-time skills.
- Academics and students wielded enough power towards remodeling of services and resources offered by university libraries. Lecturers emphasized that librarians should actively market their resources and increase their visibility. The general feeling amongst librarians was that current library user needs have altered their skills in that they constantly have to keep pace or even stay ahead in order to adequately address the user demands.

7.3. Contributions of the study

Every empirical research is expected to yield significant original contributions towards new knowledge (Cray, 2014). Bannister and Hardill, 2015; Cryer (2006); Kumar, 2002; Rwegoshora, (2006); Somekh and Lewin, (2005); and Phillips and Pugh (1994) highlight that originality in research entails: adjustments to existing policy or new policy formulation, providing a new interpretation using existing information, repeating research in other contexts e.g. a different country, applying existing ideas to new areas of study, using methodology in a new area, developing a new research technique, and using a different approach, for example a cross-disciplinary perspective. This section captures the five main facets generated from the study's empirical research findings as follows: (1) investigation into an unexplored area in Zimbabwe (2) presentation of unique concepts and theoretical issues (3) using unique methodologies that help define fundamental research goals (4) strategies for mitigating gaps and challenges to contribute towards policy formulation and (5) evaluating new librarians' practices.

New Knowledge- The research has not been conducted before in Zimbabwe. The study has contributed immensely towards defining the skills and competencies of the modern academic librarian. It also identified the needs and expectations of students and academics of their modern academic library.

Unique concepts and theoretical issues- The research was guided by concepts identified in the literature, namely open scholarly materials, RDM, social web, new pedagogies, librarian skills and competencies, new library spaces and faculty-librarian collaboration. The DOI theory and McKinsey 7S model provided useful theoretical explanations. These unique measures are a significant contribution towards other concepts that are used in the 21st century research environment.

Unique methodologies- The study used a mixed methods approach. Firstly, the researcher administered web-based questionnaires. Secondly, the researcher conducted a website content analysis. Thirdly, data collected via web-based questionnaires and website content analysis was analyzed and gaps were identified and informed the follow-up interviews. Fusing these three data collection methods proved effective and provided required depth. These methodologies are an addition to research procedures that can be adopted and used in other research situations.

Policy Formulation- The research contributed towards alerting academic libraries to implement guidelines on conducting research for gathering campus-wide patrons' views/opinions. This is imperative because patrons have a fundamental impact on the kind of resources offered by the academic library, the academic library's role of communication and the academic librarian's skills and competencies. The creation of a policy should incorporate a flexible collaboration between faculty and academic libraries. Partnerships between academics and university librarians are central in achieving a 21st century library. There is a need to craft policy for governing online reference services. This modern environment demands that academic librarians should regularly and instantly stay in touch with library patrons online.

The academic librarian's practice- The research has revealed factors that change academic librarians' skills and competencies and these are broadly user needs and expectations and the higher education environment. Figure 6.1. can be used to explain factors that affect academic libraries in the modern environment.

7.4. Conclusions of the study

Conclusions are drawn from the research facts and interpretations presented and discussed in Chapter five and Chapter six respectively:

The extent to which the 21st century information landscape has shaped the Zimbabwean academic library

Factors such as globalization, socio-economic transformation, technology, and new forms of pedagogies have impacted higher education. Although the Zimbabwean higher education environment was slowly becoming obsolete, in a bid to improve the situation all lecturers were being supported to upgrade and obtain a PhD degree. The adoption of technology in teaching and learning had visible effects such as student not being able to retain knowledge and it exposed lecturers' inadequacies as students were techno-savvy compared to them. Similarly, the 21st century higher education has great demand for technological skills as such academic librarians were required to teach digital literacy skills. The modern higher education expects academic libraries to be highly proficient in the use and adoption of social media platforms but NUST and LSU Libraries had not fully embraced these platforms. Academic libraries in Zimbabwe were in a moderate position in terms of meeting the demands of the 21st century as rated by their patrons.

Academics in Zimbabwe used basic technologies such as data projectors and social media platforms for teaching and learning. E-learning platforms were a recent development in Zimbabwe that is why only lecturers at NUST and MSU used them in teaching and learning whereas LSU lecturers never used them. Blended learning was the most commonly used form of pedagogy in Zimbabwe. Mobile technologies and m-learning was less popular amongst academics because of lack of resources. Academic librarians adopted mobile technologies, and open scholarly materials to design IL programmes; teach IL classes; communicate with patrons online; market new services and resources; and gather patrons' feedback on services and resources.

Academics play a major part in marketing academic library resources and services through encouraging students to access the library materials. Students use library resources deemed useful by their lecturers since lecturers are actively involved in the collection development process. All three academic libraries were still using basic technologies for service delivery although MSU Library provided best quality technology compared to NUST and LSU Libraries. Academic librarians were occasionally available online because of lack of time due to multitasking, preference for face to face reference service and absence of policies. Students had access to e-resources off-campus. Change amongst academic libraries in Zimbabwe was to a limited extent and it has proved to be a slow-paced process.

Modern skills and competencies for university librarians

Library patrons had different notions about the skills and competencies held by academic libraries for example, academics ranked the librarians' skills high whilst students rated them moderate. Students at NUST and MSU were neutral about their librarians being approachable whereas LSU librarians were approachable.

Lecturers across all three institutions also regarded their academic librarians as capable in their ILS and orientation sessions. NUST librarians were described by academics as suitably qualified, experienced, knowledgeable and helpful within a limited environment. However, NUST librarians were advised to enhance social media use for interaction, provide research software and services, organise workshops for lecturers and constantly renew their skills. MSU lecturers took pride in their librarians' exposure to practices elsewhere, use of online services has allowed remote access, librarians were constantly upgrading hence they were knowledgeable and trained. Conversely, MSU librarians were encouraged to catch up with the latest technologies so that they could become

sought after sources of information and offer diverse strategies of seeking and finding information. Academics at LSU boasted about their fresh librarian graduates, librarians who were always exposed to international conferences, and always keen to share library resources but librarians were required to upgrade themselves academically, build their experience and become innovative.

NUST and LSU librarians carried a non-teaching/academic status and taught ILS informally whereas MSU librarians were regarded as teaching staff and delivered a campus wide ILS programme, they all taught ILS on a face-to-face basis. The situation at NUST and LSU resulted in only a few students knowing about ILS and what it entails. Despite that the MSU Vice Chancellor supported the teaching role of librarians because of international exposure, NUST and LSU academics felt that it is their duty to teach and librarians should provide them with ILS teaching materials.

The LIS qualification wielded extreme value in assisting the 21st century academic librarians to adequately deliver. Academic librarians in Zimbabwe were equipped with IL teaching skills, orientation skills, skills for designing IL teaching materials, continuous education skills, marketing and advocacy skills, collaboration skills and basic research skills to aid patrons in their information search endeavors. Academic librarians constantly updated their skills and competencies through holding positions local associations and activities, formulated COPs for knowledge sharing and joined mailing lists. Lack of financial support from librarian's institutions posed a hurdle in international conference attendance.

Most academic librarians did not have partnering skills with campus units, specific subject expertise, managing and marketing of OERs, teaching IL online, scholarly communication skills, conducting personal research and publishing, RDM skills, assessing research output using altmetrics and basic computer maintenance skills because the concepts were new and that librarians were inured to acquiring skills based on their areas of specialty and ignored developments in other areas which were not part of their job descriptions.

All institutions exposed their librarian to professional development through attending training workshops/seminars on the job or off and to academic updating (staff development programme). Librarians constantly updated their skills and competencies and that their institutions management expected them to constantly update their skills and competencies. Students regarded their librarians IL teaching skills and orientation skills high but most students were unaware of what these sessions

were or that their libraries offer such because of informal status, the value of IL is yet to be realized by the academic communities at LSU and NUST. This also contributes to the failure of students to retain knowledge.

Librarians' attitudes towards change

Academic librarians in Zimbabwe were confident about changes in higher education that affect the university library as they never felt threatened by these shifts. Academic librarians acknowledged that it was mandatory to constantly keep-up with new trends, they were keen to adopt new concepts at work, they adopted new ideas because they were required to do so by their library and that they were not always willing to adopt new concepts even if it meant not confirming to the library requirements.

University librarians were discouraged by lack of support from library management to assist in implementing new trends. Some academic librarians never felt responsible for teaching digital literacy as well as offer e-links to internal and external research funding to their patrons in a way avoiding change. Inadequate funding for the library, limited time due to multitasking, sluggish uptake of new concepts as well as limited knowledge and skills were significant hindrances in keeping up with new trends.



Patrons' needs and expectations in the modern academic library environment

Academic librarians in Zimbabwe were well-acquainted with the needs and expectations because they used face-to-face interaction, social media platforms and suggestion box. Additionally, at NUST and MSU they used student and staff email and the library website whereas at LSU and MSU they used telephone, questionnaire and focus groups.

Patrons' research support requirements were RDM, equipment loan, software provision, new library spaces and e-links to internal and external research funding. Academic librarians collaborated with academics and their research offices all university funded research was uploaded into IR. University librarians further partnered with academics in order to access and upload students' theses/dissertations into the IR. They networked with their research offices in co-hosting research workshops. Lecturers managed and marketed their individual research utilizing Research Gate, Academia.edu and LinkedIn. Twitter and Mendeley were common tools amongst lecturers at MSU whilst at LSU Twitter and Refworks and at NUST Mendeley was used.

Academic librarians acknowledged that it was the role of the library to offer equipment loan but this was constrained by limited funding. The role of the academic library was described as that of offering useful information about campus units for finding resources. Not all services and resources were offered at the library some campus units such as the research office. Some patrons never knew about the existence of some research software. The library marketing methods were namely the open access week, orientation/ILS classes, through faculty librarians, library management, brochures, library website page, social media e.g. Facebook, staff portal and e-learning platform were inadequate/ineffective. Librarians argued that loaning equipment, offering research software and e-links to internal and external funding was the role of the research office or IT department or Learning Services Department. Reasons being that these Departments have the capacity and expertise to offer such IT based technologies and also NUST and LSU Libraries were non-academic departments. At MSU, they had in the past loaned Kindle devices to access e-books for distant learners but that has since stopped after a library was setup for those patrons. All three libraries did not have links related to research funding, equipment loan and research software on their websites. All three university libraries were busy refurbishing their physical and virtual spaces to meet the 21st century standards.

Teaching and learning requirements patrons expected online reference services, off-campus access to e-resources, OERs, online IL programmes, interlibrary loan, equipment loan for teaching and learning and flexible teaching and learning spaces in their libraries, old and new e-newspapers for research (contextual analysis), student access to software for plagiarism and referencing, current publications and research space. MSU lecturers required a well-equipped modernized library, more workshops on use of technology, collaborative research (interdisciplinary research) with librarians and a specialized library (Science Library). LSU lecturers expected reliable Internet and up to date teaching and learning software.

A traceable connection indicating a key requirement by NUST library patrons for their librarians to use social media tools for instant interaction. Academics' collaborative requirements were marketing library services to students, teaching IL, co-hosting workshops and co-publishing. Academic librarians partnered with academics in collection development, uploading theses/dissertations and ILS teaching. Librarians were neutral about networking with campus units and co-publishing with academics. Major barriers to co-publishing were time constraints,

academics not willing to associate themselves with librarians (i.e. negative attitude), it was not mandatory for NUST and LSU librarians to co-publish because of their non-academic status therefore they feel that they will not benefit, attempts have been made but resulted in a huge failure because of lecturers not fully committing in the research contribution, academics were open to co-publish with librarians only because they want to take advantage of their referencing and organizing skills, absence of policy to guide the relationship between faculty and librarians renders no obligation for faculty to take the librarians seriously, and that they have to find common themes or research areas in order to co-author research papers with lecturers.

The active involvement of academics in shaping resources and services was visible whereas students' contributions were non-vivid. It can be concluded that patrons' demands and expectations exert a force that ensure librarians' continuous improvement. Students' collaboration requirements were flexible online booking for information literacy; establishing a student service network in support of library pilot studies; having an Undergraduate Librarian and Postgraduate Librarian to design specialized services and programmes; librarians having a presence on e-learning platform, and regular online interaction with librarians; and teaching IL online just-in-time skills. In particular, fourth year undergraduate students and postgraduates required establishing close ties with the library in formulating dissertation working groups.

The influence of patrons' needs on librarians' skills and competencies

Library patrons contribute immensely towards reshaping of the university library environment. Academic librarians felt that users' demands have transformed their skills and competencies as such they have to continuously keep up. Librarians were encouraged to increase their visibility to their patrons through marketing their services and resources. It can therefore be concluded that modern patrons' research, teaching and learning, research and collaborative needs and requirements have hugely influenced and remodeled librarians' skills and competencies.

7.5. Recommendations of the study

Academic librarians' role in improving the contours of higher education:

Academic librarians are required to take-up their teaching role and assume the title academics or teaching staff. Specifically, NUST and LSU libraries are recommended to formally teach ILS

campus wide. Infusion of online and face-to-face Information Literacy Skills (ILS) teaching has become requisite for university librarians. Academic librarians in the 21st century deserve to enjoy the benefits of being fully funded by their universities to write research papers and present in prestigious international platforms. Consequently, modern university librarians ought to enthusiastically contribute towards the university research output through publishing and be innovative by searching for fully funded opportunities to attend conferences and workshops. This will not only strengthen their individual skills and competencies but ensure a valuable contribution towards the institution's mission and goals.

Academic librarians should visibly support the deployment of technologies in teaching and learning through imparting digital literacy skills. Librarians should also seriously undertake professional development through academic advancement. They should make available mobile technologies and research software for teaching and learning. If mobile technologies and research software are kept in the research office, it is the librarian's duty to make these visible through providing information to the library patrons.

Academic librarians' skills and competencies:

University library management should identify innovative individuals and give them full support in order to swiftly effect change within academic libraries. *Innovators* have the power to convince other staff members to accept transformation and help guide the institutions' values, beliefs and norms. Modern academic librarians need to embrace skills such as:

- a) Collaboration with campus units;
- b) Specific subject expertise;
- c) Managing and marketing OERs;
- d) Teaching IL online;
- e) Scholarly communication skills;
- f) Conducting personal research and publishing;
- g) RDM skills;
- h) Assessing research output using altmetrics and basic computer maintenance skills.

Much as academic librarians were specializing in their specific job tasks, 21st century librarians are expected to be multi-skilled. It demands strategic thinkers, ability to be adaptable, flexible, to be risk-takers, and embrace innovation. In support of their teaching they should acquire a teaching qualification.

Patrons' involvement in crafting library resources and services:

Active interaction with library users (especially students) prior to implementing new services and resources should be a top priority. In the view of the DOI theory involving student engagement will aid in accelerating decision making when adopting new concepts. Students should be afforded a clear opportunity to contribute towards shaping of library services and resources because they occupy a greater share of the library social system. Simply consulting them on what they think should be added or removed or even before implementing services to find out whether a service is required will make a huge difference in increasing the visibility and value of the library to students. Therefore, university libraries are urged to create policies which will guide ways for making the student voice heard through conducting research (user survey).

Since librarians mentioned that they specialize in various library areas, the appointment of Research librarian (for undergraduate and postgraduate students) to produce regular reports based on user expectations has become requisite. University librarians should constantly scan their information environment through carrying out research. Academic librarians need to actively involve students through conducting regular patrons' research using mixed methods approach and ethnographic studies to track gradual changes in patrons' demands and expectations. Data collecting methods such as face to face in-depth focus group interviews (which allow division of library patrons into strata e.g. undergraduate 1st year, 2nd year, 3rd year, 4th year, 5th year students; postgraduate diploma students; master's and PhD students and academics), questionnaires and observations. In this way every patron stands an equal chance of contributing towards shaping resources and services especially if this is conducted before implementing resources and services. The current environment demands that all patrons be actively involved modeling resources and services.

Online reference services:

Policies needs to be formulated especially with use of social media and online chat facilities for academic librarians to regularly interact with patrons. Academic libraries should appoint reference librarians and craft policies that makes it mandatory for librarians to available for online reference services. NUST and LSU librarians should craft policies on the use of social media platforms for regular interaction.

Faculty-librarian collaborations:

Crafting of policies which govern collaborations between librarians and academics. Guidelines will create flexible ways for partnerships through marketing library services to students; teaching ILS; co-hosting workshops and co-publishing. For co-authoring academic librarians and academics need to find common research areas and promote current multidisciplinary research demands. They should be provided with offices in the faculty in order to facilitate close contact between faculty librarians and academics and students.

Marketing:

The role of librarians is to seek correct information on where to find extra resources which are deemed important by users. If this role is adequately played then marketing of research information was an agent need amongst the three Zimbabwean universities since most patrons were unaware of the existence of research resources and the IL as well as orientation programmes. Although librarians mentioned that they marketed libraries during the open access week, orientation/ILS classes, through faculty librarians, library management, brochures, library website page, social media e.g. Facebook, staff portal and e-learning platform these strategies require a thorough scrutiny and revision.



7.5.1. Recommendations for further research areas

There are a number of additional areas for further research. The current study identified the main factors that affect academic libraries (librarians and patrons) in the modern environment. Future studies should conduct an in-depth exploration of the impact of the 21st century changes on the education and training of librarians at tertiary level.

More methodological work is required on how to robustly capture the impact of patrons' involvement in shaping library services and resources implementation. The application of ethnographic studies might reveal useful patterns on how patrons reject or accept new services before actual implementation.

Research has become a fundamental aspect of every tertiary institution. Further research should closely interrogate the benefits of partnerships between university libraries and research departments on campuses.

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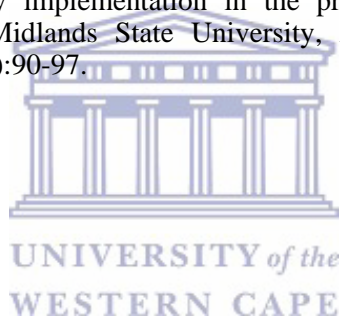
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Appendix A NUST Approval Letter



National University of Science and Technology

P. O. Box AC 939 Bulawayo, Zimbabwe
Cnr. Gwanda Road/Cecil Avenue

Telephone: 263-9-282942/28841-339758
Fax: 263-9-289007

From Registrar F. Mhlanga Dip Edu, BEd, MSc(UZ); MBA (NUST)

FM/ab

15 August 2016

Ms R Moira Mabweazara
University of the Western Cape
Faculty of Arts
Department of Library and Information Science
Private Bag, X17, Bellville, 7535
Cape Town
South Africa

Dear Ms Mabweazara

REQUEST FOR PERMISSION TO UNDERTAKE RESEARCH AT THE NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

Reference is made to your letter dated 5 August, 2016 on the above request.

We would like to inform you that we have granted you permission to do your research study on your project targeting academics, postgraduate and undergraduate students to examine their needs and expectations from the 21st Century Academic Library.

We note that you will be collecting data and would like to emphasize that all the information gathered should be for research purposes only and that confidentiality has to be exercised.

The University wishes you the best in your studies.

Yours sincerely


F Mhlanga
Registrar

cc Acting Vice-Chancellor
Acting Pro-Vice-Chancellor, Chairman of the Research Board
Deputy Registrar, Academic
Deputy Registrar, Administration
Dean, Faculty of Medicine
Dean of Students
Director, Research and Innovation Office



Appendix B MSU Approval Letter



University of the Western Cape
Faculty of Arts
Department of Library and Information Science
Private Bag, X17, Bellville, 7535, Cape Town, South Africa

5 August 2016

Dear Vice Chancellor

Request to conduct research at the Midlands State University

My name is Rangariri Moira Mabweazara, a PhD student in Library and Information Science at the University of the Western Cape. I am conducting a study on the 21st Century academic library at three public universities in Zimbabwe. The research sites are the National University of Science and Technology, Midlands State University and Lupane State University. The research project targets academics, postgraduate and undergraduate students to examine their needs and expectations from the 21st century academic library. It further seeks to discover the attitudes, skills and competencies of academic librarians in meeting the needs and expectations of their user community in this 21st century information landscape.

Participants in the study will be assured of their anonymity, participants' confidentiality will be practiced at all times and participation is voluntary with the option to withdraw from the study at any time.

The University of the Western Cape Ethical Clearance number is 15/6/41. In the event that you have any questions and wish to have a detailed account of this study please contact my supervisor, Dr Sandy Zinn at the University of the Western Cape, at szinn@uwc.ac.za; 27-21 9592349. My contact details are rmabweazara@gmail.com.

Yours truly

Ms R Moira Mabweazara

DEPT. OF LIBRARY & INFORMATION SCIENCE
PRIVATE BAG X17
UNIVERSITY OF THE WESTERN CAPE
BELLVILLE, 7535

DATE: 2016-10-08

Approved
[Handwritten signature]

MIDLANDS STATE UNIVERSITY
HUMAN RESOURCES
09 SEP 2016
PRIVATE BAG 9066 ORERU
ZIMBABWE TEL/FAX 054 22000

Appendix C LSU Approval Letter



3rd Floor
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P.O. Box AC 255
Tel: +263-9-63310 (Direct) 7377071
Telfax: +263-9-63311
BULAWAYO, ZIMBABWE
E-mail: cmakoni@lsu.ac.zw

Registrar's Office

01 September 2016

Ms R Moira Mabweazara
University of the Western Cape
Faculty of Arts
Department of Library and Information Science
Private Bag, X17, Bellville, 7535,
Cape Town,
South Africa

Dear Madam

Re: Request to to Carry out Thesis Research Study At Lupane State University

Your request to carry out your research study on "User's Needs and Expectations from the 21st Century Academic Library at Lupane State University" is hereby granted.

You are, therefore, advised to make all your arrangements and activities through the office of the Senior Assistant Registrar, Human Resources.

Yours faithfully

CS Makoni
PP C S Makoni (Mrs)
Acting Registrar

cc Vice-Chancellor
 Pro - Vice-Chancellor
 Registrar

All academic Dept, Library, Dean of Students
Please assist Ms Moira with
the relevant information she requires
Thank you.

(HR)
12/09/16



Appendix D Information Consent Letter
University of the Western Cape
Faculty of Arts
Department of Library and Information Science

Dear Respondents

My name is Rangarirai Moira Mabweazara, a PhD student in Library and Information Science at the University of the Western Cape. I am carrying out a study on the 21st century academic library: the case of Midlands State University, National University of Science and Technology and Lupane State University, Zimbabwe. The research project targets academics, postgraduate and undergraduate students to examine their needs and expectations from the 21st century academic library. It further seeks to discover the attitudes, skills and competencies of academic librarians in meeting the needs and expectations of their user community in this 21st century information landscape.

I therefore kindly solicit your assistance to provide answers to the set of questions provided. In case you have any questions and wish to have a detailed account of this study please contact me at rmabweazara@gmail.com or Professor. S. Zinn at the University of the Western Cape at szinn@uwc.ac.za.

- You will be anonymous and all answers will be confidential.
- Information obtained through this exercise will be strictly used for academic purposes.
- Your participation is voluntary and you are free to withdraw at any time without giving any reason.

Appendix E Web-based Questionnaire for University Librarians

University of the Western Cape
Faculty of Arts
Department of Library and Information Science
Private Bag, X17, Bellville, 7535, Cape Town, South Africa

Dear Respondents

My name is Rangarirai Moira Mabweazara, a PhD student in Library and Information Science at the University of the Western Cape. I am conducting a study on the 21st Century academic library at three public universities in Zimbabwe. The research sites are the National University of Science and Technology, Midlands State University and Lupane State University. The research project targets academics, postgraduate and undergraduate students to examine their needs and expectations from the 21st Century academic library. It further seeks to discover the attitudes, skills and competencies of academic librarians in meeting the needs and expectations of their user community in this 21st century information landscape.

A questionnaire for this study follows. I therefore kindly request your assistance to provide answers to the set of questions provided. In case you have any questions and wish to have a detailed account of this study please contact me at rmabweazara@gmail.com or my supervisor Professor. Sandy Zinn at the University of the Western Cape at szinn@uwc.ac.za; tel: 021 9592349.

- You will be anonymous and all answers will be confidential.
- Information obtained through this exercise will be strictly used for academic purposes.
- Your participation is voluntary and you are free to withdraw at any time without giving any reason.

If you agree to take part in the above mentioned study please fill in the questionnaire and click SUBMIT once you finish.

SECTION A: Please fill in your background information

Description (optional)

1. What is your gender?

Female

Male

2. Which institution do you work for?

NUST

MSU

LSU

3. How old are you?

20-30 years

31-40 years

41-50 years

51-60 years

61 and older

4. How long have you worked at your library?

- Less than a year
- 1-5 years
- 6-10 years
- More than 10 years

5. What is your job title?

Short-answer text

6. What is your highest academic qualification?

- Diploma
- Bachelors Degree
- Honours Degree
- Masters
- PhD

7. What library qualification do you hold?



- Certificate in LIS
- Diploma in LIS
- Honours in LIS
- Masters in LIS
- PhD in LIS

8. How long ago did you obtain your LIS qualification?

- No LIS qualification
- Currently studying
- Less than a year ago
- 1-5 years
- 6-10 years
- More than 10 years

SECTION B: The extent to which the 21st century information landscape has shaped the Zimbabwean academic library

9. What is your knowledge of the current changes in the nature of teaching and learning?

10. What is your knowledge of the current changes in the nature of research?

11. I use the following new trends for offering services and resources.

YOU MAY SELECT MORE THAN ONE

- Mobile technologies (e.g. iPad, Smart phone, Laptop)
- Social Web (e.g. Facebook, WhatsApp, Blog, Twitter, Viber)
- Flexible library space (e.g. learning/research commons, collaborative space)
- Research Data Management tools (e.g. data repositories)
- Open Scholarly materials (e.g. Open Access e-journals, Open Access e-books, Open Educational Resources)
- Libguides (e.g. Subject/ Research guides)
- Digital storytelling software

11(a). Other new trends used to offer services and resources, please specify.

12. To what extent do you offer the following services and resources to your users?

1= Not at all 2= Sometimes 3= Neutral 4= Often 5= Very often

	Not at all	Sometimes	Neutral	Often	Very Often
Linking patrons to reliable open access journals and books	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online marketing of your services and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Linking users to internal and external funding for research purposes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use of Social media for regular communication with academics and students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WESTERN CAPE					
Offering online information literacy programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offering online reference services (e.g. ASK A LIBRARIAN)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offering research data management services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Well-equipped work spaces and equipment (e.g. research/information commons, collaborative space)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supporting open access to educational resources (e.g. e-books/e-textbooks, courseware)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equipment Loan (e.g. iPads/ e-book readers/laptops)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Making open access publications discoverable (e.g. Research repositories/Electronic Theses and Dissertations, Data repositories, e-books, e-journals, e-textbooks)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing access to research software (e.g. SPSS, ATLAS.ti)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Off-campus access to e-resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing citation/bibliographic management software (Endnote, RefWorks, Mendeley, Bibus, Citavi) training	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile device access to library services and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12(a) What other services and resources do you offer in line with the 21st Century academic library?

Section C: Academic librarians' attitude towards new changes

13. I feel overwhelmed by changes in higher education that affect the academic library.

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

1 2 3 4 5

Strongly Disagree Strongly Agree

14. For me keeping up with new trends in academic libraries is.

1= Extremely worthless 2= Worthless 3= Neutral 4= Valuable 5= Extremely valuable

1 2 3 4 5

Extremely worthless Extremely valuable

15. I feel left behind because of the following factors.

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Ineffective access to the Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Constant outages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inadequate funding for the library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of knowledge and skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Limited time due to multi-tasking in different job responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slow uptake of new concepts within the library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of guidance and motivation because of undefined organisational culture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Which of the following statements would you use to describe yourself?

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am always keen to adopt new concepts at work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am a bit cautious when it comes to adopting new concepts at work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I always wait until a new concept gains popularity amongst my fellow colleagues before adopting it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I adopt new concepts because I am required to do so by my library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not always willing to adopt new concepts even if it means not conforming to the library's requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section D: The skills and competencies of the 21st century librarian

17. How important is the LIS qualification for the job you are currently in?

1= Extremely worthless 2= Worthless 3= Neutral 4=Valuable 5=Extremely valuable

1 2 3 4 5

Extremely worthless Extremely valuable

18. What are the skills and competencies of the modern academic librarian?

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Teaching information literacy online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Designing information literacy teaching materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research data management skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using altmetrics for assessing research output	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Partnering with campus community to create high quality services and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing and marketing open educational resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research skills for supporting patrons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conducting personal research and publishing skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scholarly communication expertise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specific subject expertise/speciality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18(a). Which of the above mentioned skills and competencies do you possess?

18(b). What other skills and competencies are required for the 21st century librarian?

19. What strategies and programs does your library have in place which ensures continuous updating of your skills and competencies?

YOU MAY SELECT MORE THAN ONE

- Training workshops or seminars on the job or off
- Academic upgrading or staff development program
- Funding for professional conference attendance
- Funding for research publishing
- Support in conducting research on patron community needs and expectations
- Creation of Community of Practice within your library

19 (a). Please name other programs used by your library, if any.

20. In the past 12 months which of the programs or strategies did you personally undertake?

21. Most of my colleagues constantly update their skills and competencies.

1=Never 2=Seldom 3=Occasionally 4=Often 5=Almost Everytime

1 2 3 4 5

Never Almost Everytime

22. My institution's management whose opinion I value expects me to constantly update my skills and competencies.

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

1 2 3 4 5

Strongly Disagree Strongly Agree

Section E: Library Patrons' needs and expectations in the 21st century

23. How often do you gather views on services and resources required by students, academics and researchers?

1=Never 2=Seldom 3=Occasionally 4=Often 5=Almost Everytime

1 2 3 4 5

Never Almost Everytime

23(a) What form of communication do you use to gather opinions about services and resources required by academics, researchers and students?

YOU MAY SELECT MORE THAN ONE

- Staff e-mail
- Social media (e.g. Facebook, Twitter, LinkedIn, WhatsApp)
- Face-to-Face (e.g. Faculty meetings)
- Library website announcements
- Telephone
- Suggestion box
- Student e-mail

23(b) Please list other forms of communication, if any.

24. What services and resources do you think your users require in this dynamic environment?

1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Regular updates on latest research in their field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access or bookings for information literacy programs when required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access online reference services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inter-library loan services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research data management services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on publishing in reliable open access journals and books	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Well-equipped work spaces and equipment(e.g. research/information commons, collaborative space)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Open access to teaching and learning materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research data management tools (e.g. data repository)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equipment loan(circulation of iPads/ Tablets, e-book reader, laptops)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Linking students and academics to exchange programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establishing a student service network	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to research software packages(e.g. SPSS, ATLAS.ti)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
information on digital research and citation management tools (e.g. Mendeley,Endnote, Refworks, Citavi, Bibus)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. What other needs do your patrons require?

26. In what way have the patrons' requirements altered your skills and competencies?

THANK YOU FOR YOUR TIME AND CONTRIBUTION

Appendix F Web-based Questionnaire for Academics

University of the Western Cape
Faculty of Arts
Department of Library and Information Science
Private Bag, X17, Bellville, 7535, Cape Town, South Africa

Dear Respondents

My name is Rangarirai Moira Mabweazara, a PhD student in Library and Information Science at the University of the Western Cape. I am conducting a study on the 21st Century academic library at three public universities in Zimbabwe. The research sites are the National University of Science and Technology, Midlands State University and Lupane State University. The research project targets academics, researchers, postgraduate and undergraduate students to examine their needs and expectations from the 21st Century academic library. It further seeks to discover the attitudes, skills and competencies of academic librarians in meeting the needs and expectations of their user community in this 21st century information landscape.

A questionnaire for this study follows. I therefore kindly request your assistance to provide answers to the set of questions provided. In case you have any questions and wish to have a detailed account of this study please contact me at mabweazara@gmail.com or my supervisor Professor. Sandy Zinn at the University of the Western Cape at szinn@uwc.ac.za; tel: 021 9592349.

- You will be anonymous and all answers will be confidential.
- Information obtained through this exercise will be strictly used for academic purposes.
- Your participation is voluntary and you are free to withdraw at any time without giving any reason.

If you agree to take part in the above mentioned study please fill in the questionnaire and click SUBMIT once you finish.

SECTION A: Please fill in your background information

Description (optional)

1. What is your gender?

Female

Male

2. Which institution do you work for?

NUST

MSU

LSU

3. How old are you?

20 - 30 years

31 - 40 years

41 - 50 years

51 - 60 years

61 and older

4. Which department or research office are you associated with?

Long-answer text

5. What is your highest qualification?

- Bachelors Degree
- Honours Degree
- Masters
- PhD

5(a). Other highest qualification, please name it.

Long-answer text

6. What is your job title or current designation?

- Teaching Assistant
- Staff Associate
- Lecturer
- Senior lecturer
- Professor

6(a). Other current designation, please name it.

Long-answer text

7. How long have you been working /researching at this institution?

- Less than 1 year
- 1 - 5 years
- 6 - 10 years
- more than 10 years

SECTION B: The extent to which the 21st century information landscape has shaped the Zimbabwean academic library

8. What is your perception of the changing higher education landscape?

9. Which technologies do you use for teaching and learning?
YOU MAY SELECT MORE THAN ONE

- Data projectors
- Mobile Technologies (iPad, Smartphone, Laptop)
- Social media platforms (Podcasts, Facebook, YouTube, Twitter)
- Interactive white boards
- E-learning platforms (Blackboard)
- Digital Storytelling software

10. Which new forms of teaching and learning do you use?

YOU MAY SELECT MORE THAN ONE

- Flipped Classroom set up (online collaborative learning where students research and provide feedback in class)
- Blended Classroom set up (mixing online collaborative learning and traditional learning techniques)
- Mobile learning (use of mobile devices e.g. smartphones, Tablets)

10 (a) Other new forms of teaching and learning, please identify them.

11. Which particular services and resources do you encourage them to use in the library?

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Electronic links to sources of research funding internal and external	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic access to scholarly publications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online information literacy tutorials (e.g. plagiarism/intellectual properties)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assistance with navigating research guides	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-resources (e.g. e-books, e-journals, e-textbooks) related to your field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional Repository (e.g. Research/Electronic Theses and Dissertations(ETD) repositories)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Print resources (books; journals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equipment loan (iPads, e-books, e-textbooks, streaming, video software, course ware, content modules, learning content)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equipment loan (iPads, e-book reader, laptops)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research Data Management services (e.g. Data repository)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remote access to reference services (ask-a-librarian)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11(a) How do you rate the services provided at your library?

1= Very Poor 2= Poor 3= Moderate 4= High 5= Very High

1 2 3 4 5

Very Poor Very High

11(b) How do you rate the resources provided at your library?

1= Very Poor 2= Poor 3= Moderate 4= High 5= Very High

1 2 3 4 5

Very Poor Very High

12. Does the library ask for your opinion in terms of services offered?

- YES
- NO

12(a) Please explain your answer.

13. Does the library request your opinion in terms of resources offered?

- YES
- NO

13(a). Elaborate on your answer.

14. How does the library communicate with you?

YOU MAY SELECT MORE THAN ONE

- Telephone
- Mobile phone
- E-mail
- Social media (e.g. Facebook, WhatsApp, Twitter)
- Face-to-Face (e.g. during faculty meetings)

14(a). Other modes of communication, please specify.

15. How would you rate technology provision at your library?

1= Very Poor 2= Poor 3= Moderate 4= High 5= Very High

1 2 3 4 5

Very Poor Very High

15(a) Please explain your answer.

SECTION C: The skills and competencies of the 21st Century academic librarian

16. Based on your experience, how would you rate the skills and competencies of your librarians?

1= Very Poor 2= Poor 3= Moderate 4= High 5= Very High

1 2 3 4 5

Very Poor Very High

16(a) Please elaborate on your answer?

SECTION D: Academics' needs and expectations of the 21st Century academic library

17. What are your current research support requirements from the library?

1= Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Provision of links to internal and external research funding agencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of information on specific accredited Open Access journals and books	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Provision of Research Data Management tools (e.g. Dataverse)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexible booking for research training whenever needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to scholarly publications (e.g. e-books, e-textbooks, e-journals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular updates and instant updates on latest publications related to your field of speciality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to your institutional research output statistics (altmetrics)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to research software packages (e.g. SPSS, ATLAS.ti)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Well-equipped working spaces for research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of information pertaining to reliable information on digital research and citation management tools (e.g. Mendeley, Endnote, RefWorks, Bibus, Citavi)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. What form of teaching and learning support do you currently require from the library?

1= Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Open educational resources (e.g. e-textbooks, e-books, content modules, streaming videos, software, learning objects etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexible working spaces for teaching within the library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular online information literacy programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to inter-library loan services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Remote access to reference services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equipment loan (iPad, e-book reader, laptop) for facilitating mobile teaching and learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Off-campus access to e-resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. What form of collaboration do you currently require from the library?

1= Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Teaching (inviting the librarian to explain to students in class about available resources and services in your specific discipline)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Availability of teaching space in the library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acquisition of specific resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alerting you and your students on availability of new services and resources relevant to you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Allowing your requests for information literacy on behalf of your students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaching information literacy in context and assessment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Co-hosting workshops and conferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Partnering in deploying new campus technologies (e.g. social web "wikis, blogs")	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. Which of the following social web tools do you use to maintain and promote your personal research?
 1= Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Social Science Research Network (SSRN)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research Gate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Academia.edu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mendeley	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CiteULike	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Open Research and Contribution (ORCID)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blogs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LinkedIn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Endnote	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RefWorks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iWrite	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. Please state other current requirements from the 21st Century academic library.

22. Is your library living up to your requirements in this current information landscape? Please elaborate.

THANK YOU FOR YOUR TIME AND CONTRIBUTION

Appendix G Web-based Questionnaire for Students

University of the Western Cape
Faculty of Arts
Department of Library and Information Science
Private Bag, X17, Bellville, 7535, Cape Town, South Africa

Dear Respondents

My name is Rangarirai Moira Mabweazara, a PhD student in Library and Information Science at the University of the Western Cape. I am conducting a study on the 21st Century academic library at three public universities in Zimbabwe. The research sites are the National University of Science and Technology, Midlands State University and Lupane State University. The research project targets academics, postgraduate and undergraduate students to examine their needs and expectations from the 21st Century academic library. It further seeks to discover the attitudes, skills and competencies of academic librarians in meeting the needs and expectations of their user community in this 21st century information landscape.

A questionnaire for this study follows. I therefore kindly request your assistance to provide answers to the set of questions provided. In case you have any questions and wish to have a detailed account of this study please contact me at rmabweazara@gmail.com or my supervisor Professor. Sandy Zinn at the University of the Western Cape at szinn@uwc.ac.za; tel: 021 9592349.

- You will be anonymous and all answers will be confidential.
- Information obtained through this exercise will be strictly used for academic purposes.
- Your participation is voluntary and you are free to withdraw at any time without giving any reason.

If you agree to take part in the above mentioned study please fill in the questionnaire and click SUBMIT once you finish.

SECTION A: Please fill in your background information

Description (optional)

1. What is your gender?

- Female
- Male

UNIVERSITY of the

2. Which institution are you registered with?

- NUST
- MSU
- LSU

3. Which level of study are you currently registered for?

- Postgraduate Diploma
- Honours Degree
- Masters Degree
- PhD Degree

3(a). Other Please specify.

Long-answer text

4. Which Faculty are you affiliated with?

- Commerce
- Applied Science
- The Built Environment
- Communication and Information Science
- Industrial Technology
- Medicine
- Arts
- Education
- Law
- Agriculture
- Science and Technology
- Social Sciences

5. Which year are you currently studying?

- 1st year
- 2nd year
- 3rd year
- 4th year

5(a). Other, please specify.

Long-answer text

SECTION B: The extent to which the 21st century information landscape has shaped the Zimbabwean academic library

6. Which specific services and resources do your lecturers encourage you to use at the library?

6(a) How do you rate the services provided at your library?
1= Very Poor 2= Poor 3= Moderate 4= High 5= Very High

1 2 3 4 5

Very Poor ● ● ● ● ● Very High

6(b) How do you rate the resources provided by your library?
1= Very Poor 2= Poor 3= Moderate 4= High 5= Very High

1 2 3 4 5

Very Poor Very High

7. How would you rate technology provision at your library?

1= Very Poor 2= Poor 3= Moderate 4= High 5= Very High

1 2 3 4 5

Very Poor Very High

7(a). Please explain your answer?

8. Does your library offer off campus access to e-resources?

1=Never 2=Seldom 3=Occasionally 4=Always 5=Almost Everytime

1 2 3 4 5

Never Almost Everytime

9. Does the library request your opinion in terms of services and resources offered?

Yes

No

9(a) Please explain your answer.



10. Are your librarians always available for consultation through online reference option?

1=Never 2=Seldom 3=Occasionally 4=Always 5=Almost Everytime

1 2 3 4 5

Never Almost Everytime

11. How does the library communicate with you?

YOU MAY SELECT MORE THAN ONE

Telephone

Mobile phone

E-mail

Social media (e.g. Facebook, Twitter, WhatsApp)

Face-to-Face (through formal meetings)

11(a). Other, please specify.

SECTION C: The skills and competencies of the 21st Century academic librarian

12. Would you say that your librarians are approachable or friendly.

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

1 2 3 4 5

Strongly Disagree Strongly Agree

13. Based on your experience, please rate the knowledge and skills of your librarians.

1=Very Poor 2=Poor 3=Moderate 4=High 5=Very High

1 2 3 4 5

Very Poor Very High

14. What is your opinion of your librarians' teaching skills in relation to information literacy training sessions?

15. What is your opinion of your librarians' teaching skills in relation to orientation sessions?

SECTION D: Students' needs and expectations of the 21st Century academic library

16. What are your current research support needs from the library?

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Provision of links to internal and external research funding agencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of information on specific accredited Open Access Journals and Books	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of Research Data Management tools or software (e.g. Dataverse)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexible online booking for research training whenever needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to Open Scholarly publications (e.g. e-books, e-textbooks, e-journals within your respective field)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular and instant updates on latest publications related to your field of speciality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Access to institutional research output statistics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of research software (e.g. SPSS, ATLAS.ti)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of well-equipped working spaces for research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Links to student exchange opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information on digital research and citation management tools (e.g. Endnote, RefWorks, Mendeley, Bibus, Citavi)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to print resources (e.g. books and journals)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. What form of current learning support do you require from the library?

1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Flexible learning spaces within the library (e.g. learning commons, collaborative space)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equipment Loan (e.g. iPads, Laptops, e-book readers) to facilitate mobile learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provision of Open Educational Resources (e.g. e-textbooks/e-books)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



18. What form of collaboration do you require from the library?

YOU MAY SELECT MORE THAN ONE

- Providing your views on specific required resources and services
- Allowing flexible online booking for information literacy
- Regular online interaction with librarians
- Establishing a student service network in support of library pilot studies
- Establishing close ties with the library in formulating dissertation working groups
- Having an "Undergraduate Librarian" and "Postgraduate Librarian" to design specialized services and programs
- Having a presence on e-learning platform e.g. providing reading lists; teaching online just-in-time skills

19. Please rate if your library is meeting your needs in this information landscape.

1= Not at all 2=Slightly 3=Somewhat 4= Very much 5= Extremely

1 2 3 4 5

Not at all Extremely

THANK YOU FOR YOUR TIME AND CONTRIBUTION

Appendix H Interview Schedule

All interviews were individual in-depth interviews and they were conducted with librarians across three academic libraries in Zimbabwe. The LSU and NUST Libraries are in close proximity and they are situated in Bulawayo, a city where the researcher resides, as such the researcher had no travelling problems. All interview arrangements were done on a face to face basis. However, the MSU Library is located in Gweru a city which is 152 km or 1hour 40 minutes away from Bulawayo – see map below. The researcher was provided with a list of phone numbers of all potential interview participants at MSU Library and had to make arrangements with participants via WhatsApp platform, prior to conducting face to face interviews. The Table below shows the full interview schedule.



Zimbabwean Map: Google maps <https://goo.gl/qSXY8C>

Institution	Pseudonym	Job Title	Interview Date	Time
LSU Library	Thandiwe	Faculty librarian	29-05-2017	8am-8:44am
	Lindelwe	Faculty librarian	29-05-2017	10am- 10:40am
	Ndaba	Deputy librarian	29-05-2017	12 noon- 1:14pm
	Dumisani	Faculty librarian	29-05-2017	2pm- 3pm
NUST Library	Nicole	Faculty librarian	06-06-2017	11am- 11:41am
	Terrence	Faculty librarian	09-06-2017	9am- 10:02am
	Nigel	Faculty librarian	12-06-2017	9am- 9:38am
	Pauline	Deputy librarian	14-06-2017	9am- 9: 37am
MSU Library	Tanaka	Faculty librarian	30-06-2017	10am- 10:40am
	Tendai	Deputy librarian	30-06-2017	12 noon- 12:48 noon
	Nakai	Faculty librarian	30-06-2017	2pm- 2:35pm
	Nyasha	Research librarian	30-06-2017	4pm- 4:33pm

Appendix I Follow-up Interview Guide

1. A significant number of students and lecturers said that the library does not consult them with regards to services and resources offered. Additionally, patrons have complained that librarians are occasionally available online for reference options/Social Media communication whereas your website has quite a number of interactive platforms.
 - a) **Describe how online reference and social media platforms are managed?**
 - b) **What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?**
2. It seems your institution emphasizes regular updating of skills and competencies.
 - a) **As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?**
 - b) **How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer**
3. Lecturers and students, who answered the questionnaire, indicated that they required the following resources (Software for research; Research Data repositories; e-links to sources of research funding; Well-equipped workspaces; Equipment Loan) which are not currently being offered by the library.
 - a) **How does the library view its role in providing these resources?**
 - b) **What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?**
4. The findings showed that academics are willing to collaborate with librarians in terms of:
 - i) Promoting awareness of your services through motivating students to use them
 - ii) Teaching IL in context and assessment
 - iii) Co-hosting workshops and conferences
 - iv) Collaborative research or co-publishing
 - a) **Whereas 52% of the librarians were neutral about forging partnerships with campus units and collaborating with academics in teaching and learning, how would you describe your relationship with academics considering that academics seem to be open to more collaboration?**
5. More than half of MSU respondents prefer face-to-face IL training rather than online training. **What has been your experience with IL training?**
6. There seems to be agreement amongst librarians about the use of social media for service delivery but a large number of librarians were neutral about compiling altmetrics to show impact of publications. **Are you familiar with altmetrics? To what extent has there been a demand from academics and the research department for impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)**
7. Lecturers are using technologies such as
 - (i) Social media platforms for teaching.
 - (ii) Data projectors
 - (iii) Mobile technologies
 - (iv) E-learning platforms

Additionally, lecturers rated librarians' skills and competencies high and accept that they are required to keep abreast with the latest technologies. **How is the library using new technologies to teach digital literacy skills?**
8. More than 70% of the librarians mentioned that ineffective Internet and constant outages were not hindering factors in keeping up with new trends. **Elaborate on what measures you have put in place which improved Internet access and constant outages?**

9. A content analysis of your library website revealed that the following aspects were not available:
- a) **New Library spaces (research workspaces, collaborative spaces, teaching and learning spaces). What future plans does the library have on redesigning its spaces?**
 - b) **Research Data Management (RDM). What is your opinion about RDM and does it have any place in your future library services?**
 - c) **Faculty-Librarian collaboration. Please elaborate if there is a concrete relationship between faculty and the library?**
 - d) **New Librarian skills and competencies. Please explain how your organisation assists you to keep renewing your skills and competencies?**



Appendix J Individual Interviews

LSU LIBRARIANS INTERVIEWS

INTERVIEW 1: NDABA

Moira: Describe how online reference and social media platforms are managed?

Ndaba (LSU): First you will have to understand that the situation as is in Zimbabwe is quite precarious in terms of staff that's one thing you have to understand. Actually we do not have a reference librarian at the point, all the assistant librarians and every library senior management are the ones that are then becoming reference librarians. We have our duties that we deal with administrative issues that we deal with but they has been a staff freeze I think for the past three years in Zimbabwe so we have not been able to employ or engage anyone who is to be a reference librarian and the ones who are subject librarians over and above what they do most of the time they will have to be with the people being embedded as it were to be with the faculties they attend faculty boards sometimes they are called to departmental boards, so for them to keep up with that you realize that one faculty librarian will be looking at lecturers about 40 per faculty then looking at students of around a thousand point something. See for them to keep up with all that at the same time go back and sit down on their tables and then start answering/giving real time responses on Facebook it's pretty hard but WhatsApp is the one that we really use more because people carrying their mobile. The librarians they use their phones to but what we agreed late last year (2016) that we were going to purchase phones for WhatsApp that one is still in the pipeline because a requisition was made. But we were saying for each and every group of students for example part one for human resources the librarian would have a phone that has a WhatsApp and can form groups from those so that she can be able to share and instant messaging and stuff. We thought that will make a difference and address the issues of real time answering of questions but the issue now is that we just have to answer the questions on the go we can't sit down and attend to Facebook we try maybe at the end of the day or maybe in the morning because we still have the traditional librarianship remember were we need to shelve were we need to look at the books were we need to assist in the processing in technical services as and when they is need so we just have to. When we recently moved to Lupane we didn't have anymore staff complement we had to cut the staff that we had and share it with the Lupane campus so we had to really close technical services for a while until we really had to find our groove around the whole thing so that's the issue. But of course am not trying to run away from the fact that probably we are not as real time as what the lecturers and students would want us to be, I think we can do more we can improve.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Ndaba (LSU): The first thing to say is that the student/lecturer attitude of a library in Zimbabwe is different from other countries, in most cases students only come to the library when they really have to. And we realized that the whole semester these two floors of the library will be empty one or two people but just a month before exams you wouldn't find any space to seat. So that's why am saying they use the library when they really have to, we now open even on weekends Saturdays and Sundays and they will be full you would have to practically drag them out of the library when we have to close see what I mean that's the first thing that really attributes to the fact that they don't know much about the library. Second the issue IL it really was the bridge between the patrons and the library and librarians we have in other countries for example South Africa were the took IL they took it up and they really wanted to do user instruction and we other universities like probably the MSU they really embedded it into their curriculum and it was an encouragement of ZULC that each and every university has to do likewise and for the past seven years that

I have worked here I have been fighting that battle to say let's infuse IL into introduction to computers and the issue is one management agrees and the other comes in and says no students are overloaded and all the stuff like that it becomes a problem. It has never been put as formal (IL), all the efforts that are done by the faculty librarian even to employ the Faculty Librarians was a hustle because I had to say we need Faculty librarians then they were like for what? What will they be doing? You know you will have to explain a whole lot of things tell them we have a changing user need and the direction we are going now is no-longer the same as that you people were taking the days when you were at varsity now we are moving the direction of the electronic resources online information retrieval and stuff like that so they need for people to understand they actually need the information there's need for them to understand the information sources, the retrieval techniques, the need to understand that they need to use this information legally and ethically, so then that direction was the direction that wasn't only going to be given to the students themselves or the users but the administration the lecturers and stuff like that you have someone that doesn't know how to use a computer but he is a chairman of a department really what he is going to do is to bring his list of books that are recommended for his course and he expects you to buy those books period nothing else then he will tell students these are the books but now they is no way in which you can teach students and say tell them go and access a book I mean really you just have to tell them go and look for the electronic resources and the list that you are going to bring to me I want you to include the resources that we have that we subscribe to or maybe give them JSTOR, SAGE, Edward Elgar etc but that mind set it has to be changed from the source who is the teacher in fact the management itself then coming to the lecturer then going to the students then we find ourselves to have to teach IL from the university management top going down then the use of change of management becomes a problem because you agree with one manager they are fine you know the VC is good is all ILs kind of approach he loves it then he dies or he moves on to somewhere else and somebody new comes then you start afresh again that resistance comes and permutates itself each and everyday but we then ended up agreeing that we are going to teach information literacy informally that's it. We also have we went to the direction of having marketing and advocacy, advocacy being the effort that we put to the top management then marketing we market to the users as it were and we have come up with several strategies to try to market the resources and we have e.g done OA week celebrations people come and lecturers they do come and its surprising that most of them say they don't know about the resources Faculty librarians seat on Faculty boards they seat also on departmental boards sometimes if there is need and I seat in research boards, I seat in computer committee and publications committee see all those information and research related committees I seat and being an open minded person my boss seats on the bigger committees like senate but we speak the same language throughout that of being information literate and having the idea of life long learning embracing the changing user needs even I seat on the strategic planning committee were we do the strategies if you go through it you will realise that even on the strategic plan the issue of life long learning it's a stand alone kind of thing that we say we need to focus on it as it were but still the issues of attitude. When I look at it I think attitude is the gist of the problem mindset and changing staff.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Ndaba (LSU): In this set up of university it's not mandatory that the fact that you have an extra qualification you are therefore entitled to a promotion, it's not a must you only get that promotion if there is a post or a vacancy an opening. But in the academic side its different because when you come in you are a teaching assistant you have your undergraduate then you upgrade yourself and get a Masters you are a lecturer you upgrade yourself you get a PhD you are a senior lecturer automatically just by attaining those you just upgrade yourself even now the issues of teaching assistant to lecturer its also a problem now even if you

get a Masters they might say no you get an interview you can lose the job someone else can come in but now that depends on the processes and your abilities probably as an interviewee but the academic side is very clear (teaching assistant, Lecturer, Senior Lecturer, Professor) but on the administrative side I came in here as an assistant librarian that was 2009 I have done my Masters I think I stayed for almost how many years still as an assistant librarian although they will send me to be the acting sub-librarian here and there then from there I acted as a deputy then I was appointed. But I have guys that have done Masters almost everyone is now a Masters holder but they are still assistant librarians like am saying there is no way in which I can convince management that my guys now have masters so now they need to be sub-librarians all of them. They will tell you that (one) there is a staff freeze, (two) there is no vacancy, (three) the university is still growing we can't have a full management system in the university administration the deputy librarian and the librarian can work while the university grows. The staff members will complaining and saying no I have this now you people don't recognize and stuff like that so it's quite an issue. Really we just need to balance it but they is no way in which you can balance it at some point something has to give its either management has to give and say no create positions because the issue is here the structure that we have is (Librarian, deputy librarian, a line with technical services, the systems services, users services and the research services) all those sections are supposed to be headed by sub librarians those that are holding fault now and say they are heading those sections they are supposed to be sub librarian positions then e.g. research services that I formed when I came in here because that's the direction that I took I didn't the traditional direction there was nothing in terms of research services it entails IL, IR, archives are on the same note then the electronic resources management is on that same portfolio still that is supposed to be headed by a sub-librarian anyone who has a masters and has experience can take up that but no one has ever been appointed in this university as a sub librarian no.

Moira: What about incentives atleast not talking about positions?

Ndaba (LSU): no incentives unless if you have a PhD I think I don't about the non-practicing or non-academic ones were you have a PhD as soon as you attain your PhD you are given an incentive I think there is a housing allowance so am sure if I do my PhD there will be an addition of that amount on my salary. PhD is the one that is very much over emphasized Masters is ordinary in this university undergraduate degrees are basic actually so really no one can talk about an incentive for a masters holder.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Ndaba (LSU): What I have discovered in the years that I have delivered IL is that user instruction is a skill but then we seat in board rooms and meetings and we say not everyone can teach IL you have to have a degree going up but you find someone e.g. I have a girl she's a diploma in LIS she is good she engages fine maybe she is been working here for a while and we taught her when we are under staffed ILS you can teach this way and stuff. I can give her a chance to just go through and deliver and know that she will do the job but the problem is like am saying that universities I mean a diploma you are nothing we can't even call you to meetings.

Moira: So it is true to say that universities are emphasizing on paper qualifications?

Ndaba (LSU): yes it's about Dr what do you think and professor what do you think and a Mr says something then a Dr says the same thing then they say I think that could work. Such kind of nonsense its practically nonsense because they is no way in which people can from polytechnic. In my experience as a manager is that people that went through polytechnic fine they might not be able to grasp on to the changes user needs but they know their job they can do their job properly and they really can give the best out of nothing but now here we just want to see what qualifications you have no I have a degree or only a degree.

Yah if you had a masters we could talk because even now we cant talk about if now we talk about assistant librarians we talk Masters we nolonger talking degree so things are changing and now even the minister himself you hear him say if don't have a PhD by 2017 you are done so it's about the paper. Because I know people that have written/ published/ well-published and they are undergraduate holders but they well published they have got 40/50 publications you see what I mean but in other unconventional situations those people will be made professors with their degrees but here its totally a taboo for me to say I can ask to be a professor with an undergraduate degree they will tell you that one no if you had a PhD. They said that one time when we met the minister in Harare the other guy was saying me am old but well documented and the minister said so you are saying publishing is harder than doing a PhD and the person said of course then why don't you do the PhD the easier one and stop publishing without a PhD he doesn't have time, he doesn't have enough resources probably, he is able to get for a book chapter he is able to collaborate with others but he doesn't have time to seat and do his thesis but he is published but then they will say no we want you to bring the paper.

Moira: How does the library view its role in providing these resources?

Ndaba (LSU): we have a department called the learning services but its an entity I seat in that committee that one is meant to augment all departments with several softwares because I remember even in the computer committee we agreed that because the university doesn't have enough money we are going to go the direction of Open source softwares SPSS I know it has been procured but now maybe it's just an issue of them not knowing who to talk to because we have stuff on GIS and SPSS which are really universal kind of approach software that are used by many. Then we have people in accounting who would want to use PASTEL in their learning we have actually agreed to go open direction for instruction purposes because PASTEL is expensive and for us to be subscribing us\$100 000 or more every year it's too much so if we go the direction of open source it's the best e.g. us as the library we took up open source Dspace for our IR, COWA for our management system because millennium NUST is paying 30 000/26 000 per year for subscribing to that but we just had to embrace open access. So that one is being emphasized university wide that through our e-learning platform we are going to embrace open access.

Moira: What of RDM?

Ndaba (LSU): the data sets and the maps that they collect and the raw data sheets that they create when they are in the field. They will never give you that I tried to talk to them at some point. I have been here for quite some time every of those services that you are talking about I started them myself here from IR do you know that for example talking about research papers these people have been refusing with their papers I can even show the minutes of the library committee meeting then you will see that am not lying until we had to engage the Pro Vice Chancellor, I was a subject librarian at some point until we had to ask the Pro Vice Chancellor to write an email to everyone to say that if you are going to submit your papers to the library for IR we are not going to consider any paper that will be coming from nowhere for promotion because I suggested to the PVC let's use that then they had our promotion then they started responding positively. So then if somebody cannot give you the final product (a research paper) that has been published in a particular journal can they give you a data set, they can never. I mean can you give someone this recording if you can't give them your PhD document.

Moira: So it means RDM is out of the question in your institution?

Ndaba (LSU): it's a direction we really are willing to go because with the issues of collaboration which we are over emphasizing as a university because we are saying lecturers you can't, when you start to work at the university they would say a research paper which will be considered for promotion it that which you are the first author or alone, but now we only want papers that are multi-disciplinary whereby an LIS

professional collaborates with someone from economics and agriculture to co-publish a research paper and every author has the same write in-terms of the weighting of the ownership of the paper. So when we go the direction of data sets /raw data management I can take your data and put my own dimension and perception in-terms of how I view your data set and come up with something else different from what you would have used your data set for, so I think that is the direction that I think as a university we are going to take up we spoke to someone at the CPUT Dr. Chiwara about that where we were talking about the issue of raw data management so it's something that we are even considering that's the direction we need to go. If the data is in your house somewhere in your laptops/ desktops really it's pretty hard for any other person to access and use the data but if we take up RDM a person can come and seat for the whole day and go through data sets for LIS professionals the person might be able to pick-up something. The issues of funding are a problem and if I have done this interview with somebody else similar to what am saying to you, you would go there and extract it am sure you are not inventing a wheel am sure someone somewhere something along the lines of what you are doing. So we are saying that really cuts a lot of costs and time were you can just have a laptop seat down and all the information has been collected and fill up gaps where it's not enough but move the information the direction you want that would make a difference and that will even the funding for research because most of the money that goes into research is about data collection which is about going to find research assistants just imagine removing all that you seating on a laptop analyzing some else's data in your own understanding and putting your own themes it will make a difference.

Moira: What about the issue of equipment loan?

Ndaba (LSU): no we don't have such kind of money I know because I have been in touch with guys in Canada maybe the University of Alberta they have e-book readers. But not in Zimbabwe.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Ndaba (LSU): Its RISO it's headed by a professor we are in touch even when we were starting our journal, the journal is going to start. We were the ones who were advising we were instructing on the issues of referencing citations and we were assisting whoever was writing to conform to a standard citation. So we are linked really.

Moira: So with issues of offering research software and research funding does the research office handle that?

Ndaba (LSU): no there is a research board it's a committee. A university is not run by offices but its run by committees so each and every element that is in this university has its own committee as a library as much as we operationalize whatever we report and conform to the mind of the committee fine we can advise, so the research office can advise the research board but the research board ultimately decides. The way we do it as an institution because we have a few researchers and a retrained budget researchers send their papers to the research board which is chaired by the VC and we scrutinize them in our layman's perspective but they will be people that are technocrats experts in the areas scrutinize and see how is the research fitting into our mandate as the university, is it still within our research themes. The research office might want to give that person money but the research board (external board of councilors with professors) doesn't see the need. So we get to advise them that instead of the 10000 that you applied for we will give you 6000 because of this and that so you can cut this here take that boat that you want to use for canoeing around, we bought someone a boat last year so you can use that one. See just trying to moderate and cut costs.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Ndaba (LSU): Personally the problem is, when it comes to collaboration efforts academics are very much willing as long as they know they are going to benefit. Do you that the person that benefits more from a publication is the academic. As a librarian I will enjoy or write for fun, but it's not for my day to day immediate livelihood. I get paid the same amount whether I publish or I don't but an academic has to publish and continue for him to continue getting paid so it's different that's one you really are finding this inclination to say I need to collaborate with librarians because one because they know that librarians can find information, two they know that we clean up their papers everything that they will give us we clean it up in a proper manner, some of them bring it here even if we do not have our names would be attached to the papers but we do a lot of clean ups in terms of referencing, presentation, citations.

Moira: So they do know and appreciate that you have a skill in research?

Ndaba (LSU): yes they know that we have the skill because they come to us when they start their proposal they come to us. You find a disorganized document that we really have to reorganize and arrange them in order you see we always assist them but the problem is these people want to benefit from us under hand then from there that's why they were saying they can teach IL it's us who are supposed to teach IL. What they mean is that we have to teach them IL that's what they told me so then they can go teach their students, instead of you coming to my class to teaching. There is the issue of shared money for example in commercial courses like block/parallel whereby that is part time when I go there to teach IL when IL has been main streamed it will mean that you will get a share of payment. So then they is a problem ok fine for conversational students I can teach because am getting paid I don't get paid for extra but for block students I can't teach because it's an extra I have to leave my house and go to work at 6/7pm in the evening teaching parallel students or blocks were teach on holidays. So then that was the stalemate to say fine you people want money we can't let you teach. So those are some of the problems. It's easy for them to say the reason why see librarians being neutral it's because they know the whole politics they know the fights that we would have had to try to mainstream IL but collaboratively they will tell you no you can't get anything here. e.g. research board is very naïve sometimes I told them at some point that its not fair for you to say me as a non-academic I have a concept and I want to write a paper I call from academia when they get there they will change to say you cant be the main/principal author because my entitlements to the research boards funds are limited infact they are not there. See as a non- academic they would want academic people to be the ones that are entitled to the research money first then the research paper.

Moira: So you are not allowed to claim research funding?

Ndaba (LSU): No, it's quite a queer kind of approach that's why you see librarians are really in a neutral e.g. there was an issue were one faculty librarian was supposed to present a paper at the university of UKZN she was denied money even from the research board because we tried to say alright give her from the research board they said no she is not entitled she is not an academic. You can't take money as a non-academic in fact you are employed and you are qualified for that job don't try and want to produce papers. It's quite a queer kind of approach. So that's why you see librarians being neutral am sure and many other universities we face almost the same situation. Academics its ok for them to think hugely and say we can collaborate with anyone but then the limitation now comes when academics are mixed with academics and non-academic they will start being pinpointed you people are the ones that are supposed to do this and not these ones.

Moira: Are you familiar with altmetrics? To what extent has there been a demand from academics and the research department for impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)

Ndaba (LSU): I will give you statistics of the electronic resources we really use them say like for a platform like emerald and JSTOR we would really would want to know that the users are using and how much of the users are using it and demand. Am sure that really can be applied and going the direction of social media .In South Africa social media is a serious issue and what I discovered was that it's a taboo for someone who has indigenous knowledge to start going on Twitter and start tweeting '**when you want to heal cancer you can**'. Who is going to take that serious no one. But I suppose your question there is we really need to be serious about it. What I have realized in our library is that what I can politely try to say is that we are still lagging behind. Do you know that students from NUST are still talking about IL, IR issues that have been over researched In SA now they are no longer talking about IR because IR is a done deal everyone knows that when you are producing your thesis that my thesis is going to end up in my IR and is going to be accessed by anyone anywhere through that IR. Now you are talking about the metrics these are statistics about electronic information but here Zimbabwe if you go out there and conduct an investigation into who has a Twitter account and are trending you will find non. In South Africa they see things they Tweet about it, they tweet about you writing an idea. The trend in terms of Zimbabwe and South Africa you would have to realize that Zimbabwe is still way behind and when I was doing my research I discovered that access to the Internet in terms of the bundles SA its so easy and affordable that anyone with a smartphone can access bundles that can last them for a month without a problem in Zimbabwe for you to get bundles that can last you for a month you will have to pay for an arm and leg. Now that's why you see bundles that are compartmentalized to say they is WhatsApp bundles, Facebook bundles, there's twitter so that you can choose and say am going to stick to this platform. At the end of the day fine you can want to compare ZIM and SA but it's a problem too much apart because you go to a student in SA can't be compared to a student in Zim. South Africans are accessing notes before the lecture and they know what the lecturer is going to teach about the whole year then they can choose to attend class or not but here you don't even know the lecturer will writing on the board and hiding his notes. But what we have tried to do with IL is to try and encourage that to say like YouTube for example can be used it has everthing but here people would because I sit at the desk people would come in numbers they will watching soapies catching up. I always tell them if I have I problem I go to YouTube taking me step by step.

Moira: How is the library using new technologies to teach digital literacy skills?

Ndaba (LSU): e-learning platform is being introduced not yet fully functional not everyone has it. We have a projector as a library I was showing them last week when we had an open day I was showing all the electronic resources that we have as listed on our website teaching even the schools children teaching them how to access the open source ones because there are open access resources that students can use. We use practically everything we try also to with WiFi for example we connect everyone all patrons devices will be connected we have a policy which we call "The bring your device policy" with ICTS were we are saying bring your device to the library we are going to connect you to the Internet, then our systems for malware and put firewalls through the systems. Students have their own devices, the university doesn't have any new technologies e.g. this is my personal laptop almost everyone has and we hardly use the desktops we have on countless times said no lets not invest in desktops lets use laptops because they are mobile lecturers can use as they go but because the university because of the age they is noway in which they can let you go home with university property when it gets stolen who is responsible all that nonsense.

Moira: the reason why I asked about digital literacy is because some of the students complained that much as we taken through IL training and orientation some librarians don't consider that some of us don't even know how to switch on a computer how navigate through to find resources.

Ndaba (LSU): the reason why I was avoiding the use of the word digital literacy, first the main reason why I was pushing the issue of IL to be removed from orientation which we have since done that is because I grew up in the rural area myself when I came to town probably when I came to varsity I went to NUST I didn't know what a computer was I didn't have an idea of course it was a long time ago but do you know when you click on a computer you will be scared that maybe something has gone wrong. I know what that feels like, I know what that is and I said to them no I cant seat here and recommend that I teach information literacy during the first week of opening for a university student if somebody is going to be teaching computers basics /introduction to computers he is going to start teaching later in the semester then I start teaching the front part of this whole thing because you cant think about opening a database or going on to Google if you really don't know how to move this mouse, you first have to learn what it is before you even open pictures and save them so that was my take to say so in the library we don't teach introduction to computers its being taught by the campus and the departments. Because what we had said was its either you give that to the ICTS department then we can collaborate it's better to collaborate with that department because I can even teach on behalf of the ICTS person because I know what is supposed to be taught or we had suggested give us the whole module we teach introduction to computers then we teach the IL because we just combine and give we know that when you teach your students you say will cover this and that but now the problem then lays with somebody who will say no I am a languages person / a communications person then they will name their courses to say introduction to computers for communications professionals / Agriculturalists or maybe IT for economists so then what they will be meaning there is that the is some element of economics in this IT module that am teaching but what they will be teaching is the packages that are relevant to their field so me as Faculty librarian I would know that I can't teach SPSS for those that are doing sciences that can only be taught to those that are doing sciences and teach those applications that are relevant to that but then another problem becomes some other people would want programming they would want go a step further the sciences people not only the issues of just taking the programmes but also wanting to know how to start the programming process so then they will be clush of who teaches what who ends were and then there is problem at the end of the day we agree that a person who is coming from Mbonxane cant be taught how to use e-resources before they know how to use a computer we are very much agreed but because of the politics and the systems its difficulty to gel them and synergize and do teach them at the same time.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Ndaba (LSU): we no longer have those, our Internet is fairly fine compared to Zimbabwean standards I think we good our bandwidth has been improved even at the main campus in Lupane we are going the direction of having another backup Internet Service Provider (ISP) to complement to say like if Telone is down you can switch on to liquid without a problem but power is also nolonger a problem because for example here we have a generator when the power goes the generator starts so we are good we are always connected.

Moira: That's interesting because it has been problem for a long time

Ndaba (LSU): it has been a lingering problem, I remember when I came in here years back it was hard to want to open a document to have to click and go and come back we use to connect through antennas connect our different sides but when fibre came in we just had to go the fibre route and we are fine.

Moira: A content analysis of your library website revealed that the following aspects were not available: New Library spaces

Ndaba (LSU): now what we have done the website has been I have removed the website from being manned by the library and have given it to the university web designer. First I wanted the library website to be the same as the university's because you will realise that you open the library website you realise that its like a different institution it has to move with it the colouring the presentation and the standards another thing being its going to be ok for us to just advice to look at other university webpages and say we want this and we should not worry ourselves how it will be done just tell them that we want this and another thing is of us being able to bring the content on the table we just focus on changing the content and updating the content each and everyday without worrying about the graphics and the presentation. Another the web designer will be having a different view an outsider view of how the website should look like its not compromised so thas' why we believe that the web designer might be really able to assist us and we are still working on giving him the data more information to try to populate that website.

Moira: RDM you said it does not have any space

Ndaba (LSU): I didn't say it doesn't have any space, personally am for it. I said we are still fighting the battle of articles coming to the institutional repository really do you think I can escalate the fight to the fight of data sets and win while am still battling with IR. What we are going to do is to try and come up with a proper platform for managing the data sets because people now when it come to papers that are published its ok someone can say ok fine he will not publish my paper but someone will start to ask questions about how secure is my data set with you how do I still control them. Such kind of issues come up when you try and talk to people about that they talk like that. So we still have to grasp it ourselves probably we will visit a university or two in SA probably Stellibosch or CPUT and get to understand how do you do it? What platforms are using security features how then do you encourage collaborations and people using these data sets for something else. We need to learn I believe so we are the front in terms of learning about these technologies as long we are not informed really they is noway in which you can try to convince someone else we have to first convince ourselves and the team then we start propagating it to everybody else and say this works like the open access movement we had to really embrace it ourselves and move with it then we started moving it to the lecturers making them understand

Moira: Faculty-Librarian relation can you elaborate if they is a concrete relationship?

Ndaba (LSU): lecturers really know a lot about us as faculty librarians they really learn a lot from us but I think they don't want to let us be projected out there because they are the ones that are in their spaces because when you go to the faculty its them that tell how and when to do what. So that issue of projection, of other faculties are now agreeable that you people come and teach we have that relationship with some lecturers to say no let them come and teach its ok I can give them my lesson that's how we are surviving we are not part of the time table we survive on understandings with individual lecturers then they say isn't they have used lecturer Ndlovu's time so they is no need for me to give my time to teach.

Moira: The new librarians' skills and competencies which is something that has to be emphasized in this 21st century environment. Do you think that your librarians / you as a librarian is keeping up with new/latest skills and competencies?

Ndaba (LSU): In terms of the Zimbabwean standards I would want to isolate us and not want to lump us with the other colleagues that we have in the region I think we are keeping up in our own way and our standard as Zimbabweans because with the ZULC we have those platforms were people get to interact we used to have workshops on each and every skill that used to come like me I attended a lot of workshops

like the author aid, IL, IR advocacy and marketing because those are skills that you would want to develop each and every time as they will be brought by someone foreign so now it takes us having to look outside or when we attend conferences and see what other people are doing and be able to in our own context with our own limited resources and be able to scrap something out of it and do something about it but like am saying the issue of RDM is an issue that really is taking toll now and it's a pity because its owned by somebody else and the issue now is the issue of conviction having to convince those lecturers that its fine don't worry your data will be safe give it to me let me keep it for you.

INTERVIEW 2: LINDELWE

Moira: Describe how online reference and social media platforms are managed?

Lindelwe (LSU): One disadvantage that we have is that we don't have someone designated for social media and online referencing services so it comes to say that as a faculty librarian I can come and check if there are any emails or messages or something to post. So because of multitasking we just cant. There is no one designated specifically for that its just faculty librarians when they is something I need to post or come and check and respond again that depends on my availability at the work station as long as am not there or not on mobile I can spend a week in a workshop or a meeting after I come back that's when I can attend to that. So that the issue with referencing and Facebook it hasn't been working well I try much last year to work on the Facebook page but I said no am to busy I don't have time honestly so one thing that I just do is check if theres anything and I assume that my other colleagues will also do the same.

Moira: the platform for reference services which is not attached to social media were students can throw questions if they are confused

Lindelwe (LSU): Our ask a librarian service only works if you send an email, we have got a central email students send there but normally they use face to face inquiry so they visit us here, some call.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Lindelwe (LSU): Normally that we do during orientation and when you have an opportunity to offer IL training with them that's when we get them knowing our services we don't do marketing. My operational roles as a faculty librarian they are thwarted by management roles responsibilities (multitasking). My operations have died.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Lindelwe (LSU): we are still waiting to see if they will be. I haven't seen anything documented because as far as school is concerned you do it as per your will the support that you get is just approval of your leave days no funding its self-funded. That has been the case I don't know maybe there is something somewhere the only benefit I got were to use my own leave days because study leave it's a process it may take two/ three years for it to be approved.

Moira: Based on leave days someone mentioned contact leave, what is that?

Lindelwe (LSU): Contact leave is for bosses the librarian and the deputy librarian they given the opportunity to go and be attached somewhere else e.g. they can come to UWC library and be attached to that library and they are funded fully for that they are given a tangible stipend and they stay there and they learn what is being done there and they are expected to come and operationalize it's more of exchange

programme of some sort. Am not sure that it has been slushed to what grade I only the deputy librarian and librarian. The head librarian had that last year.

Moira: So it means if you get your masters or your PhD you won't have any incentive or upgrading of some sort?

Lindelwe (LSU): No, we are yet to see that happen

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Lindelwe (LSU): I think I would somewhat I agree with that, to say for me to be Faculty librarian you need to have a degree not considering my abilities and strengths do they concur with my job description, I think there are some instances were they are people who are junior staff but are able to do online referencing they have been recommended to go and get a degree for you to come and do this in a way to staff development and motivate your people but some just ignore. The assumption is if you are degreed you are able to but it's not always everyone some are good with acquisitions.

Moira: How does the library view its role in providing these resources?

Lindelwe (LSU): I think what they are saying there it comes to issues of research office not necessarily the library. The research office is the one that focuses on instituting most of these resources issues of statistical packages, loaning of equipment that's more academic to me in a way of which research office could be coordinating that for them. When it comes to issues like managing their research we as the library we have a software that is able to manage one starter and it's open access MENDELEY and we introduced it to them we have introduced and trained all of them. Also, we have our IR (theses and dissertations and papers from lecturers) which is working and they are not supporting and we have to beg for the research papers. They hold their work, maybe if we could hold a workshop and have you to talk to them or another person because they complain and say they are substandard but you have given a person a 2.1. So really issues of IR I have to beg for content to put on IR so recently I had to write an email and say per every group of students that graduate can you atleast give us something so there was a certain resolution to say for every students who graduate they give us ten copies for our IR per department so we have a bunch of students who graduated November/ December but we are still waiting for their dissertations after a senate resolution its back to the old way and I can't keep pushing. Those who support and give you are network friends and have exposed to other universities they understand. SPSS the library cannot provide that we need viable research office to institute that research office should coordinate that I think with some universities like Solusi the research office does that, even their students projects some are even housed there. One copy for the research office, for the library and for the department.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Lindelwe (LSU): non

Moira: How would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Lindelwe (LSU): I think one disadvantage that we have is in as much as they would want to collaborate with the library and work together the kind of service that we are offering is a service whereby Faculty has to look for me in the library I am not embedded in the faculty. I am in the library and I service the faculty of commerce, which is at Pakade Center if I spend the whole month I don't have a schedule to say

Wednesday I am at Faculty or at a work station there. Students have to come and look for me if students have a training session I need to train them how to use EBSCO or whatever or I have something to update them on I contact the lecturer he gives me a slot on their teaching schedule they is no designated slot for IL. IL was rejected to be formalised due to politics and last year ZIMCHE recommended that it should be formalised its still nothing is happening because I haven't heard anything. So with the current services that we have the faculty librarian is embedded in the faculty it makes life easier because you are amongst those people even if someone doesn't know but they see an office to say Faculty Librarian they would pop in and say ma'am I have this. You can then give feedback to say library this is what I got but as long as I seat here and I will do IL, meetings , past exam paper collection and I will seat here. Faculty I will check once in a while I need stats by the way so I would look for two/three lecturer friends can I have training sessions with three or four groups and I will have states on 300 students were trained on IL I give a report and am done.

Moira: do you usually host workshops for lecturers?

Lindelwe (LSU): yes, but normally when we have OA annual celebration that's when you get hold of them and even then their response is to say ok fine we will go to the library. It's difficult to entice and encourage someone when you are far from them the distance issue. But when you are amongst people it then makes time even if someone is not busy they decide to say let me refresh from marking and all they just pop into your office and say so what do you have these days if you monitor you can show them this has changed can you make time and have a training session. But when they have to call me and am not in the office at the time they will say that one is not always available. It again depends on the library structure and how they do things because I would feel embedding librarians in departments/ Faculties works better than having them in the library feels like a public library where people still have to come for a service so we can't talk of online referencing ASK-A-Librarian service it doesn't make sense at LSU when am seating here.

Moira: Do you see yourself collaborating with lecturers in terms of research? Like writing papers with them?

Lindelwe (LSU): I think yah I do they are two that I have been working with but unfortunately issues of time. They are willing I have two so far that I have been working with.

Moira: Are you familiar with altmetrics? To what extent has there been a demand from academics and the research department for impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)

Lindelwe (LSU): I don't have capacity this is my airtime my money to use WhatsApp, for Facebook I know how to do it but I have never done it before even on just observing their trend on the Facebook page there is a side that tells you in a day in a week your stats have gone up/ down I just look at that it's so pathetic.

Moira: Do you actually use that to maybe evaluate the library?

Lindelwe (LSU): No we haven't gone that far , the fact that we don't have someone designated for that, it might really seem as a viable tools for library management to say can you please do that and check the only thing that will come up viable maybe will be e-resources usage statistics have a comparative table for the quarters of the year how many students have used this database that's were the focus has been we pay a lot of money for e-resources vice versa the usage so they focus on that.

Moira: So academics have never requested for such statistics

Lindelwe (LSU): Not on my part sure with my bosses maybe my bosses have provided for that not for me.

Moira: How is the library using new technologies to teach digital literacy skills?

Lindelwe (LSU): we don't have a formal IL programme IL is not formalized so it kills the whole. What we are just one hour training sessions once a semester and that's it.

Moira: Once a semester to first year students or to anyone?

Lindelwe (LSU): Training is normally organized as per relationship that you have with the lecturer or a lecturer has a challenge with their students' work because IL is not formal but maybe that particular lecturer had been keen or he is struggling with marking their students work issues of referencing and plagiarism issues. So that's when they will say can you help me train these students. So because of the non-formalization of IL digital literacy I will be lying to say we have covered that. We had designed an IL module in 2013 so at times we for these lecturers to still refer their students to it am sure if it's still works.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Lindelwe (LSU): ZESA has improved, we rent the building normally we don't have power cuts here. it hasn't been bad. Main campus yes that you will get because its still being built.

Moira: Then what about Internet?

Lindelwe (LSU): I can't complain I am always connected 85% well.

Moira: What future plans does the library have on redesigning its spaces?

Lindelwe (LSU): I think currently the fact that we rent premises we cannot really customize it that much. Only during exam do we allow students to use the first floor in the lab for discussions and all but we only do that during exam time that is from after lunch but during the course of the semester unfortunately they just have to be in quiet zone. In as much as library management could have done something, but it goes back to question that you said before to say that individuals have paper qualification without actual skills. Keeping up with trends also depends on the organisational culture, thus 'if you are not doing something I also won't do it'. But another issue is that, unfortunately keeping up with trends becomes just for my own interest not for work operations such that when you try to host workshops, management will question to say 'when did you start doing this?' Then you get some red tape; it's not as wow as South Africa would make it.

Moira: RDM do you have data repositories?

Lindelwe (LSU): I think RDM hasn't been implemented nor even marketed here at LSU the focus has just been on the end product what someone has published.

Moira: do you see any future plans for RDM at the library

Lindelwe (LSU): I think for the next two years no. I don't see anything happening here in the next two years. Looking at the strategic vision and mission of our library I don't see anything that factors around that subject. I think one other thing that really affects or impedes our operations is that most of the things that are adopted and done here are ZULC oriented so if really no one at ZULC has started doing we cant take initiative to say we need to up this and start doing this. So much of the focus that's why am saying not in the next two years because so far the strategic plans for the next two or four years there is nothing based on that. and also taking from the issue of IL since 2010 efforts to try and formalize it have been knocking so something hasn't happened for the past 7 years that's why am saying RDM I don't see that happening and

with kind of academic community that we have it will take summer sweats. Its not easy , let me give you an example there is a colleague I trained mendeley he studying at UKZN he is finishing his doctorate he has done his document he has given it to me can you assist me with compiling my reference list he has done his intext he wants me to do the end product the references but this person has been trained four/six times but you would have to help at friendly level and say ok I will try and do this for you and it comes back to saying but these people have been trained. That's why am saying it might not in the next two years RDM No. we will see maybe if UZ starts it and MSU and NUST. So its all about the influence of other affiliated institutions ZULC. If ZULC doesn't do it then we wont adopt it

Moira: how is your faculty-librarian university relationship?

Lindelwe (LSU): with my faculty I think I have built a very strong relationship that its easy to communicate and interact but what am praying is a miracle to move and work from faculty now. I am someone whom they are looking forward to working with because they always say if only you could come this side we always have to look for you. I think so far the relationship has worked we have come to understand each other we try to say even if something has been imposed on them then I will say no guys this is what they are trying to say in simpler terms you are making sense no its fine we will see. At times am even seating in the Faculty board meeting we get to share things.

Moira: so what you share in board meeting its not your job to ensure that it reaches out to every lecturer

Lindelwe (LSU): No what happens in a faculty board all lecturers seat in and teaching assistants so if there is anyone who has got something we talk there we agree we finish. I don't have my past exam papers for this course I note that down and I come and check. Students have been crying about off campus access things like that. So if I also have something I bring in there, we have these services, people please bring students for IL training things like that so it has helped in a way

Moira: in those meetings do you consult with lecturers to ask them if it's ok to bring in a particular service?

Lindelwe (LSU): alright normally we impose things on them. They are not lying Faculties talk to your people and they say you have started with your things

Moira: New Librarian skills and competencies, personally how are you keeping up with new trends?

Lindelwe (LSU): we have a workshop this week for RDA its not on a regular basis. I think the challenge is that the institution doesn't fund librarians to present papers. If I have done a paper am not funded to go and present at a conference. The institution doesn't have a budget for library to go present papers or attend workshops they consider us as non-academic support staff. So if you are to do that it will have to be self-funded that's one challenge. I had a paper that I wanted to present at KZN last year I had to let it fall off because last minute I was told there was no funding and also much of what happens is engaging online courses and Webinars just to keep up and networking with other faculty librarians in my area that's what keeps me there and also thinking out of the box.

INTERVIEW 3: THANDIWE

Moira: Describe how online reference and social media platforms are managed?

Thandiwe (LSU): Our Facebook page is not managed by one person, I can say all the library management team the librarian excluded because of her administrative duties which includes the deputy librarian and the three faculty librarians and the systems librarian and the bibliographic librarian. Not that we are in

charge but we can communicate, we do have a Facebook page and during orientation we always emphasize that people should use / visit our Facebook page so that if they is anything they want to communicate or maybe anything they want to be aware of they can use that platform.

Moira: Then the online reference service which is ASK-A-LIBRARIAN?

Thandiwe (LSU): that one they are not doing anything on it I can say maybe the challenge / maybe the reason why they are not using its because they don't visit the library website because its available through the library website so most of them don't visit the library unless they are told. Because some will come ask a question of which the information is available on the website. So mostly they are interested on those social media platforms but not the educational ones like the library website there is a lot of information available but they are not aware of that information only because they are interested on the social media platform.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Thandiwe (LSU): for the online reference I can't say much but for other platforms like there was a time as you know that we are renting premises so whenever we go for open access week we physically reach out to every department whereby I will demonstrating showing them our OA resources and the ones that we are subscribing we just lump them together and we tell them that there are these platforms were you can communicate mostly that's where we show case these platforms and during orientation we always tell them about the Facebook page.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Thandiwe (LSU): It differs they only promote you if there are vacancies e.g. earlier on they highlighted that if anyone goes for a degree they shouldn't expect any promotion or so unless and until there is a vacancy. Then you apply for that then that's when you can be advanced to another post but otherwise if there isn't any vacancy then you will remain the same in terms of salary and everything.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Thandiwe (LSU): from my experience or from what I have observed yes we maybe advancing ourselves in terms of paper as you are saying but skill wise they isn't much for instance if you look at our situation as librarians I would expect maybe to say once a year atleast we come together as a consortium yes there are some workshops that take place but maybe you can say everything that is expected in a library for instance we have different sections maybe each section once or so a year we come together and share ideas how we can improve libraries and so on but that happens once in a while especially for Faculty librarians I would say that was happening when INASP was sponsoring us but as a consortium on its on I don't know maybe it's a financial challenge but we don't have much of those workshops whereby maybe we get trained for library skills so it's not a regular thing because initially it was happening because INASP was sponsoring workshops but since INASP has withdrawn then I should think there are financial challenges because they used to organize such workshops whenever they know there is money.

Moira: What of personally do you attend conferences?

Thandiwe (LSU): The last time I attended a conference it was the African Library Summit in South Africa we had paid for ourselves so I wouldn't say they support much. Maybe the librarian with other colleagues

I wouldn't say because sometimes they think maybe you are not illegible for such to be sponsored by an institution to go out, for the librarian yes they do but for us the last time we attended a conference was in 2013.

Moira: How does the library view its role in providing these resources?

Thandiwe (LSU): For lecturers I can say we have provided somethings, for my faculty I have once done that it was funds from author aid through INASP then identified I actually emailed those links to the chairperson but I don't think they responded positively because maybe sometimes the issue is the funding will be on a specific field particular and not relevant to others. That's how I had to find it out that maybe that for some if it's not their area of speciality they don't bother to send to the whole department so it's the lack of communication among themselves. We may not be doing much but what we discover or what we find out we tend to also involve them. Because I remember as well there was once a sponsor from through OA were they would write papers about OA what it is but they never not one I don't remember anyone writing any paper responding to that but I had informed them that they is a funding from OA to write a brief story on OA what you know about OA and we just gave them highlights on what they are supposed to do but they seem not to be interested. At the end of the day although you don't give up but at times it is discouraging to see opportunities for our lectures but they don't respond, they prefer to use their own platforms that they know not the ones that we provide they don't even try if I can say because I don't remember anyone responding to say I have applied or I got funding from the organisation that you forwarded but they just kept quiet.

Moira: what about for students do you link them to exchange programmes or funding opportunities?

Thandiwe (LSU): I think that one they do from the department level.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Thandiwe (LSU): they is a link, as far as it is I can't say much because they deal with the bigger bosses from my level they isn't much we are not involved with department but we know from the librarian side. But they isn't much.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Thandiwe (LSU): Am surprised that they said because we are having a challenge with our faculties I think since I came in 2013 we have been busy advocating for IL because the reason why students are not aware of some of the services it's because we don't have much time with students we only have the time maybe during orientation time that's when we try to squeeze everything that we want to talk about the library during that time but it's not enough and the other thing they come at 2pm when they would have had other sessions and they will be tired they don't give much attention to what we will be saying so at the end of the day. We have always advocated at the end of the day if they can slot us on the student timetable that one we have tried several times but it has failed then we have tried to say maybe try and merge IL to introduction to computers module but it failed because you will departments will say no we can teach introduction to computers we don't need ICTS we don't need anyone to do that we can do it ourselves. But then you find that still the same students that they say they would have taught computers they still have challenges because what we normally do we end up organising with students to say whenever you have free time just let me know I can come and assist you and in those instances we wouldn't be doing much its just showing them how to access e-resources we won't be necessarily equipping students with the skills for research but

when we do one on one or when we just for just 30 mins I will just be showing them the databases that we have only because of the time. Collaboration I can say it's a challenge because they think they can do that whilst we also assist them with same skills that we assist students with I don't if they saying we need to first teach them then they teach their students because technically they are challenged as well there is only a few who have the skills. So maybe what they mean is we teach them IL then they teach students.

Moira: But do lecturers make appointments

Thandiwe (LSU): Only a few would call ask for assistance. But we once held a workshop whereby we approached Faculties to teach them how to access resources from the databases that we have and we also taught them how to use Mendeley reference manager and some were interested because of those technical issues and some because of technical issues they will say it's too difficult. They decide to disassociate themselves with those things and stick to their traditional way of doing things. So only if at times they call, some would say they is a paper that I saw online but I can't download it can you please find a way to download it and I always say we need to teach you how to do these things because there's Research Gate at times they find an article but they do not have access because of our limited subscription then if you go to Research Gate you will find the article is available because its OA. I usually logon to Google Scholar just to find if there are other versions of the paper you find that one of the versions will be open so we always want to teach them those things once they have sent a request to say I can't find a paper they use my skills as a librarian and at the end of the day they get that paper so they just want us to do it for them not for them to learn how to do it. Some are registered with institutions from other countries e.g. SA were they have free access to some of these versions. So we teach them that are you registered they say yes I am but can you assist me to access because as a librarian it's not difficult to take you through other interfaces of other libraries. But they will be hesitating I don't know it's into them.

Moira: Are you familiar with altmetrics? To what extent has there been a demand from academics and the research department for impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)

Thandiwe (LSU): we haven't done that, but we have found that to be true but we have found that at times if I post a link on databases you find that they just like and no one responds so at the end of the day I won't know if they liked for the sake of doing it or they went through the link so at the end of the day I wouldn't say those stats are reliable because someone just like without even reading but maybe one or two out of the 1000 that liked the link maybe only two of them opened that link and read and responded but in writing only a few respond maybe they post something on Operating hours at times during the exam period that's when they say thank you but on other things they just like.

Moira: Do lecturers ask for such statistics?

Thandiwe (LSU): Not really

Moira: How is the library using new technologies to teach digital literacy skills?

Thandiwe (LSU): e-learning platform it's functional just for them to access their course work, the exam marks. We haven't gone that far but when we attend workshops / for training sessions we will be using those as well but then we have always emphasized on some of the databases like EMERALD they are allowed to even register on your mobile device although we haven't dwelt much on that because of the response of students like if they don't respond on the general issues then with these ones it will be like you are bothering them rather stick to the general issues like maybe just showing them on the desktop but only a few would come those who seem to be inquisitive/ curious I would say if you want to access through your

phone you can do this and that. But we haven't done much on that one because their interest as well in what we are doing as a library.

Moira: I am asking about digital literacy because complained that much as we have attended some of IL sessions librarians do not consider the fact that some of us do not know even how to switch on a computer, how to use a keypad. Why don't they first consider that part teach us how to operate a computer?

Thandiwe (LSU): that's the very thing that I spoke about lecturers say we are going to teach introduction to computers for ourselves. As a librarian I would assume everyone knows how to switch on a computer, to save things in a folder because it is scheduled in their time table. We have always emphasized that it has to come after introduction to computers if they are to include it on the timetable but it's unfortunate that some would not have received those skills because we have always observed that at times students when we do training sessions and we tell them create a folder they won't be able to do that. But it's a simple thing that they would have been taught introduction to computers. So the problem is not with librarians but it's with their departments only if they have given everything to the library because initially introduction to computers was done by the ICTS department then maybe we could merge with IL such that the ICTS does 60% then the librarian does 40% at the end of the day that person will have all the skills computer technicalities and the IL skills but now all that is done by the departments I don't know how they offer it or how they do it. But when it was done by the ICTS you would know they have covered this and that and we would share the information with them to say what are going to teach I want them to also know about this so that whenever I deliver IL programme atleast they know about this. So its different because students come from different backgrounds some are well equipped some know nothing about computers, so I think that's a challenge that we have as well. if only everything is surrendered to the library or if maybe we share with the ICTS. Initially it used to be the ICTS department which used to teach introduction to computers because they are computer specialists. How can they determine if the computer is infected, how to switch on/off those are general issues that need to be taught. But I think departments teach their own way because they have different modules anyway but in general introduction to computers should be a uniform thing to everyone just like IL.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Thandiwe (LSU): with our institution its now very bad it's unfortunate before the movement of the departments to the main campus it was good but with that one I think it's the ICTS department we have the systems librarian and the ICTS technician downstairs first flow ho always check on those things and they if I have a problem I just call the technician or the systems librarian for assistance I wouldn't say much because most of the time we don't ask them what have you done or but they have actually seconded someone from the ICTS department to work with the library whenever there are problems they contact the main department and the solve them promptly. Its unlike if they are from another section then you need to call and wait for them to come and sort it but they have already seconded someone to be based in the library to solve the problems that affect the library concerning the Internet but currently our Internet is very bad I think its technical though they have whatever we had they have shared it among the two campuses so now its very bad its not that bad though actually it gets congested like in the morning it will be ok but in the afternoon it takes some minutes to download an article and at the same time we are increasing the number of students so its unlike if the number of students remains the same then we would say let's maintain that but it increasing on a daily basis so we would also need to improve as well.

Moira: Constant outages?

Thandiwe (LSU): with electricity we don't have much problems but once it decides to do its pedigrees we just close the library because the problem is we are just tenants there isn't much that we can do. Around here it's not much of a problem it's just once in a while but it's not a big problem. We don't have a generator but at the main campus they do. So I think the issue of having many campuses is a big problem to us it's difficult to man everything appropriately but at the main campus they do have a generator.

Moira: New Library spaces (research workspaces, collaborative spaces, teaching and learning spaces). What future plans does the library have on redesigning its spaces?

Thandiwe (LSU): I think on the plan that we have on campus those ones are catered for but we don't have all that because of the issues for rent it's not our building you know it's difficult to redesign a space. We have always requested for that maybe if we could have a space for masters students because most of the time Masters students are adults and they are disciplined and they need their own space were they don't get involved with junior students but the issue of space was a challenge to us because we say we can't be renting more space just because of those issues actually for the plan on the main campus I think we have that. Before and during exam time we always allocate the first floor for discussions for those who want to discuss only towards the exam period but currently we don't have those facilities. The library hasn't been started on main campus they just using a room to carter for students on campus. For training IL we always use knowledge commons which is disturbing as well because if you want to host a training session you will have to excuse others to say we want to have a training session.

Moira: RDM?

Thandiwe (LSU): currently we don't, for research papers we do

Moira: Faculty- librarian collaboration, is there a strong working relation between the two?

Faculty librarian: not much at times the faculty tend to distance themselves from the librarians a few individuals will always associate and interact with the librarian but most of them they think they can do it themselves but a few keep a relationship with library.

Moira: Do they involve you in whatever activities they do in their faculties?

Thandiwe (LSU): we always attend faculty meetings but some activities they don't want they just do as departments but we just attend faculty board meetings. I think it's not just about the faculties because we have experienced it on time when there was a research workshop it was faculty based then we had requested as a library that a faculty librarian should also attend that same workshop because we are always there to assist the students that they teach and the same lecturers as well so maybe it's wise to also involve the faculty librarian. But it was like no we only include you if it's possible or maybe they were looking at their resources to say we want to register the academics first if they are any slots maybe that's when we will include you so in a way they don't look at the librarians as part of the academic community so I think it's the administration itself. Of which we are part of the academic community, I think that lack of knowledge from the administration. At the end of the day it also influences the mindset of the academics to say no librarians should not be part of our work. Because they notice that the administration doesn't consider librarians as part of the academic community they will always say but they have never involved you in our thing so you are just trying to squeeze yourself were you don't fit. It's about the university as a whole the information they have. They have been misinformed. They think that librarians are just there to provide books just to stamp books issue out books but things have changed. That's why we ended up saying lets have training sessions for faculty librarians maybe they will end up considering those issues because they are not aware of even when we trained them on the use of Mendeley it was quite a new thing to them only

a few who have gone to some institutions maybe were they were trained but most of them you could tell that they don't know much some they are registered with institutions were by they could use Endnote but only because they don't even know what it is they just decide to ignore it. It's a pity at times when you find lecturers struggling to do those simple things but I f they decide to disassociate themselves then we just keep it like that as well. Only a few appreciate that librarians have a skill. But I know as time goes on they will learn to appreciate.

Moira: New librarian skills and competencies, besides workshops how else is your institution or library supporting you to acquire librarian skills or on a personal level how do you keep up to date?

Thandiwe (LSU): at institutional level they isn't much but I always wished that once am done with my masters then I will register diploma in education just to have that teaching skill for IL training. It was once raised but the university seem not to be supportive of that but I told myself on a personal level I will do it maybe because we already have a department teaching / education. They can as well consider us but they seem not to. The human resources is the one which gives us permission to do it but I told myself I will do it on a personal level.

Moira: so for you personally as an IL educator you feel there is need to acquire a diploma in education?

Thandiwe (LSU): I feel there is a need because IL is not technical but I think there is a need to have those teaching skills. I think that's why there are colleges were they equip their students about teaching skills well I might be able to do that but I don't think it's perfect. Because I think there is a lot we just consider well it's a tertiary level were you teach mature people but I think they is a need as well.

INTERVIEW 4: DUMISANI

Moira: Describe how online reference and social media platforms are managed?

Dumisani: The issue of multitasking is a problem because assistant librarians are subject librarians and faculty librarians and reference librarians. All those roles require enough attention and input. It's not easy to deliver. The issue of social media in Zimbabwe has never been a serious matter or something that's official to say I can make an announcement or advertisement about the university and put it on Facebook and say "we hereby inform you that the university will be closed on this date", do you think people will take it serious. So the uptake of social media has always been for fun and chatting.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Dumisani: We usually advertise to our users on a face to face basis. This we do during open access week, during orientation/when we get a chance to teach IL.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Dumisani: I am not really sure about incentives because I have never been given any even after completing my Masters. So far there hasn't been any person who has been promoted because they are a lot of vacant posts within the library. What we have are individuals placed in acting positions.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Dumisani: That has always been the norm amongst tertiary institutions in Zimbabwe. So it is not a surprise for you get such comments. The management focus on the qualifications first because skills can be gathered and improved over time through gathering experience.

Moira: How does the library view its role in providing these resources?

Dumisani: I think the library is supposed to offer these services in this 21st century we are currently operating. But now because of lack of funding and support this is not possible. What we can do for now is to partner with the research office to ensure we help with advertising information what they offer.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Dumisani: I think for now we don't really have a strong link because our departments are dotted around Bulawayo. The only contact we have is when we host events such as open access week. Also when we require materials to upload within the IR. Other than that we don't really link up. Maybe the office closely communicate with the library management.

Moira: How would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Dumisani: There is no doubt that lecturers do encourage students to use specific textbooks at the library. They advise us if they are limited copies of a textbook to add it in the reserve section, this will ensure that the copies are only used within the library and every student will have equal chance to use the core textbook. Lecturers also encourage students to make appointments with librarians for ILS lessons. We have never collaboratively taught ILS with lecturers because we have not been allowed by the university to formally teach the ILS programme. We do sometimes host workshops (e.g. Mendeley lessons) for lecturers but most of the time they always complain that they are busy so only a few attend such events. As librarians we have never attempted to conduct research collaborations with lecturers. That will be a good thing because in the current environment professionals are being encouraged to produce interdisciplinary research.

Moira: Are you familiar with altmetrics?

Dumisani: Not really

Moira: To what extent has there been a demand from academics and the research department for impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)

Dumisani: On my part I have never been approached by any academic or the research department to request for such metrics. What I am familiar with is the assessment of e-resources usage statistics which have influence on the library's subscription of e-resources.

Moira: How is the library using new technologies to teach digital literacy skills?

Dumisani: Our library do not really have any new technologies to talk about. Our students are taught IT skills by their lecturers within their specific departments.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Dumisani: For Internet access we use two different service providers if we have an issue with connecting to one we switch to the other service provider. It is actually rare to find the Internet down in our library. In terms of electricity, in Zimbabwe the issue of power outages has improved considerably and in case of unexpected outages we have a generator in place.

Moira: New Library spaces (research workspaces, collaborative spaces, teaching and learning spaces). What future plans does the library have on redesigning its spaces?

Dumisani: These are not our permanent structures we are currently renting these building because the main campus is still under construction. They are also currently busy building a very big library which includes all the modern spaces. As such some departments have already moved to main campus including the head librarian and one faculty librarian. So we look forward to relocate to the main campus library once construction has been finished in the near future.

Moira: Research Data Management (RDM). What is your opinion about RDM and does it have any place in your future library services?

Dumisani: RDM in my opinion should expand materials held within our IR and also add more roles for academic libraries. It will definitely have to be introduced as part of our services in the future.

Moira: Faculty-Librarian collaboration. Please elaborate if there is a concrete relationship between faculty and the library?

Dumisani: I can't really say our relationship with lecturers is strong but we do work together on a number of things e.g. print/e-resources acquisition, and ensuring that students use library resources and services.

Moira: New Librarian skills and competencies. Please explain how your organisation assists you to keep renewing your skills and competencies?

Dumisani: We regularly conduct workshops where we invite university libraries within the ZULC to attend we enlighten each other on new concepts that maybe useful if adopted in the Zimbabwean environment. Personally, I always read a lot and find out from other international librarians on what is trending within their specific environments.

NUST LIBRARIANS INTERVIEWS

INTERVIEW 1: NICOLE

Moira: Describe how online reference and social media platforms are managed?

Nicole (NUST): Social media I think it was just planted and no one, I don't think it is being managed the person who opened it opened and left it like was it in 2010 or 2013. But no one updates no one is there to respond to students on social media. I think there is someone responsible for manning social media platforms the one who opened it. I really don't know who started it.

Moira: online reference services?

Nicole (NUST): We have a chat facility which is on sometimes depending on who is at the help desk, I am one of the culprits. All assistant librarians who will be at the help desk anyone who has a duty on the help desk should be logged on so assistant librarians/faculty librarians. So we can say an assistant librarian who is on duty is supposed to be logged on. But as for that complaint to say we don't consult them resources and services is not true. If we want to buy books for example we expect them to submit their list of books that we want purchased they don't do that of course I can say that they are now tired because what they

have submitted before have not been bought because of lack of funds they are now tired of that. But as for the e-resources again even sometimes for those book suppliers maybe print who would be advertising their resources we make sure that before we make a decision we buy anything even ACU Association of Commonwealth Universities whereby we subscribe to print journals before we subscribe to that we just sent the list to them and then we ask for their help can you please go through this and comment which titles you want you don't get any response even the acknowledgement of whether they have seen your email or what so sometimes just like them we are tired we just do the recommendation on our own because we tried and we have failed to get any response but we have not stopped we are still doing that it's not true.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Nicole (NUST): We mention that especially if we have faculty board meetings that's when our lecturers can talk of that and every lecturer is supposed to be in that meeting. Students we have orientation, ILS and by the word of mouth. Some can call from Harare and I will advise to say drop the phone and email me if you can't email me lets go on chat. That way they get to know but usually its ILS and orientation.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Nicole (NUST): At the moment there is no motivation what so ever there's no promotion

Moira: So it means if you get your PhD today you would not be recognized for that?

Nicole (NUST): I don't think you will get as for the promotion everything have been frozen even since 2013 when I graduated nothing has changed.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Nicole (NUST): It's true and it's always the case anyway that is what is happening the one who has the paper is more important than the one.

Moira: How does the library view its role in providing these resources?

Nicole (NUST): in actual fact we are supposed to be offering all that but like nowadays we are talking about makerspaces whereby you can find print but libraries have reinvented spaces with videos where you find a room with journalism students auto-card for engineering. We are supposed to be doing that but the situation in the country doesn't allow that to happen. But it's supposed to be our responsibility to do that.

Moira: equipment loan?

Nicole (NUST): I don't even have our computers, we are renting some of the computers how can we loan laptops, not anytime soon.

Moira: What kind of link does the library have with the research and innovations office? Please explain the level of relationship between the two departments?

Nicole (NUST): I think there is although when they sometimes have their research days and etc they usually call us maybe they give us a slot whereby maybe we can do a poster presentation take it as way of advertising what we have since almost everyone will be there. We usually show case some of our resources and services.

Moira: Do you think it's your place as library to offer research software, research data repositories?

Nicole (NUST): it maybe because that's the information they are looking for and we are the information officers, the library is where everyone is supposed to get information. But as for RDM we have the IR. We are supposed to manage their research data sets and store for them so that who ever wants to use that data as a different research. So we are supposed to be keepers of that data , we are the right people to manage that so yes It's our duty.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Nicole (NUST): are they willing?, it can be a good thing because anyway students trust their lecturers more than their librarians it can a way of convincing them. Because sometimes if you just say this and that as a librarian if the lecturer comes it will be more powerful.

Moira: but is there a working relationship between lecturers and librarians?

Nicole (NUST): yah it's there. It depends with people, they are some people who know what a librarian is who really knows the importance of a librarian and they will always value the librarian so it will be easier for them to collaborate but they some academics who would just say a librarian what can they know. So it really depends on the attitudes and know how if I understand what the lecturer can do its easier for me to know how important they are, it's the same with the librarian. If you know what a librarian can do then you will see the importance. they are some lecturers whom when they approach you they really appreciate your skills. So its based on their attitude towards the library and knowing what the librarian can offer.

Moira: Are you familiar with altmetrics?

Nicole (NUST): We had a workshop on that last week and I came in late and I really couldn't give myself sometime to update myself. But sometimes they don't really say much, it does show that you have opened so and so's research paper it really doesn't give a rating of whether you found that document useful or not. But how many times it has been accessed. You will only get that maybe through a survey or something. But you have that on our IR if get into our system you type in your name into our interface maybe you would have opened one title or certain journals then maybe if we can interview you to say Ranga you opened this page on this date did you find it useful. Open a title doesnt mean what you got was useful it maybe like you downloaded even the downloads they don't give you much. Maybe you downloaded because you didn't have time to or you don't have WiFi at home so that you can revisit or open the title later but when you get home you find that its rubbish so the downloads don't say anything. Which is not conclusive.

Moira: so currently do you do that to show impact of research papers?

Nicole (NUST): I think they, I think you can ask Mr Kunjenga (IT Manager) because we were asking him about that, you can also ask Mr Ndlovu he is the one who is responsible for the IR.

Moira: How is the library using new technologies to teach digital literacy skills?

Nicole (NUST): do we do that, we only have orientation there is no digital literacy there, we also do ILS, we don't do digital literacy training but we were talking about it though if you realise our clientele is now we have teachers who really are from they come on block release over the holidays those teachers who from rural areas they don't even know what a computer is so we were saying its Mr Maodzwa's faculty, we were saying that these teachers do they really have laboratory sessions even if they have they may not be enough because they don't know that this is a monitor or CPU they are really blank they don't even own

laptops what we start from there that this is a computer switch it on etc obviously it will be a lot of work given the time that they come for their learning they are really here to do things theoretically they is no time for practical. We were discussing and considering that but the moment there is no digital literacy training.

Moira: But when you teach your ILS do you uses projectors?

Nicole (NUST): yes we do. It allows you to present information visually.

Moira: some students complained that librarians don't consider some of us who don't know how to operate a computer

Nicole (NUST): We take it its not our duty to teach IT skills, they do have lessons on campus. They should come for ILS after they have gone through the digital literacy on campus. Because it really doesn't make sense to start with information literacy when you don't even know how to operate a computer. Atleast if you are familiar with a computer when someone puts a projector it makes sense maybe the timing may not be proper.

Moira: so introduction to computers is not part of the ILS?

Nicole (NUST): No, it has been departmentalized. But anywhere these days really I think as a student you would really need to help yourself out because they is really no one who is going to teach you that, that's what people would have to accept they take it everyone knows which is not quite true that everyone knows because I can have a smart phone which is mini-computer but it's not everyone who has a smart phone. I was asking this guy about they wanted to open e-resources so I wanted to demonstrate using his phone I thought of doing with the desk top then I thought maybe this person would want to open these e-resources off-campus then I say let me demonstrate using your phone then he said no I don't have a smartphone. I think the university should have that introduced digital literacy start from the basics which is not happening.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Nicole (NUST): we only have a generator for electricity it was bad but now I think it has improved, then the Internet has also improved quite impressively.

Moira: New Library spaces (research workspaces, collaborative spaces, teaching and learning spaces).

Nicole (NUST): Yah true that one is not so you are saying we should have a link to the basement. Yah it should be known. But they are redesigning the website they just showed us a little bit just like this calender thing I think it will be there. Sometimes e-resources we sometimes have orientation or ILS if it's a small class sometimes we close the library for that purpose and people who are not part of it are not supposed to get inside so they were showing us the calender if the event is on today on the day it will be written apologizing to our students that the ereources will be closed from this time to that time. They are still designing it putting all and maybe your research may come as an idea to them.

Moira: RDM?

Nicole (NUST): it depends on which angle they see it or how it will be of benefit to them because us storing it for them we maybe their backup so that when they lose their data they may visit the library and look for back up. Data is just data it doesn't mean anything. It doesn't make sense unless you put some ideas into it so sometimes it can be an advantage to them like if they lose their data they can always come to the library and ask for backup.

Moira: Faculty-librarians collaborations

Nicole (NUST): there is close collaborations, sometimes just like people are different they view the library world differently but just like we are saying with e-resources you would know that if I approach this lecturer when I want to gather their book lists or gather their opinion e-resources that we want to but he can give me a straight answer right away but they are some lecturers who would not even come back to you if you have any request or anything so it really depends with lecturers collaboration is there with others but with others it's not. They will just act like it's not important whilst it would benefit them.

Moira: New librarian skills and competencies? How do you keep up to date

Nicole (NUST): yearly we have training sessions like we take two or three days whereby we come up with trending topics maybe I have my group as an assistant librarian and a few SLAs but whom I will be the group leader go through a topic and come up with a presentation and present to other librarians that way we are able to keep up and also. Training sessions for faculty librarians outside the library where a certain group goes like if it is for applied sciences am the one who goes. If its for IT Mr Ndlovu goes but trainings yearly we get something so that we are kept abreast with what is happening through our own personal research if you here about something then you get to read on your own you learn a lot and workshops. The library management should bring topics that they were trained in workshops and we take it from there what they have learnt is supposed to be cascaded through that training. Whatever they have learnt they bring such topics so that we can put them to use through group presentations.

INTERVIEW 2: TERRENCE

Moira: Describe how online reference and social media platforms are managed?

Terrence (NUST): To be honest with you we do have social media platforms that are there but they are not really officialised in a sense, why do I say this because there is no policy framework which guides as to exactly is responsible for managing them it was just an initiative of a person and they were accepted. When it comes to a person who is really responsible there are no guidelines in place to say what exactly is to be posted what is not to be posted who is supposed to post at what time. So those things are not really there although the platforms are there and ready to be used but because there is no policy backing up whatever is there currently that's why you find that they are not as effective as you might want them to be and it's not surprising that people are talking about it that way. So we are just looking forward to a time when maybe we have some policies and maybe we assign someone to be responsible for those platforms in that case maybe we can move forward in a kind of a clear direction but for the mean time we are just operating in that kind of a fashion it's just a miss and hit thing it's not something that's formalized for now in terms of social media platforms.

Moira: What about your online reference chat?

Terrence (NUST): if you check on your library website we do have something that is there it's the zol chat. They played around with some three open source tools for some time the previous one I cant remember the name but this is what they have now I think the other previous chat facility that we had it was bought by another company so it was no-longer freely available so we settled for something new which is Zol chat. And normally assistant librarian while stationed at the help desk is expected to log in and interact with users while sitting at the help desk using this chatting facility of course some are using it and some are not but again maybe its because of things to do with policy again because as long as they are not backed up by some policy sometimes people are not really obligated to use them in a sense. But yes we are trying to use

this one its there its called Zohall chat I don't know if you are familiar with it, that's what we are trying to do for our online reference.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Terrence (NUST): well normally what happens is we try to highlight these things during orientation for first year students we highlight these are the different ways in which you are able to communicate with us online via Facebook, Twitter Zohall chat we demonstrate these things when normally when students are just starting their first year but for lecturers we also try to communicate via email but the problem is sometimes these lecturers although they complain but they do not read emails at times especially if it is coming from the library. They are normally ignored not only about communication to do with these platforms but any other communication for that matter maybe you are trying to communicate about new resources that have come in they don't get to read but you find that the next someone will ask you how come you never told us about these new things but we have already sent an email but no one bothered to read you see so it is also an attitudinal problem on the part of lecturers such that they do not want to really keep pace with the library in terms of what it is trying to communicate. I think that's the main challenge but we make an effort to make sure that everyone is aware through email most of the time but we also have faculty librarians who also attend faculty board meetings so during those meetings they also have an opportunity to talk about some of these issues so am sure that's another platform that is used to communicate. But of course we also organize some training sessions here and there for academics when we are training them on IL, we also take advantage and we also talk about these things so there are so many avenues that we have used in the past to communicate about these platforms so we do make an effort maybe our efforts are not good enough but yes some efforts are being made.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Terrence (NUST): maybe your question I don't whether am the one who is supposed to be answering that one but currently there is nothing that I think it has to do with economic situation in the country remember the government froze posts so there is no hiring which is taking place and at the same time there is no promotion of any sort which is also taking place. We have so many e.g. senior library assistants or maybe some positions below that were people have upgraded their skills maybe to masters level and bachelors degrees but they are still in the same positions for years with their masters and bachelors degrees because they is no room for them to go up. I think it has to do with the economic situation because we depend on what the government says if they unfreeze the posts then maybe something can happen but for now there is nothing taking place.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Terrence (NUST): I think it's quite true because you do not have the qualifications I can give an example of some guys who have been working here for years some where the pioneers who set up this library even before the current librarian came but those individuals are still down there same position where they came in same position they are today why because they didn't upgrade their skills. Over the years things were different than now if they had upgraded maybe by now as we speak they might have been promoted because this issue of job freeze started just some few years ago it did not start years ago. So maybe they would have been promoted, the current university system is such that you cannot get to be promoted just because you have acquired some skills which are not backed up by any kind of paper in terms of qualifications even if

you have so many skills and everyone knows about them unfortunately it doesn't help as long as you do not have any qualifications, so you still remain there I think that's the current system that is there. Many universities I know that's the standard, you don't have a qualification you stay there it doesn't matter what skills you have.

Moira: How does the library view its role in providing these resources?

Terrence (NUST): I personally receive some requests for example for me to teach students on SPSS, I think it's not really our role as the library to teach students about data analysis because I think it's not our role. Our role is yes to help in the research process mainly in terms of gathering the information that you want for your research for us to now do your analysis of data its your own burden you are supposed to do it as a researcher I think that's not our role. Our role comes in when you have finished your or let me say this our role can come in terms of how you plan to manage your data in the research process like research data management. But we are not there to assist in your analysis we are there to help you to store that data after your analysis by e.g. uploading in a research data repository currently we do have an IR and if researchers want to submit their data in addition to their articles you are still allowed to do that. But currently we are just receiving research papers a few people have submitted their data but we are mainly receiving articles not raw data sets. But the platform is there if they want to submit their data we can actual the Dspace system.

Moira: I was asking the question in terms of you providing softwares as resources available for your patrons?

Terrence (NUST): yes that will be a good thing to do maybe but I think we are failing to have access to some software that are relevant to the library itself so I don't think for now we will be in a position to really provide such kinds of extra things for students I don't think that will be possible because we are struggling to purchase vital systems that we need to deliver services as the library fundamental softwares that we need we are failing to do that so I don't see that happening anytime soon

Moira: what of e-links to research funding?

Terrence (NUST): That is understandable but it's not there for now I think it's a good service really were you are providing links to some research funding. In actual fact what we will be ideal I don't know how far you have gone about researching RDM we were talking about it in our workshop just two weeks ago were we were saying I think we need to expand our roles to include RDM. But about those software we might want to have something but for now I don't see it happening because we have other pressing issues that we are not able to meet so for us to be able to I think we are way far from providing such kind of things.

Moira: Equipment loan?

Terrence (NUST): You know what it will be a good thing but currently our staff members do not have good machines to work with to start with their desktops are not as reliable sometimes they freeze. So I don't think the economic situation right now allows us to now buy some laptops to loan out to students whilst our own staff do not have anything to use which effectively deficient. It's a good thing to have I mean I travelled recently to outside the country I appreciated some of the things they do yes they loan out laptops in fact their libraries are so big that you can just walk in and use the library regardless of the fact that you are a member of the university as long as you reside within the community and you have proof of ID that you stay at number what so ever you just freely walk into the library and use WiFi you can borrow a book even if you are not a member of the university itself but the situation here is different we have limited resources we are facing challenges so really to be able to provide such kind of nice services for now I think it's quite

impossible although we would like to do those things in the future if things stabilize in the country but for now we are not thinking along those lines.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Terrence (NUST): Well yes we do have some kind of relationship that I think I personally was trying to build because when the IR was started they was realization that we really need to work hand in hand with the research and innovation office because we wanted to create a policy such that when one does research and it is funded by the university one is obligated to their research paper and we should be able to upload it in our IR and as long as if it has been funded by the research and innovation office (RIO). So the RIO is there now to enforce that kind of a policy so that at the end of the day you are not going to be cleared unless you provide that full text to the library so that's the kind of relationship that we have now. Although we are trying to build it further to include RDM.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Terrence (NUST): one thing for sure is that we as librarians we believe it's our job to teach IL and we believe that is not what academics are able to do because we are the professionals we are supposed and unfortunately here at NUST we have been barred from formalizing Information Literacy Skills (ILS) training to make it mandatory and for us to be in a position to teach it university wide they feel it's their job and we have been at logger heads for so many years and up until now nothing has been done to resolve the situation they still feel that they need to teach because they are the academics they say give us the material then we can teach but that is not the trends worldwide whereby librarians are actually teaching IL university wide that is happening e.g. at UZ and MSU. But its only here it's there but it's not formalized students attend when they feel like it not a force matter and if they don't feel like it they don't attend and they is nothing that we can do as librarians we just teach whoever comes and it ends there. But in terms of partnering with academics in terms of doing research yes we would like to do that but maybe we haven't really, I personally I think I have tried to collaborate with one or two people but I feel maybe some of us maybe are not doing enough to engage them to really work together much more seriously. It's really a possibility infact they like it but I also feel that at times they might also want to take advantage because if you are collaborating with someone they want you to do all the donkey work and they just append their signature something like that they don't want too much work but at the end of the day we also want it to be a fair game we always want you to bring in the other half the librarian provides the other half not 90% and you just bring in 10%. It's supposed to be a fair game.

Moira: do you host workshops for your academics?

Terrence (NUST): yes we do, in fact what is supposed to happen is we host them on a regular basis but currently this hasn't been happening but I know they used to happen in the past but now maybe not so frequently were we train academics on ILS but at times we also take advantage of some international invents e.g. OA week if we get some funding we also get to organize some workshops show casing some of the products that we have IR promoting OA resources and so forth. So we also take advantage of those international events when they happen we also organize some workshops. Although not to the full extent that we would like but we try because some of these things are hindered by funds sometimes we would like to organize some workshops but if there is nothing on the budget/ if it's a zero budget sometimes it's hard to organize a good workshop with a zero budget so at times we need some money but unfortunately that money doesn't come forward so at the end of the day it acts as a demotivation factor that we are organizing workshops that becomes but yes once in a while we do organize workshops.

Moira: Seeing that research has become prevalent amongst lecturers do you offer training on referencing software e.g. Mendeley or Refworks?

Terrence (NUST): Yes we have tried to do that with Mendeley especially we have organized but it has been a long while but we did try it out even with some postgraduates we really tried to organize some workshops but this year it didn't happen but some time back it did happen but this year I don't think anyone organized anything to do with Mendeley. Because I personally I have used mendely for quite some time and am also a mendeley advisor on my profile if you look at it I think its two of us with Israel faculty librarian for Medicine we tried but for some of these things you see if you do not have the support of management to do some of these things and management standing by you when you are trying to implement if that support is not there sometimes your zeal to continue to work so hard because there are some things that you need some support of some sort in terms of mobilizing people to attend some of these sessions because you cannot do it at a lower level you might need the librarian herself to also communicate with heads of sections trying to mobilize people to attend if that is not there at times you just say ok we just stop it at that but we try hard. Like me I try so many things here unfortunately at times you are demotivated.

Moira: Are you familiar with altmetrics?

Terrence (NUST): yes alternative metrics they work mostly via social media were you are looking at how many people have used this article how many people are talking about it how many people are sharing it.

Moira: To what extent has there been a demand from academics and the research department for impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)

Terrence (NUST): we haven't had any kind of demands from them because we have been talking about it recently we were saying it can be a good thing for researchers to be aware that we also have these kinds of metrics that can help them to see how they are doing in terms of their research impact other than using traditional measures such as h-index. We were discussing it but I don't think we have had request of researcher saying can you try to implement this for us I doubt if they are even aware of it.

Moira: but since you are keeping their research in IR is it possible to follow through such stats?

Terrence (NUST): I think it is, isn't it with Google you need to setup a profile for a particular research so that you are able to track them yes I remember I tried some training of some sort I know how to do it but I haven't done it myself for the individual researchers.

Moira: is the library offering such a service?

Terrence (NUST): it's in the pipeline I can say its something that I have been thinking about but its only that I haven't got time to really implement it but I was thinking about it were I will be tracking how people are doing in terms of the IR especially those who deposit papers in the IR tracking them via Google. It's supposed to be the researchers themselves. Yes I think its something we haven't done, I did a training session to do with Google Scholar it also highlighted that we can track some metrics via Google scholar but we haven't tried it here.

Moira: How is the library using new technologies to teach digital literacy skills?

Terrence (NUST): it's a good question that you have asked actually we were thinking about it seriously that maybe we might need to come up with an e-version of IL tutorials were we get to deliver IL via elearning platform like Mudu, Sakai or the Google classroom but the IT manager I think he has come up with something it's still being developed phase but its something that is being projected to come out but it hasn't been implemented but its something that we are trying to do but he will be using Mudu its something

that we are still trying to investigate the possibilities but we haven't really done anything in terms of delivering ILS via some of these tools electronically but we are still investigating the possibility of using Mudu to deliver ILS.

Moira: when you deliver your sessions as a faculty librarian do you use mobile technologies to teach students

Terrence (NUST): maybe we haven't really thought it that way I know that you are trying to discuss this question from your particular point of view, but when we teach we make it clear that you are able to access e-resources via a laptop or your mobile phone. We would be projecting am sure it's a technology. We also do some hands on in the e-resources were we actually give students some tasks to do hands on after the theory session so we do teach them in a kind of a practical way.

Moira: when they teach ILS they consider some of us who don't have those IT basics skills, is that part of the ILS module?

Terrence (NUST): unfortunately, there are certain things that we assume you have some assumption. So we also have some assumption that at this level really you should be in a position to switch on a machine using your mouse you should be able to logon to a website. I mean you should be able to have those kind of basic skills but we do encounter situations whereby someone will be coming from a very rural back ground were they are no machines some of them have never accessed Internet it would be their first time. I remember I started to use the Internet when I was in first year before that I didn't. we forget about those students such that we don't really talk about the basics we just start from where we want our students to know we don't start to teach students about IT basics. We assume that can be catered introduction to information technology am sure every course/ programme has that kind of a component we assume that can be covered in that particular module. But because when we start teaching IL they would not have covered much ground because we normally try to take advantage of the early days especially for first years before they get too busy to teach IL.

Moira: the ILS is not in their timetable?

Terrence (NUST): it's not in their timetable unfortunately we need to find time for it remember this is not a formal thing not officialised in any way such that some things that librarians do out of their good heart as it were. So that's the major challenge that we face because sometimes librarians would like to teach ILS but because there is not slot which they have been given its hard to find organized classes because students are tied up at different times. So sometimes I get requests that I teach people after 5pm but would have already knocked off and there is no over time for me teaching people after five but do have some requests at times on a Sunday or Saturday when am supposed to be at home so it's unfortunate that's the kind of situation its really a problem when trying to teach IL and as it is to be honest very few people(students) get to be taught these skills if you look at the statistics in comparison with whole enrolment you find very few people go through this IL some don't even know about it. Because not everyone even attends orientation. It's so suprising that someone can go through their four years of honours degree without even coming to the library some don't even know that they can actually borrow a book.

Moira: so do feel digital literacy should be part of ILS programme or not?

Terrence (NUST): yes maybe we should because the main challenge is we would like to include it but we feel that if we include it now we have limited time to teach what we want to teach so if you include this component of teaching people about the basics of using a computer when are we going to find time to teach the real deal of our of what we want to teach because there is no time we do not have any formal slot so

the only time that we have we use it effectively by teaching exactly what you want to put across not focusing on what we consider as very essential ofcourse it can be something important because at the end of the day they don't know about the basics really how do you expect them to be in a position to follow-through.

Moir: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Terrence (NUST): as a library we are at an advantage because we are in town and mainly power outages they do happen not to a larger extent like at campus for example so because we are in the central business (CBD) its kind of a benefit in that sense most of the time we are always up but in the event that we are down we have a generator a very big one it can provide electricity for this whole block. Most of the time we are up unless if it's a technical fault telone or powertel of course the bandwidth it's a slow connection but I think we can do with it.

Moir: New Library spaces (research workspaces, collaborative spaces, teaching and learning spaces). What future plans does the library have on redesigning its spaces?

Terrence (NUST): I like the way you are talking because you are talking as if we are in Europe, we do have a research commons, like when I visited this other library in the USA they had a private sound proof room where you can actually get to group up and do your discussions it's a good initiative really but we do have a kind of a research commons which is not so fancy if you notice in the research board inside the IT section for lecturers they can come in and do their research there. They used to be a number of computers there but because of some shortages they were taken away I think we are only left with one or two it was kind of a set up for lecturers and the basement for discussions so we can say we do have some spaces maybe we do not publicise it on the websites not talked about. Maybe we assume too much I think's a good thing we need to talk about it. Yes it should be there somewhere.

Moir: What is your opinion about RDM?

Terrence (NUST): I believe this is an opportunity for librarians to expand services that they are currently giving to its community for particular researchers and its also an opportunity for them to upgrade their skills so that they can be able to operate in this environment were they get to deliver research data management because in terms of RDM services what it means is that the librarian really need to be familiar with the whole process of research so that they can be able to assist researchers so what it means is librarians themselves need to be good researchers. So you also need to be involved in some kind of research as a librarian so that you can be able to appreciate this and myself that's what I am trying to do I recently attended a conference in the USA it was the International association of Science Information Services and Technology its an organisation that really is into data and I appreciated how they are doing things these guys are so far they are nolonger talking about the basics of RDM they are so far and we are really behind but I feel its an opportunity for us to prove to the academics that we have a role to play in terms of helping them with managing their data but we are not there for data analysis its their job but we are there to help them for example coming up with data management plans some funders who are now requiring researchers to do data management plans as part of their research at proposal stage. So I believe that librarians should be in a position to assist researchers in terms of best data management practice how to draw up a TMP and how to carry out the specifics of managing their data for example vision control, data gathering, documentation all that I believe we should be in a position to teach researchers about some of these things its an opportunity that is there that we really need to fully exploit as librarians but for now very few librarians are familiar with some of these things because maybe they are not really keeping pace with what is happening out there but I believe its really a good opportunity. But myself I am trying hard and I believe maybe given the opportunity we should be able to introduce these services maybe in the next year or so.

Maybe starting at a simpler level were we are just talking about because you see data management services they are technical services and we also have informational services maybe we can start at informational services then as we go we can then talk about the technical part of it. But I believe its something that we can do

Moira: do you believe that lecturers can allow you to handle their raw data sets?

Terrence (NUST): I think its quiet a challenge for now because I did a study personally were I was looking at RDM practices of researchers at NUST mainly Applied Sciences and Faculty of communication and the sentiments that I received is that people really do not want to share their data why because they are afraid that maybe someone might be able to scrutinize their data and end up finding that this is pacified research, or they feel someone might use their data to write publications and they are at a disadvantage or they might use their data in some other way that they do not like those are the kind of sentiments that I got from that particular research. So its going to be hard work for us to try and convince the researcher that it will be good for you to make known your research data they are so many advantages of doing that at the end of the day science is going to progress which is what research is all about sharing.

Moira: Faculty-librarians collaboration.

Terrence (NUST): its not really a good when you look at all the faculty librarians when they are trying to connect with their respective faculties. Maybe let me speak for my own faculty sometimes its hard to really connect because what you want to do sometimes there is no support from these guys or they might feel that what you want to do you are trying to take up our time from what we are doing we are busy people. I am responsible for commerce I tell you sometimes it can be disheartening because if you want to teach academics on ILS about for examples e-books now you get these statements no we are busy, we don't have time for that so the relationship is not that good I don't know how to describe it but generally faculties do not have high regard for librarians so at the end of the day the kind of relationship that we have is strained. I think maybe it has to do with policy that there is no policy to guide relationship between the librarian and faculty so sometimes there is no obligation on the part of the faculty to take you seriously or take you on board for you to be able to do what you want within the faculty because there is nothing which is backing up what you are trying to do so really they will say who is this what is he trying to do his trying to take up our time but we do try to engage them never the less especially in connection with book acquisitions, past exam papers , research projects we try to connect so that but they is no 100% cooperation on their part. Of course we do have one /two requests to say come and teach us our students. Commerce is a very difficult faculty to manage because it enrolls so many people now we have blocks/ part-time for undergraduates because what is supposed to happen is when there is a new programme or there is new students coming I as the faculty librarian I need to be informed I need to take those students through orientation and also through ILS so you sometimes don't get to know that there is a new crop of students you only see them when they come to the library looking confused they don't know what to do that's when you discover that they are new students and sometimes you don't get to do anything about it you just ok and just leave them like that its unfortunate because they are at a disadvantage at the end of the day because they don't really get the full benefit of using the library they are not orientated they are not taught the basic skills that they need to have.

Moira: new librarian skills and competencies how do you personally keep up to date?

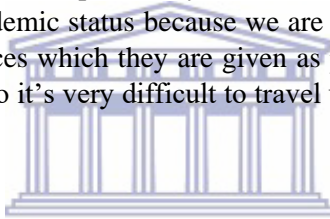
Terrence (NUST): normally I subscribe to a number of professional mailing lists which at times gives a clause of what is happening out there. The mailing lists for me I think they are the key sources of information you get to know what is being discussed currently through those mailing lists , I think for they are cheap sources of information and I also get to attend some conferences sometimes I try to work hard to initiate

my own career development by trying apply for funding to attend these conferences and also to attend some training workshops I make an effort to apply like this coming week am travelling to Switzerland for about two weeks there is a training that is happening on digital libraries but also have an opportunity to attend some conferences World Forum on Information Society which is happening in Switzerland am also going to be attending as part of the training workshop and it's a fully funded thing which is not funded by NUST, its only funded by the European organisation in nuclear research (SAN) infact I attended the first workshop in Ghana then they only selected six this time to visit Switzerland and I am one of the chosen six so am going there and two weeks ago I was in the USA it wasn't NUST money it was also funded from outside. So I make an effort to take advantage of these free opportunities that come up. Because if you wait for NUST for sure you are not going to get a thing because they is no money

Moira: so it doesn't fund librarians to attend conferences or present papers?

Terrence (NUST): I tell you I submitted a conference paper which was accepted the last recent one was for AFLIA in Cameroon it was accepted I asked for money there was nothing. There was one in PROLISSA in March this year my paper was accepted but they was no funding so its tight it's very difficult maybe what can work is you are given a partial funding by the organisation to say ok we are going to cover your air fare and then when you approach them in that kind of a situation yes you might be able to be entertained in terms of but if you say my paper was accepted can you fund me they will say they is nothing like that. Probably it has to do with the nonacademic status because we are not given priority because the lecturers have a vote for travelling to conferences which they are given as part of their working conditions but its unlike librarians we do not have that so it's very difficult to travel using their moneys because you are not budgeted for.

INTERVIEW 3: NIGEL



Moira: Describe how online reference and social media platforms are managed?

Nigel (NUST): yes I would agree that sometimes students are not consulted but some time last year we tried to have groups within the library which will then try to have a sort of a user analysis as to what they could have the library do for them. That was an effort to consult them through library ambassadors in each Faculty. If they can go to the NUST website they will see there are social media platforms and on the library website they is also an online chat. Which can actually assist them to air their views about the library so to me yes they has been some bit of consultation although its not enough and also with the Zohall chat on the library website were they can actually communicate asking questions. It has worked before because students would say how do I get to the library if you are a new student were are you can actually get to the library via this route or this way so to meet it's a way that the library is trying to communicate with students.

Moira: who manages these platforms?

Nigel (NUST): the faculty librarian working at the reference desk is supposed to communicate and I think the IT department administers these platforms if faced with any problems we go to the IT session. It has worked for us before, a staff member at one time came in very late from home at 10am then students just write on the on the online chat this person came at 9:50 and at 10am they left for tea and it assisted the management to deal with such kind of situation.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Nigel (NUST): this is done through ILS training were we go to campus and teach users to say this is what we have at the library we address them at faculty level. During orientation we try to highlight how students

can interact with us on the website. Once in a while we attend meetings at the faculty and here their concerns about the library and we also take up issues from the library to campus

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Nigel (NUST): of late they has not been much in terms of incentives because it's a national problem and government says we have no money to have additional personnel in government departments so that alone makes it difficult for libraries to incentivize those people who have upgraded or some individuals to further their skills. Some academics on campus I think, am not sure but I think there is some incentives of some sort where somebody gets funding for example from other organisations outside the country. The late Vice Chancellor Lindela Ndlovu used to have some moneys that are given to lecturers 10000 and above that was done on a yearly basis somebody is given some bit of cash and some certificate of recognition. And this is only meant for academics not Librarians we have had people here who have got Masters right now but they are still in the same position that they have been in before they acquired these qualifications.

Moira: is it because of the library structure is different from the academic structure?

Nigel (NUST): Yes that could be another way of but I think some effort is lacking in the part of the library management to say ok somebody has achieved this. Instead of the library gaining what he/she has learnt they is no space for that. You get a qualification you just seat there, and they will say no if there is no position for that particular person until there is an opening/ vacancy then you will upgraded.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Nigel (NUST): yes I think it's a structure that has been there for some time in universities were experience is not recognized much if you have got paper qualifications even if you do did not do anything that you are an assistant you are a sub librarian because of these paper qualifications but they are some people who do not have paper qualifications who can do much better than those who have paper qualifications. The university is an academic community which emphasizes on paper qualification so it is true. But if you go NGOs for example they emphasise on skills instead of paper qualifications

Moira: How does the library view its role in providing these resources?

Nigel (NUST): in as much as the library would want to provide those services but the library is limited by financial constraints it's a national problem. If you look around you see the type of furniture that we have these desks chairs you can't tell that this is desk for someone who would be expected to perform his job properly so it goes around funding. If funds were available the library would want to have those kind of things were perhaps you could actually have equipment for lecturers but we can't do it because right now we get tea or sugar for staff members because we don't have money we are trying to cut costs we only get tissues the rest no tea, no milk no nothing. So how then do you expect the library to provide a laptop to academic staff when librarians are not provided which such essentials.

Moira: what of just providing electronic links to research funding?

Nigel (NUST): Infact we have not even done that before were I seat down and try to search for funding for students. To me its non of my business. I haven't done that because I mean it never came to my mind that there are students who might want funding I only thought that being at NUST it means they getting money from their parents how then do I go the extra mile to assist them to get funding for their studies. but it's a

good way of trying to assist students but it has never happened here at NUST library I don't know of other universities such as UZ or MSU.

Moira: or maybe this is the role of the research and innovation office?

Nigel (NUST): funding for research normally comes from the research board were it says you says they is a conference in USA so this is the theme areas that you need to write research on if your paper is accepted you get funding from the research board. So to me its an effort to try to instill that culture for research amongst academics. But the fund am told its not enough and its given to selected individuals its not for everybody.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Nigel (NUST): yes it is in a way I can say its linked because we normally work in collaboration with research department at NUST. For example, we had to work together when developing the IR policy which actually got input from the research office sometimes when we have workshops here we invite them to teach people as to how you can write a research paper so to me it's a way of trying to work together with the research office.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Nigel (NUST): the relationship that we have we academics is not that bad we sometimes work with them interms of ILS training and orientation and interms of other things. But its not enough they have an inferiority complex to library staff to say what can you tell us its us who should be concerned about teaching yet a lecturer has got a Masters in their respective fields and librarians have a Masters as well they is no way in which he could say librarians cant do ABC when they know we can do the same thing that they are doing. At UZ and MSU ILS training actually is done by the library and academics and the course is examined. So at NUST they said teaching is for academic staff so that alone creates tension between librarians and academic staff members. You go to the Faculty for ILS training you here a lecturer saying I come to library because they are too big books at library I can't carry then you say but sir we have e-resources that you can use in the comfort of your own office but you can tell that the person is not interested because of old age or maybe technophobia I don't know. Because on behalf of my faculty, the faculty is made up of very old people who are unwilling to take up IT/ technological issues so to me that alone is a hindrance to us working with them. Others are actually cooperating there are youthful lecturers who are willing to be taught some skills quite a number of them are willing to learn from the library.

Moira: so the issue of formalizing ILS, is it going to be resolved soon or its something that has been shelved?

Nigel (NUST): it has been discussed at some forum at campus and the feeling of the academics is that they are unwilling to let the library teach students but I think the issues to do with money because we have the more money we will get. But if they say ILS training you are not going to be paid anything they might let us teach but as long as there is money involved they prefer do it themselves. The library has tried to say ILS training is supposed to be done by the library. For example, They was a case were the Faculty of communication came to MPILO (another NUST library branch) I was there standing in for Dabengwa (Faculty librarian) and he wanted to conduct ILS training the library management blocked the academic, and said if you want to do this we have to do it ourselves as librarians and then you concentrate on other

aspects other than ILS training so he ended up giving in and we did the ILS training so that was a way of trying to emphasise that ILS training is meant to be taught by librarians.

Moira: Are you familiar with altmetrics?

Nigel (NUST): yes I am, infact we had a workshop on the 29th of May 2017 we had a training which had a number presenters and one of them actually tackled the issue of altmetrics to see how the research papers being viewed by the outside world.

Moira: To what extent has there been a demand from academics and the research department for impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)

Nigel (NUST): I haven't heard any, because my feeling is that some academics at NUST are not willing to have their research published online because to me they are not researchers wealth their salt some of them say I can't do a research paper because am busy supervising students projects yet the core business for lecturers is to research and publish but somebody said no I can't do research because I have got too many student dissertations to supervise, what kind of academic is that. Because they is some money in terms of claiming when you supervise a student's dissertation they then concentrate on that area instead of the core that's what I have noticed. If they publish I don't think they get anything because the Faculty librarian in charge of the IR has problems with other academics refusing to send articles to him saying what do I get if I send my article to you I need to be paid. So they then send their papers to other organisations that recognize them through payment. If you compare with UZ every now and again there are book launches but have you ever heard of any book launch at NUST no which says that there are no researchers at NUST. I followed UZ that professor Mararike has produced a book a number of lecturers have done a lot but at NUST no books published so one tends to question what kind of researchers are they.

Moira: How is the library using new technologies to teach digital literacy skills?

Nigel (NUST): that's a very interesting one because I had a presentation on digital literacy a couple of weeks ago were academics most of them have got smart phones and they are not using those for research purposes they are just using WhatsApp but I said as part of my recommendations that they is need to have a programme of digital literacy which can be taught to academics or even students at campus. That this is how you can also use your smart phones in terms of research and other things so it's up to the library management to adopt that recommendation that ok let us such ILS training which can also be digital literacy to assist users. Because we look at applications such as Scoop-it were they can actually publish their research and provide a 5 min video to explain what your research is about and throw some images within that video so that you will be able to communicate with your students but in my Faculty it's a challenge as well because am a Faculty librarian for education and the lecturers are the teachers most of them who were taken from colleges to come and teach at NUST and usually they train as teachers they upgrade themselves to Masters others have got PhDs now you can tell that their their background is still haunting them interms of trying to acquire technological skills. Am trying to say use you phone to access e-resources from the library website were ever you are so we are slowly catching up.

Moira: so you are active in that area trying to teach digital literacy skills to your lectures?

Nigel (NUST): before my presentation here at the library I was also ahead trying to persuade to say ok this is how you use your phone for research this is how you use your phone for to communicate with students and students can actually submit their assignment online on your phone you should be able to retrieve them even at home because a smart phone can work as a mini tablet.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Nigel (NUST): some of the challenges we face at our library are national problems e.g. load shading. But we have tried to acquire a generator of late it has not been working well but now am told its working as soon as we experience an outage the generator automatically switches on. But if there is a challenge at campus of power we are also affected we also linked to the campus so that's one of the challenges we are facing but at the library if there is power outages in town we have power but that power might not allow students to have access to the Internet because we are linked to campus we will provide other services other than WiFi. But am told that some researchers at NUST tried to do research on how we can generate electricity power from solar power I don't know how far it has gone that was a good way of trying to solve the problem. It was also part of the project that NUST is having generating funds and a lot of other projects have been developed to ensure that with time those projects generate cash but right now they are at infancy stage.

Moira: New Library spaces (research workspaces, collaborative spaces, teaching and learning spaces). What future plans does the library have on redesigning its spaces?

Nigel (NUST): if you look at NUST our library here there is not much space to talk about no space for reading commons because the library is limited if we are to move to campus to that bigger library I think the spaces were actually factored in on the design of the library to include national trends but it goes again to the issue of funds as long if there is no money nothing moves, the unfinished library building has been around for years and it still at the very same stage so as long as you don't have money even if you have dreams those dreams cannot be fulfilled because they is no funding. So yes we want to have things that are happening in South Africa or Europe but we can't do it because there is no money. The money that the university gets from students they use it to run the university operations and then they are left with nothing to contribute towards development yet in other universities the funds that students pay is supposed to go towards infrastructural development for the benefit of those students but it's not the case in Zimbabwe because of our economic challenges.

Moira: RDM what is your opinion?

Nigel (NUST): we have not been doing much on RDM but I think the Faculty Librarian in charge of IR has tried to ensure lecturers submit their research out put to him and manages the research papers for the library but I feel we have not done much in that area a lot still needs to be done.

Moira: Faculty-librarian collaboration

Nigel (NUST): the setup is that there is a library committee at NUST which has got members drawn from the library and from the faculty. The faculty chooses a person who represents their interests so when things are discussed at that committee they are then given to other lecturers who are not part of that committee and to me that's a way to trying to collaborate but it's not much as well because you find lecturers they say we are very busy with research but if you look at what they produced in terms of research they is nothing they will be busy doing their studies which benefit themselves instead of the university. Yes there is not much collaboration in terms of the library and the faculty and it's a question of attitude ah no what can the library tell us we have seen it, the library is a place where you can borrow books yet they is more than what they think we can offer. But others Dr. Pot for example is someone who is always following up what does the library have how can I do this. Some lecturers will say am writing my thesis on this can you please provide some information on this area, then I say no madam but I can give links but I can't give you articles. This is the link so go and open that link and search for yourself, if I provide you with articles I am not doing

you any favor because am just spoon feeding you, rather tell me your challenges then I will come in assist on how to access e-resources not to provide you with actual articles. Others have grasped the technique of using e-resources but others still face challenges we are trying to assist them a Dr (PhD) for that matter who doesn't know how to switch on a computer, I had five lecturers here for ILS training who said I want to have ILS training at the library out of 15 lecturers only 5 came. And out of those five two could not switch on the computer so I had to start from computer basics how to open a website even today they are able to navigate the library website after their ILS training but am worried about the other 10 who did not attend so my assumption was that the younger ones thought that perhaps we know how to do it because I have not trained any young lecturers but I still feel that some more needs to be done in terms of training to invite them here so they can so that did come understood our first training that we had before and these ones felt that they still want to learn something from what I taught them so they came I trained them they went back to campus.

Moira: new librarian skills and competencies, how do you keep up to date personally?

Nigel (NUST): normally I do it on my own research to see current trends in librarianship I actually try to learn through searching online and read on my own. When you get opportunities to attend a conference even to UZ within the country you are told that they is no money for you to go and attend that conference which of which to me conferences are there to impart knowledge to people regarding your area of expertise so even if you get an opportunity to attend in UK or America you are told that they is no funding or you must contribute part of the funding of the expenses which is impossible but the world over people learn through attending conferences that's when they know what's happening through sharing ideas and skills because the idea is after the conference then come and implement what you have learnt from were ever conference you have attended again it's a case of finances if you can't get money for tea how then do you expect to get money to attend a conference. It's not possible.

Moira: what of ZULC?

Nigel (NUST): ZULC have tried I have attended two conferences under ZULC connection. We are trying because we actually having a workshop on RDA but its not much you cant have one or two conferences in a year you need to have atleast four and you come and write a report and recommend what you think the library can do with what you have learnt. With RDM we had a promulgation that for ZULC and for the library our job is to take them up to management, if management doesn't implement that or make a decision our hands are tied because I expect them to say ok this is what you recommended we are doing ABCD. If the management doesn't respond I just fold my arms and say what can I do because after I do my job and present my recommendations everything is left in their hands whether they want to implement or not. And again the case of them saying they is no money, as long as if they is no money we cannot talk of anything in terms of skills development. But we are trying with the limited resources, I organize ILS training on campus and I teach library patrons everything that I would have learnt on my own through personal research and reading.

INTERVIEW 4: PAULINE

Moira: Describe how online reference and social media platforms are managed?

Pauline (NUST): that's no my area really but I know we have a Facebook page and Twitter and we were discussing recently we had a workshop about the Facebook thing. Our assistant librarians seat at the reference desk and they login and that facility is open while there is a librarian seating there they go off to tea come back normally our duty roaster is such that in the morning at 9am-1pm there's someone 1pm to 4:30pm somebody takes over and the person who is in charge of the evening duty is supposed to be there

from 4:30 until the library closes so according to our policy they should always be someone logged on whenever you go and seat at the reference desk you logon. And they is always someone to respond to any quiries online/social media that's the way I understand it but it's the purview of Mr Kujenga (IT technician). He can always check that are they logging in because the person who is on duty is supposed to be logging in so that the facility is open. So if there is a problem we are not aware of it we did discuss it persuading them that they should always log in the training was done at the end of May.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Pauline (NUST): we really depend on our assistant librarians because they are the liason officers for us they attend faculty boards and we also have the library committee were faculty members coming in and we talked to them about it so its up to the faculty representatives to go and talk to their colleagues because by right according to the university regulation if I attend a meeting representing the library I will go back and report for instance I will report to our management meeting about whatever transpired in that meeting if there is anything that relates to the library that's the way it supposed work but our Faculty librarians are our liason officers because they attend the faculty board meetings and whenever a faculty has a problem they are able to phone that person and talk to them and make sure that whatever they require is attended to and that person will then report to the sub-librarian and the sub librarian will report to management. But if its something urgent if they is a resource that they want we encourage them to tell us about the resources they want. The ZULC actually purchases the e-resources and we try and find common ground if we are looking at sciences we consult the other members and see how many members would like to get that resource so we pay for it as a group but if I have a resource that the other members are not really interested in I can purchase that resource using the facility but you purchase an individual. Our staff members are aware that they can actually tell us about the resources that they want and we can purchase them through the ZULC but for a particular library. If they have any queries we encourage them to communicate with our faculty librarians. Faculty librarians are the main link between the library and the faculty.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Pauline (NUST): Normally when you get a new qualification we let human resources know they do the grading and what have you but for now government has frozen everything. During our time if I had a new qualification I will probably get notches each notch has a salary attachment for my masters am not sure how many notches, maybe three notches but government has frozen all that there is nothing that is happening right now although we still forward the information to HR they just record for now there is absolutely nothing unless if there is a vacancy within the library and the person has to go for interviews and if they get the post then. But for now the vacancies are frozen as well if somebody leaves right now we can advertise and probably do the interviews and wait until the government says NUST for this quarter you are getting three or four new positions and it's determined by the economic situation and the government is our sponsor we used to get a grant for operations and a grant for salaries now we are just getting a grant for salaries and most of the positions were frozen so nothing is happening right now previously the norm was that you get a few notches if there was a position that then arises you apply for the position and you can be upgraded accordingly, it's not happening right now and it's not the university's fault it's because of the economic situation in the country.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Pauline (NUST): I wouldn't agree with that for instance we have a lot of senior library assistants most of them have been on the upper level of their grade so they couldn't move further because most of them did have O'level they did the diploma at the Polytechnic but because they didn't have any O'level mathematics and those that didn't upgrade themselves stayed in that level. We as librarians through the ZULC came up with an idea that can we move them up a bit because of their skills they have acquired over the years and we created a new job title called Chief Library Assistant previously we had senior library assistant but because of this freeze we can't move any of the other people to upgrade them because the government has frozen everything. What the government wants is that our salaries beam not to change it should be flat right through the year. They will then say at a certain point we can give you five positions it depends when the positions are going to go if they say we are giving you five positions for senior lecturers and the library doesn't get anything the Vice Chancellor actually has to lobby for those positions and if they say normally what they do when they go is they go with the whole list of new position gaps to say we have these critical areas were we cannot operate without and then the ministry of Finance will look at them and then at a later date the response will come to say we will give you five positions out of 50 positions. That's the situation we have, people don't really understand these issues although the librarian has tried to explain that for now there is actually nothing we can do to incentivize because of the economic situation. But the policy is there on how to do it, it's done by the HR and not the library. We can make a recommendation there is actually a committee that seats and look at these recommendations they just don't come from the library they come from all non-academic departments thus there is committee for academics and non- academics and the library falls under the non-academic and these committees haven't been seating because really they is nothing they can do even if we put an individual through an interview that individual can't be appointed unless the ministry of finance approves posts and you fall within that session.

Moira: patrons required research software e.g. SPSS

Pauline (NUST): SPSS should be available because my son used his degree in 2014 that's what he used for his project and its not in the library I think its with ICTS because that is open for everybody. Am not aware of the software that the university has but the software is supplied by ICTS even if we want new software we go through ICTS its not the library that provides it. But the university has got faculty labs the people that work in those labs are the one they should approach to say this is the software we need then they apply as a department SPSS is available as it is.

Moira: Research data repositories

Pauline (NUST): We are working on that in our last training we introduced the subject and its early days we are yet to we had some recommendations from the last training session we had. The programme for the training.

Moira: electronic links to research funding organisations?

Pauline (NUST): we do have a department called research and innovation these things are published by that department. It doesn't go to students but it does go to lecturers. and each Faculty is represented in that committee it meets every month unlike most of the committees at the university they meet quarterly it meets every month and each faculty is represented and the director is somebody who is very keen he sends out a lot of information they have a newsletter that they also put out. As am talking we are preparing for a research day at the end of july we normally participate by taking posters try and explain in between times to people what we do that's how we participate in there but that's the purview of the RIO, but that doesn't stop us from finding the information. Its something that we can look into and probably do. But certainly that department deals with lecturers and postgraduate students should be covered because I suppose we can put it this way. They will be covered if they are working within the university but for students who are outside

the university they are not covered. What we had before was student tutors most of them were doing they have a contract for two years they come in and do their masters and while they are doing that they are tutors. The government has decided to phase those out they are saying student tutors should be employed by the university and not by the government and right now the university has no resources to pay them because we don't have the grants that we used to get.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Pauline (NUST): we work together on a number of things particularly the IR they provide us with information for the IR. The university posit that if you go out and present a paper at a conference and you are sponsored by the university (Research board) you have to submit your paper to the IR if you are working on any project and you come up at the end with a research paper and you are sponsored by the research board (gets the money from the university its allocated when they do the budget so they then allocate to lecturers) and they also encourage people to get funding so that maybe part of the project will be funded by the university and part will be funded by an outside funder that kind of thing this is why I was saying to you information does circulate and I know the director there is very enthusiastic he has tried as much as possible to put out information for people to get grants and he also organizes training workshops on how to apply for the grants and he does it per faculty. Because if he makes it an open training people don't come then if you do it by faculty then you make sure the dean gets everybody to attend.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Pauline (NUST): all along we have tried to encourage the university to allow us to teach ILS, we had a pilot with the Faculty of CIS (Journalism, Records and Archives, LIS) we did that for a year and the then vice chancellor was not happy about it am not sure whether they something that the Faculty did do to inform the university (protocol wasn't properly followed) the thing is we have been trying to encourage them only lately have they started to take it seriously they are in the process right now of coming up with a training programme which involves fluency in English and Introduction to computers and Information Skills as far as I know those are the three subjects that will be covered I think they are now working on how they will introduce this in the different faculties whether it will be a first semester course examined at the end and in the second semester a second one which is different from this. We are currently running something called Peace and Leadership they were trying to combine the two may be the can do introduction to computers and IL first semester then second semester peace and leadership. We are trying to persuade the university to allow us to teach ILS I don't know whether introduction to computers will be taught by ICTS department or the department of computer science these are the things that they are working on right now well the library school wanted to teach ILS and our boss put her foot down and said no in other universities ILS is taught by the library and not the library school. I suppose we are in a unique situation where the library school is here but all other universities don't have the library school the only university that I know locally is MSU that I teaching across the board and examining UZ is teaching but its only particular faculties not across the board I think its social sciences and humanities that's were its taught but they are not involved in the sciences or whatever. What they do is what we are doing right now we talk to lecturers and say like beginning of the year after we are done with orientation please can you bring your students so that we teach them ILS give us maybe two periods of your lecturing were we can come in and teach them its not examined but its meant to help the students to learn how to research that's what we are doing right now and the faculty librarians some respond some don't.

Moira: are you familiar with altmetrics?

Pauline (NUST): we recently had a workshop on that. It's something which is still being worked on. RIO has talked about it, we are publishing a journal and we have talked about the impact of the journal but I don't think anyone wants to take it up this is why we are trying to introduce it to people to see whether it's something that we can do but I think we will have to work with RIO in this case.

Moira: How is the library using new technologies to teach digital literacy skills?

Pauline (NUST): I don't think we are using social media or any software to teach that they just use slides and they project them. Although we are talking about it the IT technician was supposed to be doing a demo this week but hasn't come back to tell me when he is ready to do that demo. He will be using either SAKAI/Mudo for teaching ILS but it's something in the pipeline. We don't really get a lot of support from academics but we are trying.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Pauline (NUST): we have a generator outside which is run whenever electricity goes off and it can run for eight hours with the Internet unfortunately it's not our responsibility it's the responsibility of ICTS I think the limitations its more of funding the university used to get a grant from the government for operations now we rely solely on tuition fees each student pays about 300 dollars we have tried to put an IT levy but we need computers we need accessories that fund is 10 dollars per student it's not enough we have increased our bandwidth in the last quarter they put two extra WiFi points in the basement as well as the medical library as well including at the accommodation or medical students but it's not enough we are restricted by the funding. We also use two service providers they have their own problems so really we are not in control we depend on ICTS and also they depend on availability of funding. The impression we have been given is that it has improved. We talk about it in our weekly management meeting and the impression that we were given is that it's not enough but it has improved.

Moira: link to research data management

Pauline (NUST): Like am saying it's something being discussed so it will appear at some point in time.

Moira: Faculty-librarian collaboration

Pauline (NUST): am not sure if they is anything currently happening but am aware that atleast one person has tried to collaborate and present a paper with a member of staff from the library school she was dumped by the partner and she had go and present this paper on her own. She was actually telling a story during the training on how to present a conference a conference paper. Yes we would like to collaborate but we have had a nasty experience were she was working with somebody and they did the abstract together and the other person withdrew and she had to do the paper on her own and she was given short notice of the withdrawal of the partner which was very unfair because she ended up doing the paper on her own. An attempt has been made and it had disastrous results.

Moira: Current librarian skills and competencies

Pauline (NUST): it's very difficult because as a library they are very few opportunities for funding from the university for attendance at international conferences. The tendency is that the librarian attends all international conferences and unless you are presenting a paper you cant attend. Even if you are presenting a paper the research board is the funder for such things our staff or non-academics are not catered for by the research board we fall under non-academic. They are not catered for normally if somebody has to attend a conference we have to go to the registrar and ask from his training volt to support us but that training volt

covers the whole university and given the constraints that are there right now maybe two or three people in the university can be funded from that grant/ budget. So they is constraints in far as funding is concerned we don't have a source of funding unless you get a workshop that is fully funded the university gives you 10% to say atleast have some money contingency fund like if you go to the USA they probably give you 300 dollars as contingency fund only if it's a fully funded workshop well our members have benefited from that were they can get a fully funded workshop thus not conferences but workshops. But international I don't know whether it's the structure of this university but international conferences are attended by the librarian and not any of the other members not even me. When she attends she has to come and implement that's the idea.

MSU LIBRARIANS INTERVIEWS

INTERVIEW 1: TANAKA

Moira: Describe how online reference and social media platforms are managed?

Tanaka (MSU): we have an information desk were all reference questions are attended to whether on Whatsapp / Facebook or in person. There is always an information librarian there throughout our opening hours from 9:00am to 22:30pm. If they say there is occasionally someone am not sure what they mean because there is always someone seating on the reference desk.

Moira: so if someone seats on the reference desk they automatically logon to your online platforms?

Tanaka (MSU): yes, well there is no laptop there is a machine that has WhatsApp installed on it. Any librarian on duty who is responsible for manning the information desk and responding to all queries online whenever they are on duty.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Tanaka (MSU): For students basically our first years they have a compulsory module for IT and information literacy skills the other part which is taken by the library staff and in that module that's where everything concerning the library is highlighted to the students we catch them as they come and throughout their years in university we hold refresher courses to keep them update with what is happening at the library. For lecturers all this is posted on the staff portal so they have the information there. Students also have the information in their e-learning accounts because we post on our e-learning as well.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Tanaka (MSU): basically when you attain a qualification there are chances of being promoted if there is a vacancy in the higher grades and also promotion is mostly based on the qualifications that you attained because the lowest grades they have O'level and they are technical assistants if you get your diploma or certificate you can be promoted basing on what you have got you move to senior library assistant grade 2 or senior library assistant grade 3. For motivation purposes there's is nothing that I can talk about except that you stand a chance of getting promotion which means a pay rise.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Tanaka (MSU): I think its because they believe that you gain from, the starting point is your qualification then when you enter the system you gain the skills and for you to gain those skills you have to qualify to be in a position that you gain the skill that's why they emphasise on your qualification first, so yes qualification is the top priority to be employed in position that requires that qualification.

Moira: How does the library view its role in providing these resources?

Tanaka (MSU): as a library maybe my starting point would be for research purposes yes in the university we have the library we also have the research and postgraduate studies which deals mainly with research issues were they get research funding and everything. Now for the library to have equipment like laptops to loan out that would be difficult but maybe if there is a model that we can maybe look at and try to adjust to that. We have all software such as SPSS and mendeley we subscribe to those the students can use those, we recommended research and postgraduate studies to ensure that they are available but for mendeley/reference software we offer them at the library. There is a link on our website.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Tanaka (MSU): there is a strong link because for starters the library houses IR which is all the research produced by the MSU community and those researches if we are to get them as we expect we have to get them from that office because they provide funding and people are expected to deposit their researches then we get them and upload. Even when we hold exhibitions and everything else the library and the research department they exhibit as one because we believe that our efforts complement each other. So it's like the research and post graduate study office is an extension of the library which is a standalone department.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Tanaka (MSU): in the university the library is regarded as an academic department not a non-academic department and we are expected to work together with the faculty because we are the nerve center of their research and all our efforts are directed towards achieving one main goal which is equipping the students with information they need which is the same as the academic staff and collaborating with academics that is what we are doing and the moment we fail to collaborate with then we have failed with objectives as a library and for those who were saying they were neutral am not sure if they understood what they were supposed to be responding to. Because the library is run on committee systems, in the library committee people that seat in that committee we have faculty representatives from all the faculties because we believe that whatever happens in the library should be known by the faculties because our efforts should be aimed at one objective so we collaborate on a large scale with faculty.

Moira: What form of collaborations do you have with the faculty?

Tanaka (MSU): you will realize for research I haven't seen anyone who have published with lecturers but in the library here we have a module as I said before that we share half-half with faculty of science which is introduction to technology we work together in teaching. We provide half of the content in IL skills and the module is complete when the library and the faculty of science come together and provide information then they exam the same. So those are some of the collaborations we have and also in ensuring that the library provides the information that is needed by the faculty or academics everything that is bought by the library is from a recommendation from the faculty each and every department from the faculty there are 50 something departments each and every department has to provide a list of their core texts that they need for

each year so that they purchase what they need not what the librarians feel they need so we collaborate in the selection of the material that we provide.

Moira: What has been your experience with IL training?

Tanaka (MSU): we use face to face when we teach information literacy because that's the first part because we teach all the first years how to access information from all the sources that we have whether electronic or non, that's face to face. Whenever anyone come across a problem that's when the electronic part comes in where they can ask on WhatsApp where they can ask on Facebook but the main thrust is in that module then the refresher courses that we offer for those senior students for example those who are coming from attachment and they forgotten how to access whatever resources. we ask them to formulate groups and come for face to face tutorials.

Moira: Are you familiar with altmetrics?

Tanaka (MSU): No

Moira: so the library hasn't done any impact assessment for the research in their IR?

Tanaka (MSU): those statistics are done using Google analytics, we have the research department systems analyst who responsible for the library systems that we have here. those two sections are responsible of compiling the usage of all our e-resources and also the IR.

Moira: How is the library using new technologies to teach digital literacy skills?

Tanaka (MSU): yes we use them, in view of the module we offer the library went on to purchase laptops and projectors that are used for the ILS training whether it's the module or the refresher courses all those we use. The e-learning platform we post our learning material on the platform for the students to access. In our lectures other classes will be small we also have large classes we conduct our lectures in the labs and some of the students will fail to get machines (computers) those ones use their laptops or tablets that's what we encourage because when they are in their hostels whether you have a laptop or a phone or tablet you can access our resources from there using whatever gadget you have that you emphasise.

Moira: can tell me a bit more about IL module, does it encompass digital literacy?

Tanaka (MSU): there are two parts the IT side which is taught by the Science and technology department they are responsible for the technical aspect those are the ones who talk of the CPUs, our part is concerning how to access the e-resources in the library and that way we get to teach how to log in, how to get to the MSU library website you have to log into elearning account or into the eresources and all that we teach that's the practical part of the module we concentrate on how to access our e-databases and those ones you have to go through the MSU website.

Moira: so you would just assume that they have already learnt the computer basics?

Tanaka (MSU): yes that is covered in the other part of the module.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Tanaka (MSU): for Internet services we used to have one service provider which is Powertel and they were facing problems and we had to have backup and they also introduced liquid which is a econet when Powertel is down liquid is up most of the time so there are no problems there we don't have times were we

say our Internet is down. For power outages we have generators in all campuses when electricity goes the generators start.

Moira: New Library spaces (research workspaces, collaborative spaces, teaching and learning spaces). What future plans does the library have on redesigning its spaces?

Tanaka (MSU): at the moment you may want to know that we are building a new library and all those concerns have been addressed in the plan. You will have where users can go sit and discuss, we will also have study centers where you don't necessarily have to have a librarian manning that space but maybe just a security guard maybe at the entrance after their studies students can go there and continue with their studies all those issues are addressed in the new library plan

Moira: RDM, what is your opinion on this?

Tanaka (MSU): the build up to the paper yes that has been introduced initially we were getting the published papers preprints but now we can get part of the paper maybe it's a PhD thesis they can submit in parts (separate chapters) we accept that. In a section that deals with such information because we have different categories and we also upload speeches and presentations.

Moira: what about the raw data sets?

Tanaka (MSU): oh no, that we haven't done yet but we are still working on other items that can be added to the IR because we are still building it. It's been there for two/three years and it's still work in progress.

Moira: so do you see any space for datasets in your IR?

Tanaka (MSU): Yes that has to be dealt with by the IR committee I think if they get recommendations that way they can find space for it.

Moira: Faculty-librarian collaboration

Tanaka (MSU): I am a faculty librarian, I am the library point man for the faculty of medicine whatever happens in the library I have to keep the faculty informed whatever issues the faculty has with they keep me informed that way the faculty of medicine library has no problem has no issues with faculty where they will say we don't have this because the library is not responding to our issues we collaborate well whatever we need done we do for them. So there is a concrete relationship/ close link between the academic community and the library because for the academics to perform their duties well they need information they should constantly be researching and when they are researching they are using library resources and there is no way we can separate the faculty from the library or the library from the faculty we are one in actual sense.

Moira: new librarian skills and competencies?

Tanaka (MSU): I make sure that I check the Internet for whatever conferences are being held anywhere and seek funding from the university to attend that way I get information from the other librarians internationally and that way I know that whatever I am missing this side someone is accessing that side and I will get information pertaining to that way I keep abreast with whatever is happening in the profession. The university does fund librarians to attend conferences, currently we have two guys who are in Malawi attending a workshop on the thesis and dissertations for the IR this whole week they are out fully funded. Last year I attended the Association for Health Information and Libraries in Africa (AHILA) conference for medical librarians in Uganda and the institution funded everything.

INTERVIEW 2: TENDAI

Moira: Describe how online reference and social media platforms are managed?

Tendai (MSU): Maybe I can start with the social media right now we have Facebook, we are using it to market our e-resources and the library services in general. The core purpose of having that Facebook is to market our e-resources because if you are to look at the way we are moving as libraries we are trying to have sort of a hybrid service were by we are using the traditional that is the hardcopy materials as well as the e-resources so we are trying to market our e-resources and services in general and we are also that platform to have some sort of feedback from our clients as to how we are faring interms of service provision. What we are doing now is we have got a WhatsApp platform we respond to questions from 9am to 22:30pm and the Facebook page.

Moira: What about the ASK-A-Librarian option?

Tendai (MSU): That one we have on our library website but to tell you the truth that platform is not being utilized to the full extent maybe its because the students don't know about that, I would not know but in our ILS we normally teach them that you have on our website were you have a link were you are told to ask a librarian if you have any query but its being underutilized to be frank its not being used.

Moira: so it is true to say that librarians are occasionally logged on to that platform?

Tendai (MSU): I wouldn't want to make it a blame game, the thing is we are always there but we don't have questions to respond to.

Moira: so who manages these platforms?

Tendai (MSU): we have a systems analyst and a research services librarian those two individuals are responsible. The research services librarian is responsible for e-resources and the systems analyst is responsible for the technical bid. So what happens is with the Facebook page the systems analyst he manages the page but the heads of sections they are allowed to respond we just use one username and password so when we are responding you would nt know which faculty librarian is responding what we normally do is we take turns to manage the information desk so whoever is there is responsible to respond to every on WhatsApp query and on the Facebook page so I can't really say it's one person who is responsible for the management of the social media platforms but we rotate.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Tendai (MSU): the first thing is the ILS module this is examinable module which introduction to information technology. It's a part module because we are teaching ILS so we have got that component whereby we telling our students that we have got these facilities you are supposed to be using them. Two we normally/ occasionally conduct orientation programme but that one is specifically for first year students. We also try to make use of the information desk the walk in clients if somebody just comes in he/she asks about our services we make sure that we talk about e-resources we talk about online references.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Tendai (MSU): one challenge is that if you are to look at the institution as a whole we have got a freeze from the government whereby they are saying we are not supposed to be employing people up until we

have our economy stable. But the thing is the incentive is there yes when somebody has upgraded himself educationally they are also promoted to the next grade but that is subject to the availability of a vacant post in that grade.

Moirai: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Tendai (MSU): if you are to look at universities its very tricky for us to consider skills ahead of qualifications why because these are institutions for higher learning so the entry qualification they will be looking at your academic qualifications and then maybe we go on to look at your own qualifications because if you are to look at the health industry we have so many old people who are very skillful and are doing their duties most of them they don't have qualifications so at the end of the day you will realise that those people will not be promoted because they don't have papers but for those who have got papers they are promoted. But if you are to look at in universities if truth be told yes we can have those paper qualifications because nowadays people are now acquiring degrees, Masters and so forth but they are not able to deliver but the thing is yes we are considering paper qualifications ahead of skills.

Moirai: How does the library view its role in providing these resources?

Tendai (MSU): with regards to that I think I will keep referring you to the issue of this comatose economy, we are facing some challenges. If you are to look at our ILS programme I think in the library we have about eight/ nine individuals who are teaching the ILS programme but we are supposed to be having laptops and projectors but right now we are sharing two projectors and two laptops within the library. So you can just imagine we as librarians are sharing those two projectors and two laptops we cant manage to loan those to our students who are close 24000 its very difficult. It is the role of the library to loan equipment under normal circumstances we are supposed to be doing that but we cant because we don't have the resources.

Moirai: research software?

Tendai (MSU): I haven't done any research to see if other libraries in universities offer such software but at the moment in our library we are not offering those software. Maybe the ITCS department should be offering those. What I can say is that we have got some books on SPSS and Pastel but in terms of giving the packages I don't think it's our mandate because we don't have the knowledge so it's very difficult for us to have the software giving it to students and so forth when we don't know what we are giving them. I think it will be a disservice to our students but maybe if they coming from departments or maybe ITCS department.

Moirai: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Tendai (MSU): we have got a strong link with them this week on Tuesday we hosted a gentle man from emerald we did organize that workshop whereby members of the staff were being taught how to publish how to write their papers and so forth we did organize that workshop with the research office so there is a strong link and if you are to look at our IR the way we are populating our institutional repository we make sure that it will be in line with the research and postgraduate office. We request for papers from the office and also ask if we can upload the full text papers because in other instances we are supposed to be uploading abstracts because of the copyright and so forth. Maybe that lecturers would have published their paper with emerald insight so if we upload the paper in the IR that will mean that emerald is not going to get the money that its supposed to be getting because if someone sees the paper in our IR they would just download it

without subscribing/ buying the paper from emerald so the research and postgraduate office comes in to help us to say that here you can just put an abstract and a link to the emerald insight.

Moira: when you do your IL training do you also include masters and phd students?

Tendai (MSU): one thing I can tell for sure is that if you are to look at libraries / librarians in general it's a profession that is looked down upon so if you are to look at the way we teach undergraduate first year students they come to our lectures because they want to learn something. But the moment you want to teach a masters or PhD student one thing that comes to their mind is what can teach me you are just a librarian. So at end of the day if we call for an e-resources workshop we normally get a few individuals especially if you are to look at our lecturers we normally have those lectures on a semester or once a year am forgetting but the turn up is just poor because they will be saying what can you teach us. We faced the same challenge when we tried to introduce the ILS programme back in 2010. They were saying that librarians cannot teach infact what they were saying was that teach us what want to teach our students so that we can teach them. But at the end we won the battle fortunately the then Chancellor understood that we are supposed to be regarded as academics not as non-academics because of the issue of supporting the core function of the university which is teach and learning that's why we are regarded as teaching staff. Fortunately when the chancellor went to France and he used to seat on the UNESCO board he saw a lot of universities in France as well as in the USA where librarians were teaching and when the librarian wanted to introduce the programme he was the first person to say go ahead I have seen this in other universities and its supposed to be an examinable module. So we are regarded as academics. If you look at my pay slip its written teaching staff.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Tendai (MSU): with our lecturers it's very difficult to seat down with them and try to forge some partnerships because they don't see us as people who can have an impact when it comes to supporting their teaching but I wouldn't want to paint the whole teaching divide with the same paint. Because there are some other individuals though a few who are willing to come and learn from librarians who are willing to get into partnerships with us. but in terms of writing papers to tell you the truth we haven't received requests from lecturers to say that they want to write papers with us and so forth. I know we are supposed to be writing papers with people from history because we can talk of indigenous knowledge systems and people from archeology because we can talk of records management and so forth but we haven't received some requests from those individuals I would not want to lie.

Moira: What has been your experience with IL training?

Tendai (MSU): if you are to look at the online thing we might not because if you are to look at our lecturers they might not find some time to go onto the Internet and have those online tutorials same applies with students the only effective way is to teach them face to face. In a formal set up whereby we are having a lecture teaching them ILS

. The online thing I don't think it's effective.

Moira: Are you familiar with altmetrics?

Tendai (MSU): No, I wouldn't want to lie.

Moira: so you don't conduct impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)

Tendai (MSU): we do use Webometrics but if you are to look at the way we work. We are specializing. As for me am the content management which is the technical services. Here in the library the research librarian is the one responsible to compile usage statistics. Am not quite sure what he uses but the last time when I was talking to the guy I think he was using was it Google Analytics as well as Webometrics and he was saying very soon he will be using Redlink. So what he does is that he compiles the usage statistics on the IR and then he also does that on our e-resources. he does that on weekly or monthly basis. He compiles the usage statistics using Google analytics and he sends the results to the librarian. Am not really sure about the altmetrics but its just that we are specializing.

Moirai: To what extent has there been a demand from academics and the research department?

Tendai (MSU): no, maybe research and post graduate office not individual lecturers.

Moirai: How is the library using new technologies to teach digital literacy skills?

Tendai (MSU): if you look at the way the course the other part is for IT and the other part is IL skills so what we do is we introduce our students to the theory part whereby we are teaching them about the library the services we offer. We now do the practical whereby we will be teaching them how to access the e-journal, e-books, IR and OPAC. We teach them the quick search strategies like the proximity search the Boolean search etc. I can say we do teach them part of the digital skills.

Moirai: some students complained that you just rush through

Tendai (MSU): I wouldn't want to say we rush through like I said the other the IT component they a taught by the ITCS whereby they learn the basics that this is a mouse etc. as librarians we are not supposed to teaching our students that what we normally do is the reason for twinning ILS and IT is because we looked at the content or curriculum and they thought that the two are more of inter twinned that's why we came up with such a module. I think we are the only university which is having that initially when we were trying to introduce ILS they had said lets combine it with communication skills and then we faced some challenges with that department and then they later on realized that it would be prudent for us to twin it with a module in the computer science department. So what we are saying is when we start teaching normally it will be one week in one week out i.e. this week they are being IT then the other week ILS up until they write their examinations. So we normally say that the IT guys are supposed to start so that they teach the students the computer basics so that the following week when I come they will be already knowing. For those students who complain its actually our portfolio its in their curriculum.

Moirai: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Tendai (MSU): what we have done with the library we have got a generator which services the whole campus when we have some power outages the generator automatically starts running but we have realised that there are some instances whereby the generator won't be functioning in instances where there is no desiel, so what we have done is we bought some solar lamps when we have got some power outages we use those and we had acquired a Uninterrupted Power Supply (UPS) but right now it's not functioning and it hasn't been repaired but when it was functioning at times when we had some power outages you wouldn't even realise that is if it would be in the afternoon because the UPS only functions with the machines but not the lighting. So if it's in the afternoon students will coming to the library to borrow and return books but without the UPS it means no client can borrow books but they can return a book. Internet connectivity the librarian requested that we have WiFi which is specifically for the library building that WiFi it requires our students to login its not a hotspot. It means if you come to the library you have to login but we have got

some designated areas which are dotted around campus if you go there are WiFi hotspots where you can access the WiFi without logging in but for this building you have to login we are using ADSL and we are also using the WiFi that's a strategy that has been put in place to improve with regards to Internet connection.

Moira: New Library spaces (research workspaces, collaborative spaces, teaching and learning spaces). What future plans does the library have on redesigning its spaces?

Tendai (MSU): we inherited these premises from Gweru teachers college in 2000. So what we did was just to extend that wing was not there and the other wing was not there. This library was built for a maximum number of 400 students and the seating capacity is no longer the one that they heard because we added some more desks in the other wings. But in terms of future plans construction is under way just behind the new administration building, we also have another library which is supposed to be built at the business school and leadership a two story and this side a two story. When it's done I think all the questions you have asked there will be encompassed because I looked at the plan we have got some study carrels a media center whereby we use for our ILS programmes we also have some offices and so forth. Everything is there for the new library but I wouldn't when it's going to be functional.

Moira: RDM?

Tendai (MSU): unfortunately it might sound as if it's our problem as the library but to tell you the truth the teaching staff is not forthcoming when it comes to submitting those hand written manuscripts or the raw data research. They normally want to give us the final products they don't want to give us, in the special collections we are supposed to have their research proposals even for those students who would have graduated we are supposed to have their research proposals. But right now in our special collections I don't think we have one single research proposal they don't want to come with those materials to the library and then with regards to the final product like their thesis we normally go bagging can we have a copy of your PhD thesis. We normally request for the hard copy as for the soft copies some are forthcoming and we upload them on the IR but with regards to the raw data we don't have any they are not forthcoming.

Moira: Faculty-librarian collaborations

Tendai (MSU): right now we have got the faculty librarians we are not functioning as faculty librarians as it should be because we normally talk of faculty librarians when we need something from the faculty but when we are not in need of something from the faculty we become silent as the library. So what we normally do is we are supposed to be attending the faculty board meetings but at the moment to tell the truth/ to be frank we are not attending those faculty board meetings. I think it's not our problem but the faculty administrators they are not communicating with librarians to say that we have got a meeting on this and that on this date that's the problem that we are facing because you can't just go to a meeting you might know that there is a meeting but you can't just go to a meeting which you have not been invited a meeting which you do not have the previous minutes. And then when we liaise with the faculties we only do that when we want I think during the beginning of a semester or during the beginning of a year when we are requesting for some wish list from the lecturers because when we are doing our collection development we normally go to the lecturers and ask their wish list as to say that what are the books that you want our library to purchase in this year and then they give us those lists those are the times we only interact with those faculties so I would say that the partnership is not there of which it is supposed to be there, we are supposed to be having some strong links with faculties but currently there are no strong links.

Moira: why do you think it's like that?

Tendai (MSU): like I said from our side we lack some effort we only forging those partnerships when we need some information. The faculty administrators are also supposed to be giving us the invitations telling us there are meetings so we are both to blame there the faculties as well as the librarians.

Moira: new librarian skills and competencies?

Tendai (MSU): that's true we don't have that like that on our website, I think we are supposed to have some things to do with RDA whereby we will be showing our fellow librarians even other individuals who are not part and parcel of the library to say that we have got some new trends like the resource description access which is most likely to be superseding the AACR2 but we do not have that on our website. but with regards to keeping abreast there are librarians who are workshops but its quite unfortunate that the same names keep on cropping up so at the end of the day we will be just upgrading one or two individuals but under normal circumstances I think even if it's a workshop on IT related issues I don't think we are just supposed to keep on sending the same person because he is the one responsible for the website he is the one who is responsible for the e-resources and so forth we need to rotate so that at the end of the day you become an all rounder librarians just as to say I am responsible for content management but when it comes to IT related issues I don't know anything. But if are to carry out some sort of a pilot study you would realise that most of the librarians that we have here they are not competent when it comes to IT related issues because they are taught and they are not sent for workshops because if you are to look at those workshops they are the ones which usually look at the current trends but then if do not attend it means you are going to be lagging behind. For junior staff who are competent to tell the truth its out of their own will they are eager to learn they normally try to do those things on their own not to say that they being supported by the institution no.

Moira: so how do you personally keep up to date?

Tendai (MSU): personally I will tell one thing am the Chairperson of the ZIMLA the midlands province so we normally go for some workshops and so forth right now I have been preparing for the conference which is being held in the midlands province at FEMA which starts on Tuesday but on Monday we are here for the school librarians conference the big conference. So that experience is giving me what I can call some exposure as to what we are having in the current librarians by viture of being the chairp[erson for the ZIMLA I was co-opted into the GIBF there are some two gentlemen who have started something like the concept is almost the same as the that of ZIBF Zimbabwean National Book Fair. In Gweru they have come up with the Gweru international book festival (GIBF) so I was co-opted as the board secretary and the provincial chairperson starring committee, so that exposure the preparation that am involved in preparing the GIBF proceedings it will be held in September I think at the town house it has given me the exposure that I so much want at the field and then here at the MSU I was sent for a workshop the RDA which was hosted by the LSU. They were teaching us about the RDA and they were telling us about its advantages over the AACR2 and disadvantages. We have to take on board and leave the AACR2 when I spoke to the research services librarian he was saying that the librarian was of the idea that we either send two people to SA for the RDA training as well or we could ask those guys from SA to come and train people here on campus. Those are some of the things that are helping to be abreast with current trends in our profession.

INTERVIEW 3: NYASHA

Moira: Describe how online reference and social media platforms are managed?

Nyasha (MSU): what we do is the only online reference system that we use interms of social media is Whatsapp and it is managed by a librarian on duty so each and every time at any one given time especially when the semester is running we have got a librarian who seats on the information desk that librarian is the

one who is responsible for all reference questions online and the like so the Whatsapp platform is only found on the information desk because that is where the librarian on duty will be stationed. And occasionally we also use telephones.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Nyasha (MSU): we use various methods the traditional way is the brochure that spells out all library services that is where our WhatsApp number is found. We have also posted that information on our library web page so it's a matter of somebody visiting our library website and finding the information so it also means we also need to market our library website. So that our users pay frequent visits to the website. But we also have a Facebook account that we post important events notices things like workshops and speeches anything event that happens at the library like OA week celebrations and the like.

Moira: what about the ASK-A- Librarian option do you use it?

Nyasha (MSU): we are planning to implement that on our library webpage something like a chat system. But the ASK-A-Librarian I normally receive queries through my e-mail. There is a form that a person fills then automatically it is directed to my email address. Then all the time I try to attend to the queries. It comes straight to the Research Services Librarian, it comes straight to me.

Moira: How does the library view its role in providing these resources?

Nyasha (MSU): I have also enquiries regarding to SPSS that is the one that I have had quite a significant number of enquiries. I know of the concept of RDM I normally read widely about LIS and I have some material with me but we have not yet implemented it. Its only that the concept is rather new here in Zimbabwe as a whole but in other developed countries it's something that have been doing all along. Loaning laptops we do not do that, what we tried to do in the past was to loan the Kindle readers those are the ones that we used to loan. We have got a multi campus approach dotted around the country so we used to loan them mostly to our students who are in Harare because in the past we did not have a library in Harare but now we have one in Harare which caters for students who are based in Harare so for the kindles we are no-longer loaning those. Because they can now access the library and they have all the services that are available here in the main library.

Moira: What kind of link does the library have with the research office? Please explain the level of relationship between the two departments?

Nyasha (MSU): mostly we work hand in hand we complement each other because we manage the IR from the library side but the Research office provides funding for our researchers to conduct their researches and when they write their papers we communicate with research office normally every week so that they send us softcopies of those researchers whether research papers or workshop papers or research articles in journals that have been funded by the university so that we upload that on to the IR. All research comes through the research office not from individuals but ofcourse individuals may bring but what we know is that when it comes through the research office it means that particular research article or conference paper has been sponsored by the university. And also when we do trainings for staff workshops like the resent workshop which took place on Tuesday we worked with the research office to mobilize resources and also to invite participants so that they come in their numbers to ensure everyone benefits at the end.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Nyasha (MSU): I think it all depends on the context on which we are taking it, because we as librarians we take part in the instruction of IL. We offer a module that is compulsory for all first year students. In terms of writing papers I think we need to find common themes /research areas that will enable librarians and academics to collaborate especially in writing papers or conducting research. So far there hasn't been any collaboration in terms of research publications.

Moira: What has been your experience with IL training?

Nyasha (MSU): it face to face first then complemented by some online materials that we post on our library website.

Moira: do you use an e-learning platform?

Nyasha (MSU): we have an e-learning platform which is mostly used by faculty to post lecture notes, notices about lecturers, discussions about certain topics that they will be teaching in classes. It's also used by students to check their results account balances their library accounts like overdue and fines. It's not being used for IL training. When we deliver IL classes it's mainly face to face.

Moira: Are you familiar with altmetrics?

Nyasha (MSU): those are the metrics for usage stats, yes I am. We haven't used that since it involves social media. What we use is the metrics for journal articles and research articles we normally use SCOPUS to check for impact factor for the journals and their ranking then we also advise our lecturers and researchers the journals or publishers that they can approach in order to publish their research articles.

Moira: To what extent has there been a demand from academics and the research department for impact assessments for individual academics (i.e. H-index, bibliometrics, article level metrics, etc.)

Nyasha (MSU): rarely, what they normally do they come here and ask for the right journals or the appropriate journals in which to publish so we have got a number of indices like the SCOPUS, the Science citation index, the social science citation index and the IBSS. So we normally give them those indexes and they have got clear signs because they are actually divided it tells you the impact factor, then the subject coverage, the publisher, the journal title and everything.

Moira: How is the library using new technologies to teach digital literacy skills?

Nyasha (MSU): these one do have a chapter in our IL skills module where we teach them about digital literacy all the types of literacies that are needed in the 21st century.

Moira: students complained that when librarians teach ILS they don't consider them they rush through.

Nyasha (MSU): that is a challenge that I know because the IL module it's a part module it is 18 hours whereas a full module is 36hrs. so we share IL and introduction to computers so the time factor is the one that hinders us however, we do have practicals there is the theory part and practical part in IL the theory part it's all about theory and the practical part it's where we actually seat in a lab around campus we have got different computer labs and we also have our own computer lab where we actually tell the person that this is the mouse and this is the key board. So maybe it now depends with delivery of the person the actual instructor but we actually do practical sessions with students.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Nyasha (MSU): Internet here it is rarely disrupted, of-course we do have times when the server is down but its very rare to have our servers down when they down maybe its 15 or so minutes. But those 15 minutes if you are having a lecture it already taken part of your time so maybe if the lecture is one hour so then you are left with 45 minutes and then after that for you and your students to get settled again it takes another ten minutes when you deliver all the other time has been taken. Fortunately for MSU each and every campus has a generator the moment electricity goes it doesn't take more than ten minutes for the generator to go up even in the evening when we are providing services in the evening if electricity goes maybe at 8pm or 7 pm we actually tell our students to stay put inside the library unless we receive confirmation from the people who operate the generators that the generator is not going to go up that's when we can tell them to move out. Unlike previous years the moment electricity goes everything stops and then we actually tell our students to go out.

Moira: ILS training is it formal?

Nyasha (MSU): it is so formal that we are taken as academics, actually all members of here at MSU they are classified as academic. Every member of the library is in the teaching staff category. Such that if am to present a paper in the USA I am given the same amount of funding with lecturers. And also the module is actually examinable. They actually right exams at the end of every semester. And we actually mark and send marks to the academic department. So if they fail it means next semester they need to repeat. And it means that a student cannot graduate without that part fulfilled.

Moira: New library spaces?

Nyasha (MSU): one way that we went around that problem of spaces was to invest in a very big electronic library. I think in Zimbabwe we are number one in providing electronic resources that include e-books (e.g. ebook central, proquest central, safari business books online, Routledge online, ebscohost, project muse e-books, springer link e-books etc) and e-journals. We do subscribe to those and we provide around clock service. We have built quite a number of e-resource centers that are networked with computers so if someone if unable to come to the library they can always use those electronic resource centres and access the information that they want. That is one way that we tried to go around the problem of spaces. But in the mean time we have got two huge projects for building new libraries we have got one library that will be based at the graduate school of business leadership it's a very big and modern library and the other one which will be here on campus it's a very big and modern everything the petitioning has been worked out it's a matter of the project just lifting off the ground and I think the problem of spaces will be dealt with because as you can see this is a very old and archaic building which was built somewhere around 1965 so when it was inherited we were only able to expand the wing for the e-resource area and the book stacks the Eastern wing and the Western wing.

Moira: RDM?

Nyasha (MSU): RDM is quite a new concept in Zimbabwe but I think it needs to be taken up and get rolled up. But I think also our researchers do not know about this I think it's a matter of first of all teaching them what it is and also teaching other librarians so that if the lecturers come and ask our staff will be able to confidently answer what RDM is all about.

Moira: Faculty – librarian collaboration.

Nyasha (MSU): we do have faculty librarians here but the relationship that is there its not really concrete in terms of between librarian and the faculty. The relationship that is there is between the faculty librarians and students in a particular faculty for example I represent the faculty of science and technology and I teach

IL in the Faculty of Science and technology but that is not the ideal situation that we should be having because a Faculty librarian should be going out to the faculty asking them their needs all their problems with the library and vice-versa. But we do have faculty representatives from each faculty who represent the library who represent their faculties in the library committee so that is the relationship that we have.

Moira: new librarians' skills and competencies?

Nyasha (MSU): I am in charge of training also right which means I need always to liaise with librarians about the new skills that they need in our field but it does not mean that librarians are not getting new skills so far this year we have managed to send quite a number of librarians to different training workshops within the country and also outside and as we are speaking right now we have got a team of librarians who are in Malawi and they went there for digital library management/electronic library management things to do with IR etc so they will be coming back next week then some time back we also sent our faculty of medicine librarian to Uganda and also this year we are going to send a team from content management to SA for RDA training that is a training Resource Discovery and Access which is a new set of instruction in cataloguing at the moment we are using AACR2 but there is a new system called RDA and then about four weeks back we also had a training in RDA a local one in Bulawayo so those are some of the skills our librarians are getting but as you have mentioned we are going to put that up.

INTERVIEW 4: NAKAI

Moira: Describe how online reference and social media platforms are managed?

Nakai (MSU): we have a WhatsApp platform number we also have the Facebook platform we also have Twitter, they are managed by the person who will be manning the information desk. We take turns to manage that desk all the senior management, we take 4 hour shifts when you start at 9am at 13pm someone takes over at around 5pm someone takes over. We have the librarian on duty at night they will also take over from 17pm up to the time we close that's around 22:30pm. That person will be answering all queries sent through those platforms.

Moira: what about the ASK-A- Librarian?

Nakai (MSU): that one is rarely used myself I haven't used that one.

Moira: What mechanisms does the library have in place to ensure the online reference services are widely accessible/known/used by every lecturer and student?

Nakai (MSU): we have what we call library ambassadors those are responsible for marketing. We also have a quality assurance and marketing department. That is responsible for all the marketing of the library. We also use social media for marketing as well.

Moira: As a library, once an individual furthers his or her education, what kind of motivation do you offer them for completing the courses? Is there some kind of additional incentives or position upgrading?

Nakai (MSU): what they do is when you have two people with the same qualification they will look at the time in which one was employed thus years of service to determine who to promote/upgrade.

Moira: How true is it to say that universities have put emphasis on paper qualifications rather than actual skills and competencies? Please elaborate your answer

Nakai (MSU): To a certain extent yes its true, because in some instances.

Moira: How does the library view its role in providing these resources?

Nakai (MSU): I think the issue of software should be handled by the Information Technology Services (ITS) department rather than the library. For laptops I think as a library we can co-opt and provide equipment loan services but for me I think it should be handled by the ITS department unless if they provide us with the laptops and then we circulate on their behalf. We have got a systems analyst from the ITS department who helps us with attending to technical faults with regards to technology computers and Internet and they usually work in our computer labs in the library. Maybe we might offer SPSS software for research.

Moira: What kind of link does the library have with the research office?

Nakai (MSU): we have a strong link. We have a research services librarian. There is a committee for research and our Research Services librarian seats in that committee but it is headed by the Research and Postgraduate office.

Moira: what partnerships/collaborations have you had with the research office?

Nakai (MSU): the research and intellectual expo which is done through that office and they do that in collaboration with our research services librarian. We do market our resources through that expo and it reaches out/targets to everyone on campus. It's also even done at national level.

Moira: how would you describe your relationship with academics considering that academics seem to be open to more collaboration?

Nakai (MSU): librarians' relationship with teaching staff is very strong. Most of the academics whatever they do they come to the library especially to consult with the research services librarian. They are very much linked to the research librarian even with handling their research papers and workshops e.g. last week we had a workshop for lecturers which was done through the research services librarian and we had a presenter from Emerald. So we do have a strong relationship. And lecturers are beginning to appreciate the role of the library within the university and they do attend such workshops in large numbers.

Moira: Are you familiar with altmetrics?

Nakai (MSU): yes the library does that. The problem is we do specialize and we concentrate on what we are assigned to do. And this is a wakeup call to know what is happening. Sometimes because of pressure you tend to concentrate more on your specific area.

Moira: Elaborate on what measures you have put in place which improved Internet access and constant outages?

Nakai (MSU): For electricity we have a reliable generator and for Internet we have Local Area Networks (LAN) and WiFi is everywhere around campus. Of course because sometimes students numbers are increasing sometimes it's slow but the access points are being increased and the fact that the library has its own WiFi which requires a student to sign in so I think we are covered on that one.

Moira: new library spaces?

Nakai (MSU): I think currently we have what we call the DBL for the doctorate students in Business there is a library that is being set up for them with computer labs. We also have one in Harare as well. I think they will functional by the time we open next semester.

Moira: RDM?

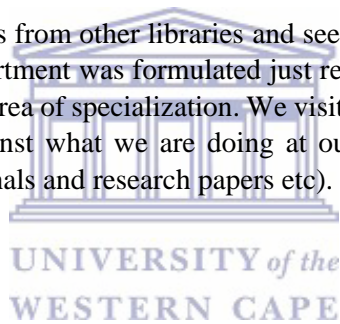
Nakai (MSU): they only submit research papers not the raw data. Because all research papers are handled in this section (special collections section) of the library and I have never come across raw data sets. And I don't if they are any plans to collect and archive raw data.

Moira: new librarian skills and competencies?

Nakai (MSU): it seems the library is lacking in that aspect, but those people who went for a workshop whatever they learnt there the first thing when they arrive they conduct training for all senior librarians its trend I don't know why. Sometimes its important for everyone to know because when people approach any librarian at the issue desk and the person asks a question then the librarian isn't sure of what is that is and doesn't even know about the existence of that term it becomes a problem. We also had that challenge e.g. when we introduced Turnitin anti-plagiarism software it was restricted to three librarians but when your patrons meet you they expect you know because they know that the Turnitin is managed at the library. When those problems arose that's when they decided to teach everyone in the library. It is shameful when a patron approaches and ask about Turnitin and you don't have an answer. The problem is that the first person who is approached is the one on the information desk so it is important for every individual in the library to learn and know about every activities/resources provided in the library.

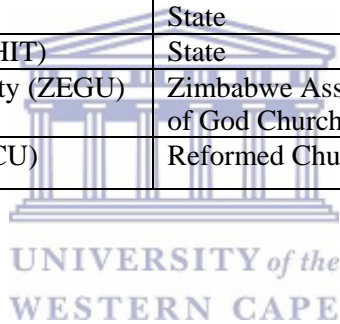
Moira: how do you personally keep up to date?

Nakai (MSU): I usually scan websites from other libraries and see what is happening. Currently they is a quality assurance and marketing department was formulated just recently so we were asked to submit our papers everyone concentrate on their area of specialization. We visit websites from other universities to see what is happening and compare against what we are doing at our library. And my area is for special collections (theses, dissertations, journals and research papers etc).




Appendix K List of Universities in Zimbabwe

Name of university	Responsible Authority	Year established
1. University of Zimbabwe (UZ)	State	1957
2. National University of Science and Technology (NUST)	State	1991
3. Africa University (AU)	United Methodist church	1992
4. Solusi University (SU)	Seventh Day Adventist	1994
5. Bindura University of Science Education (BUSE)	State	1996
6. Zimbabwe Open University (ZOU)	State	1998
7. Midlands State University (MSU)	State	1999
8. Catholic University in Zimbabwe (CUZ)	Catholic Church	2001
9. Chinhoyi University of Technology (CUT)	State	2001
10. Great Zimbabwe University (GZU)	State	2002
11. Women's University in Africa (WUA)	Private	2002
12. Lupane State University (LSU)	State	2004
13. Harare Institute of Technology (HIT)	State	2005
14. Zimbabwe Ezekiel Guti University (ZEGU)	Zimbabwe Assemblies of God Church	2011
15. Reformed Church University (RCU)	Reformed Church	2001/2012



Appendix L Website Content Analysis Criteria

Indicators in form of text, images, audio, videos and links	NUST Websites	MSU Websites	LSU Websites
<p><i>Open Scholarly Materials</i></p> <p>Open Access e-journals and e-books</p> <p>Open Educational resources (past exam papers, course descriptors, term tests)</p> <p>Institutional Repository (e-theses and dissertations)</p>			
<p><i>Research Data Management</i></p> <p>Tools for preserving research data sets (repository)</p>			
<p><i>Social web</i></p> <p>Social media platforms (Twitter, Facebook, YouTube. Etc.)</p> <p>Altmetrics support</p> <p>Research specific social web platforms (Mendeley, Social Science Research Network, Research Gate, Academia.edu, CiteULike, etc.)</p>	 <p>UNIVERSITY of the WESTERN CAPE</p>		
<p><i>New pedagogies</i></p> <p>Online information literacy sessions</p> <p>Mobile teaching and learning support</p> <p>Collaborative learning amongst patrons</p>			
<p><i>New Library spaces</i></p> <p>Research Commons</p> <p>Learning Commons</p>			
<p><i>Faculty-Librarian Collaboration</i></p> <p>Scheduled meetings</p> <p>Any form of interaction between Faculty and the library</p>			
<p><i>Librarian skills and competencies</i></p>			

Appendix M A Tabulated Summary of the Concepts

Names of the concepts	Components of each concept	Description of each concept	Application to the study
Open scholarly communication	Research lifecycle Institutional Repositories Open Educational Resources Open Access Journals Open Access Books Reputable free publishing avenues (Directory of open access journals)	Free access to research data, journal articles, textbooks. Free publishing with well-established and reputable publishers	To clarify how Zimbabwean university libraries are supporting free sharing of research. To determine if the patrons receive information on the best open publishing platforms from their libraries
Research data management (RDM)	Institutional data repositories Research data management tools Data curation	Support research data archiving. Affordable ways of keeping data safe e.g. using Google drive, the library's data repository, external hard drive. Sophisticated examples of RDM tools are ACSESS internal servers, Dryad Digital Repository, inter-University Consortium for Political and Social Research, the Digital Archaeological Record (tDAR) and the Archive of the indigenous Languages of Latin America.	To identify data management tools which library patrons have learnt from their libraries. To find out training and outreach pertaining to research data management
Social web	Altmetrics, Mendeley, Refworks, Endnote, Zotero, ResearchGate, Academia.edu, blogs, Twitter, Facebook and YouTube ...etc	Using these tools for academic and research purposes.	To understand whether library patrons in Zimbabwe use the social web for their academic achievements and research endeavours. To identify the platforms used in this regard
New pedagogies	Flipped and blended classrooms, m-learning, OERs including e-textbooks, Information Literacy programmes	Measures the need for online collaborative learning. Reveals the use of mobile devices in teaching and learning	To find out whether Zimbabwean academics/lecturers are using new pedagogies and whether students are receptive of these teaching models. How do they influence academic librarians
New academic library spaces	information commons, research commons and learning commons	Explains the need to improve the library spaces for research, group study and learning.	To determine if library patrons have specific spaces within their libraries.
Faculty-librarian collaboration	Collaborative teaching Information Literacy skills, partnerships in collection development and service creation Research collaboration	Defines faculty-librarian partnerships. Also provides its benefits to academics, students and librarians	To find out from both academics and students how the libraries communicate with them. To ascertain whether academics have good partnerships with librarians.