**The current and emerging roles of subject librarians in academic institutions: A comparative study of the University of the Witwatersrand and the University of South Africa**


by


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**DECLARATION**

</div>

Student Number: 356-103-87

I <u>Mokgadi Rebecca Senyolo,</u> declare that this thesis entitled:

**The roles of subject librarians in academic institutions in South Africa: A comparative study of the University of the Witwatersrand and the University of South Africa**

is my own work, and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

Signature: ……………………….        Date: ………………………

**Mokgadi R. Senyolo**                            **dd/mm/yyyy**

## DEDICATION

I dedicate this thesis posthumously to my departed daughter, Tsholofelo Sandra Senyolo for inspiring me to continue studying. She would have wanted to accumulate more than what I have already achieved!

This work is also dedicated posthumously to my late parents, Simon Kgashane and Mmapudi Martha Selepe, both of whom were such amazing parents whose key goal was to accentuate the value of education in our lives. I thank you both so profoundly, Mom and Dad!!

# ACKNOWLEDGEMENTS

# LIST OF ABBREVIATIONS

| | |
|---|---|
| ACRL | Association of College and Research Libraries |
| ALA | American Library Association |
| APP | Application |
| CD-ROM | Compact Disc Read Only Memory |
| CEOs | Chief Executive Officers |
| CHE | Council on Higher Education |
| CHET | Council for Higher Education and Training |
| COVID | Coronavirus Disease |
| DHET | Department of Higher Education and Training |
| DoE | Department of Education |
| ELC | Electronic Classroom |
| ESKOM | Electricity Supply Commission |
| FGD | Focus Group Discussions |
| HEIs | Higher Education Institutions |
| HR | Human Resource |
| HTML | Hyper Text Markup Language |
| ILL | Interlibrary Loans |
| IM | Instant Messaging |
| ICTs | Information and Communication Technologies |
| IT | Information Technology |
| JPL | Johannesburg Public Library |
| KPAs | Key Performance Areas |
| LIASA | Library and Information Association of South Africa |
| LC | Library Classification |
| LCC | Library of Congress Classification |
| LIS | Library and Information Science |
| MARC | Machine-Readable Cataloguing |
| MMR | Mixed Method Research |
| MOOCs | Massive Open Online Courses |
| MSU | Mid-Size University |
| NRF | National Research Foundation |
| ODL | Open and Distance Learning |
| ODeL | Open Distance E-Learning |
| OPAC | Online Public Access Catalogue |
| ORCID | Open Researcher and Contributor Identifier |
| PAs | Personal Assistants |
| PCs | Personal Computers |
| PDF | Portable Digital File |
| PHD | Doctor of Philosophy |
| PLs | Personal Librarians |
| RFID | Radio Frequency Identification |
| RSS | Really Simple Syndication |

| | |
|---|---|
| SABINET | Southern African Bibliographic Information Network |
| SAIDE | South African Institute for Distance Education |
| SBL | School of Business Leadership |
| SDI | Selective Dissemination of Information |
| SML | Seymour Memorial Library |
| Technikon SA | Technikon Southern Africa |
| TV | Television |
| UCISA | Universities and Colleges Information Systems Association |
| UK | United Kingdom |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UNISA | University of South Africa |
| URL | Universal Resource Locator |
| VUDEC | Vista University Distance Education Campus |
| Wi-Fi | Wireless Fidelity |
| WITS | University of the Witwatersrand |

# ABSTRACT

The impact of information and communication technology on higher education has changed the approaches to service provision in academic libraries, including the ways in which information users find and use information with the guidance of the subject librarian.

This qualitative study explored and compared the traditional, current and emerging roles of subject librarians at two institutions of higher learning in Gauteng Province, South Africa. Semi-structured interviews were conducted with 25 purposively sampled subject librarians from a population of 30 respondents at the two academic institutions' library staff. Thematic data analysis was implemented as the main framework against which the study findings were developed.

The findings revealed, *inter alia*, that subject librarians at these two academic institutions have different job titles, but share common responsibilities and many enormous tasks, ranging from information literacy training/ user education, new course development, faculty liaison, collection development, research support, marketing, building maintenance and staff management, information provision; as well as attendance of research and departmental meetings. The study further found that subject librarians constantly embraced technology, acquired new skills and expertise, and undertook complex tasks with little relation to the early training received from their careers, and kept learning in order to enhance their roles, skills, competency and relevance.

Amongst others, the study recommends that the LIS curriculum should be reinforced to reimagine and reposition the librarianship profession, and that further research be undertaken to consider the discrepancies found in different institutions in respect of the titles and work of subject librarians.

**Keywords:** Information specialists, personal librarians, research librarians, branch librarians, liaison librarians, principal librarians, subject specialists, subject librarians, traditional libraries, academic libraries, institutions of higher learning, open and distance learning, contact classroom learning, library functions/ roles, librarianship

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# CHAPTER ONE
# INTRODUCTION AND BACKGROUND

## 1.1 INTRODUCTION

In all of human experiences and endeavours, change is viewed as the only constant and most catalytic variable (Omekwu & Eteng, 2006). Technological innovations and developments have introduced an environment in which expedited provision of services is practically a common place occurrence. This is evidenced in workplaces where hierarchical systems are now replaced by flexible virtual environments (Bartkus, 2001). The democratisation of societies has also contributed to how communities view their environments and conceptualise teaching and learning approaches and methodologies (Heinrichs & Lim, 2009; Elstad, 2016).

The introduction and integration of information technology in institutions of higher learning has also influenced the ways in which the academic libraries provide services to their users (Heinrichs & Lim, 2009; Walker, 2009; Cherinet, 2018). The implication is that the traditional ways are evolving as technology becomes dominant, which also has caused reconceptualisation of subject librarians as just bookkeepers because technology-influenced thinking has also reshaped the views of libraries as places purely meant for storing books (Petr & Aparac-Jerusic, 2002). For a very long time, librarians and libraries have been undervalued insofar as the creation, storage, retrieval, dissemination and use of information was concerned. Most ironically, many subject librarians and libraries have upheld this erroneous image for decades (American Library Association/ ALA, 2001). It is in the latter regard that contemporary libraries are cast less as physical information or material storage spaces, but more as institutions that concentrate on knowledge management and access (McFadden, 2001).

Converged learning support and computing services have expedited the process of change for subject librarians and librarianship, especially where subject specialisation is a requirement. In the case of users, there is no longer much emphasis placed on the library, the computer centre, the audio-visual centre, and so on. These distinctions have become insignificant because of the convergence of users and information services with the more expanded demand for provision of learning materials and resources (Castells, 2001). These new developments have compelled subject librarians to acquire new skills and expertise in order to undertake complex tasks that previously bore little resemblance to their initial training careers. On the one hand, there is a new era of libraries being visited by more young people who are driven to access information by means of multimedia technological platforms such as emails, social networks (e.g. Facebook, Wiki, blogs, Twitter), and many others. This is already an indication that the technology explosion cannot be

ignored in the contemporary era for the young people today. Therefore, subject librarians should consider filling libraries with technological devices instead of books much like the Internet café, but should have ways of limiting use to reading only. Increasingly, the work of subject librarians is shifting away from the traditional roots of the profession (Biddiscombe, 2002; McKay, 2019).

As the initial contact point with the library, the subject librarian resolves general enquiries concerning services of the library (Biddiscombe, 2002; Madhusudhan & Lamba, 2021). While some of their professional skills may be antiquated, there are some that are still of relevance but rarely applied (McDonald, 2004). For instance, subject librarians almost exclusively manage reference departments since they constitute the majority of the staff in those departments, irrespective of how organised they may be. Reference and lending services are continuously viewed as the heart of a library service, especially in regard to satisfying the information needs of the end users, whose empowerment has outmoded the age-old norms of librarianship and libraries; as well as conventional skills and structures that are now inadequate to address the contemporary user's requirements (Carnoy, 2001; Corrall & Jolly, 2019).

The technology-dominated post-modern environment has rendered the traditional academic library anachronistic and consequently subjected many individuals and communities to unparalleled joblessness (Biddiscombe, 2002; Veeranjaneyulu & Prabhakar, 2018). The increase in self-service trend is evident in a variety of industries. For instance, the businesses of stockbrokers are declining because of customers' direct trade on stock markets internationally; a car can be bought directly from the factory without the assistance of a motor dealer; and travel agents are struggling because customers are able to book hotel accommodation and airline tickets from any part of the world and even make other arrangements by themselves without the aid of any agent (Biddiscombe, 2002; Hooper, 2001; Adeniran & Unuigboje, 2018). All these activities are carried out courtesy of the modern information and communication technologies.

In the contemporary era, the fast pace of information technology has further introduced changes in information seeking behaviour and various forms of information. Lifestyles in general have also been influenced by the availability of information on a 24/7 basis. For instance, access to, and availability of technological devices and instruments such as laptops and cell phones have defined multiple ways in which information seekers confront the array of information avenues, libraries and subject librarians (Chong, 2001). Information is now available at any time regardless of its location, which has also attenuated or rendered insignificant the need to travel to the place where the information is located. Information seekers now expect to be able to shop, make travel

arrangements, send email and chat with friends anytime, given the rise of information even away from home (Abel, 2012).

For decades, subject librarians have acted as intermediaries, which has been a trend with other information professionals. The evolution of the information profession has now elevated the future role of librarians, especially the subject librarian (Hooper, 2001). Social networking has become an Internet-based platform in terms of which groups of Internet communities were formed with seamless connectivity to formal and informal Internet-based professionals on a variety of subjects. This has gradually eroded the need for a subject librarian in the traditional sense, because members of those social networks are also professionals in their various businesses and professions as a result of the capacity of Internet-based social networking groups to discuss on a range of subjects (Young & Kelly, 2018). The reconfigured imperatives of academic libraries in higher education institutions (HEIs) have ushered-in considerable changes over the years and now adapting to various HEI learning environments (Curri, 2002; Hoodless & Pinfield, 2018). Consequently, increasing numbers of academic programmes and services are provided remotely outside the physical confines of the university setting.

The format and functions of subject librarians have been greatly influenced and changed by developments in computerisation, telecommunications, and electronics (Merrill, 1999; Hoodless & Pinfield, 2018). Therefore, every library function performed today, including by subject and reference librarians, has been affected significantly (Wexelbaum, 2016). It is irrefutable that the academic libraries ought to be innovative and expanded beyond the traditional means of internally provided services. Such a trajectory also implies a thorough relook on the physical collection, interactive face-to-face teleconferencing with information specialists, and machines utilising artificial intelligence to assist in identifying an assortment of information.

Unprecedented change and adjustment have also introduced some terminological variability and reference with regard to libraries as static organisations that have been in existence for long in the respective communities they serve. Such a change then, constitutes a definitive mode for academic library functioning and development of information systems as reflected in the changes in the parlance of academic libraries and librarianship; from reference, reference and information services to knowledge management, and information systems and technology (Wexelbaum, 2016). There are strong indications of the terminological evolution continuing to occur in various forms and shapes. In the 21st century therefore, libraries are continuously confronted with the challenge of successful responsiveness to the extant advances in technology. These challenges are also experienced by many other institutions and organisations in both private and public spheres

(Young & Kelly, 2018). The electronic provision of information has implications for the reference desk staff in respect of their training and development.

The information explosion has engendered new problems for reference librarians, such as techno-stress experienced by reference librarians who are constantly bombarded with requests for information (Castells, 2001; Wand, 2011). Such demand-related pressures are also experienced by subject librarians who are confronted with the challenge of standardising the searching and formatting of information; which are typical in the improvements for the reference librarian. However, these innovations are work in progress and far from fruition, given the resistance to change and adoption of the new information and technology environments. This is arguably the most detrimental challenge experienced in traditional library and other non-academic institutions. For instance, many subject librarians still prefer the conventional walk-in patron over that ask-a-librarian mode via library web pages. According to Merrill (1999; Adeniran & Unuigboje, 2018), the most problematic area of academic institutions is not that their services are non-technological, but rather located in becoming a centre of excellence in information management, access and dissemination; and making use of current multimedia and information technology. This is different from the anachronistic role of a library as a form of warehouse for storing books (Turner, Welch & Reynolds, 2013).

The new modes of information delivery are very helpful to academic institutions insofar as facilitating services in distance learning, online and web-based library collections. Such a development is advantageous because the user is not compelled to be physically present in the library to search for information or using library-based information resources (Merrill, 1999). It is against such a background of new technological devices serving differing user instructional needs, that subject librarians are then compelled to acquire relevant skills, knowledge and training; such that their profession is not rendered insignificant (Turner et al., 2013).

## 1.2 THE CONTEXT OF THE OPEN AND DISTANCE LEARNING INSTITUTION (UNISA) LIBRARY

The study focused on the libraries of UNISA (an open and distance learning university) and Wits University (a contact learning university). The University of South Africa's library was established in 1946 when distance education was introduced as a mode of learning and teaching at UNISA. Currently, the library provides decentralised services to about 14 branches countrywide (UNISA, 2020). The UNISA library is one of the most well-equipped modern libraries for research and tuition in Africa. The library is also one of the best-endowed with information resources,

information technology and skilled staff. Staff and students have online access on a 24/7 basis through the Internet, which does not require the user's physical presence to access information and other library services (Litsey & Mauldin, 2018).

Currently, UNISA's main library at the Muckleneuk Campus in Pretoria consists of 43 professional staff who provide decentralised services at the following branches: Cape Town, Durban, East London, Ethiopia, Florida, Johannesburg, Nelspruit, Polokwane, Muckleneuk (Pretoria), Rustenburg, Science (Florida), Graduate School of Business Leadership (SBL) and Sunnyside. The UNISA library collection is approximately 2 (two) million titles, which includes electronic information resources that include a further 300,000 items and 4 000 current periodical titles.

## 1.3 THE CONTEXT OF THE CONTACT LEARNING INSTITUTION (WITS) LIBRARY

The University of the Witwatersrand's library had its antecedents in the South African (Anglo-Boer War) (Wits, 2020). Despite adversities such as a calamitous fire in 1931, the library has grown rapidly (Musiker, 1998). In 1890, an American citizen, Louis Irving Seymour came to South Africa where he became Chief Mechanical Engineer at Rand Mines Ltd. Seymour was unfortunately killed in action in the vicinity of Virginia in Orange Free State on 14 June 1900. A few weeks after his death, his Cape Town friends held a discussion about a suitable memorial and decided to raise funds for the establishment and maintenance of the Mining and Technological literature library, which would be open to the general public. A collection of more than 2000 volumes was purchased from over 20,000 pounds that was collected by the end of 1904. The deed of trust was drawn to transfer the books already purchased with the assets of the Seymour Memorial Committee to the Council of the newly established Transvaal Technical Institute (Wits, 2020).

The Institute was to carry on, manage and maintain a technical library for the free use of the inhabitants of Johannesburg. The new building in Eloff street, Johannesburg was then completed and arrangements were made with the Johannesburg Public Library (JPL) Committee to house the Seymour Memorial Library (SML) collection as a separate entity in a room on the first floor of the library building in Kerk street. By 1908 the stock of the SML exceeded 4,000 volumes and it was during that year where the Transvaal University College, the new name for the Transvaal Technical Institute was completed. In 1909 the library was transferred to its new home. In March 1916, a fully-fledged independent University was offered at Milner Park by the Town Council. After several discussions and council meetings, it was resolved to transfer the SML to the Johannesburg Public Library (Wits, 2020).

Apart from this library, various teaching departments acquired scattered but growing collections of books, periodicals, reports and pamphlets over the years as a result of gifts or by purchase. By then, there was no catalogue available of the books and other publications in the various Departments. There was neither the reading room for students nor the coordinated system of purchasing, the value of the potential library was largely vitiated. The need for a central reading room for students was recognised. Since the great majority of the University's books would remain in the departments and would not be available for general consultation, it was seen to be advantageous to prepare a central catalogue, listing the holdings of all the departments. This catalogue was made available for reference in the central reading room where students would have access (Wits, 2020).

The Wits library is one of the best academic libraries in Southern Africa and it contributes towards the research needs of not only the University but also the country of South Africa. Wits' library serves the university that is recognised, acknowledged, and highly respected internationally, it consists of two main libraries and 12 (divisional) branch libraries that provide rare source materials, specialist collections, and the use of up-to-date technology. It comprises of a team of enthusiastic and dedicated staff. The library is linked to other libraries via internet to information resources worldwide. The Wits' library has an electronic classroom, which is the first of its kind in South African libraries that provides fascinating insight into modern information retrieval techniques. Currently, the library boasts of a staff capacity of 48 professionals (Wits, 2020).

Wits' library has several branches on its main campus, outside of the campus as well as in the satellite hospital places namely; Architecture, Biological & Physical Science, Commerce, Education, Engineering, Geosciences & Mathematics, William Cullen, Wartenweiler, Wits Library of Management, Law and the Witwatersrand Health Science library (with 3 satellite branches in different hospitals around Johannesburg). As an open learning institution, the library provides decentralised services in each of the branch libraries. The Wits library collection is approximately over 1, 5 million books and over 160 000 of electronic resources (Wits, 2020).

## 1.4 CONTEXTUAL SETTING/ BACKGROUND

The study derives from two disparate higher education institution libraries, each with its own mission, vision, and strategic objectives as mandated by the Department of Higher Education and Training (DHET) one of the institutions is an open and distance learning university, the University of South Africa (UNISA) and the University of the Witwatersrand (Wits), which provides contact learning. UNISA commands the largest open and distance learning (ODL) student population,

about a third of all the higher education institutions in South Africa (Department of Education/ DoE, 2004). At the same time, UNISA is still the largest university and was established in 1873 as an offshoot the University of the Cape of Good Hope (UCGH). UNISA acquired its distance education status in 1946 and presently offers certificate, diploma, and degree courses and qualifications up to the doctoral level (Unisa, 2020)

Its nature as an open and distance learning institution, implies that UNISA is essentially a student-centred institution that offers students choices asynchronously, with extensive learning support through this mode of distance learning (Unisa, 2020). The university offers academic and vocational programmes that are internationally recognized. The University of South Africa currently has a student population of over 300 000 from different parts of the world, and are lectured by over 4 000 members of staff including administration personnel to support students both in South Africa and abroad in over 150 countries (Unisa, 2020).

In 1972, UNISA relocated from its old Central Pretoria premises to the current Muckleneuk Ridge premises. The University has since expanded to seven regions in all nine provinces in South Africa. Within the country, there are UNISA regional centres (RCs) in Gauteng, Western Cape, Eastern Cape, KwaZulu-Natal, Midlands (serving the Northern Cape, Free State and North-West provinces), Limpopo and Mpumalanga (Unisa, 2020).

Therefore, the composition of UNISA involves the services of academic and non-academic staff from the two previously disparate modes of learning, each with its norms and practices. However, the comprehensive nature of UNISA as an ODL institution has integrated new practices in relation to the university's restructured mission, and strategic objectives (UNISA, 2020).

On the other hand, the existence of the University of the Witwatersrand is traceable to the South African School of Mines, established in Kimberley in 1896 (Musiker & Musiker, 1998; University of the Witwatersrand/ WITS, 2020a). In 1904, the School of Mines was relocated to Johannesburg and became the Transvaal Technical Institute (TTI) which later became the Transvaal University College (TUC) (WITS, 2020a). On the 1st of March 1922, full university status was granted to the TUC which became the University of the Witwatersrand whose first site was constructed at Milner Park as a result of a donation to the University by the Johannesburg Municipality. In 1923, the University gradually left its premises from Eloff Street and move to Milner Park. The same year, the university effectively occupied the Milner Park site after vacating its previous Eloff Street premises (Musiker & Musiker, 1998). WITS, 2020a). By then, Wits had 37 departments, 73

academic staff members, and about 1 000 students who were receiving tuition in Arts, Science, Medicine, Law and Commerce.

Over the years, Wits has excelled in its academic mission and extensive research activities and drew international acclaim. This has been recognisable with the university establishing a dental hospital and school. The university's noticeability and prominence have also been accentuated by its location in Johannesburg, a world class city (WITS, 2020a). For the 90 years of its existence, the University of the Witwatersrand has produced more than 130 000 graduates in various fields and continues to establish itself inside and outside of the country with its excellent quality of research and educational services. Presently, the University of the Witwatersrand consists of faculties in Commerce, Law, Engineering and the Built Environment, Health Science, Humanities, and Science; and 33 schools offering approximately 3 000 courses to over 18 000 students (WITS, 2020a).

Subject librarians were primarily involved in the transaction of reference services through in-person consultation. In such an environment, information was typically impaired by lack of users seeking information that was previously unreachable, or complicated to find, or simply foreign (Kamila, 2013). It was also customary for subject librarians to assist faculty and students by providing library instruction consistent with their research and information needs. All these were gathered and provided to users by means of the card system. Information desks were packed with lines of users seeking information, especially for catalogues, created pathfinders and bibliographies, as well as remotely located resources which paved the way for researchers with letters of introduction and collaborative relationships. Data was also organised in a prescribed order, which was focused primarily in helping and satisfying in-person queries and requests (Kamila, 2013).

Work requiring the use of common tools such as typewriters, telephone, and books was redundant most of the time. Digital and computer-based information access brought in diversity among their clientele of libraries especially that information access was added for both online and offline use as new tools were added to the complexity in the functioning of academic libraries. Inevitably, a shift was then ushered in with regard to users' interaction and reference services. The elimination of the physical boundaries of libraries has also increased the work for subject librarians, since their clientele has grown internationally as well (Callister, 2008).

### 1.4.1 Open and distance learning versus contact learning

As reflected in its research topic, this study is essentially a comparison of two libraries located in two different academic environments: an open and distance learning institution on one hand, and a contact learning institution on the other. The notion of open and distance learning entails a pedagogic mode of teaching is mostly based on technology-driven instruction (Chong, 2001). UNESCO (2002) defines open and distance learning as an approach that focuses on freeing learners from restrictions of time and place by offering flexible opportunities to learn. As such, the ODL mode provides students with learning by combining work and family responsibilities with educational opportunities.

The essence of 'distance education' or 'distributed learning' is pivotally located in learning environments in which all or most of the teaching is conducted by someone geographically removed from the learner. Furthermore, all or most of the communication between teachers and learners is conducted through electronic or print media (South African Institute for Distance Education/ SAIDE, 2001). A motley of terminological references has been attributed to distance learning, such as: correspondence education, home study, independent study, external studies, continuing education, distance teaching, self-instruction, adult education, technology-based or mediated education, learner-centred education, open learning, open access, flexible learning and distributed learning (Browne, 2003).

In many other instances e-learning has also been associated with distance education (Herman & Butler, 2019). Among some, ODL is considered as the most viable means to education, advocating peer-to-peer collaboration and giving the learner a greater sense of responsibility and opportunities for learning. Most universities today realise these advantages and offer distance learning classes in order to reach students who are either working on a full-time basis, living far from campus, and have family commitments.

Generally, learning environments are presented in many forms and shapes in schools, colleges, and business organisations (Herman & Butler, 2019). This includes online learning and video synchronized classrooms providing face-to-face dialogue and meetings. These environments may even have instructors available to students by emails. For the contact learning environment, students have more face-to-face contact with their instructors than in the distance learning mode. Furthermore, face-to-face contact learning environments imply that such learning occurs on the physical campus and between physical participants (students and teachers); with physical learning materials such as books and the writing board, as well as the physical infrastructure in the learning

environment or classroom (furniture). Some of the contact or open distance learning modes include amongst others: time, group dynamics, access to others, openness of system and discussions and amount of effort required for both types of learning (Guri-Rosenblit, 1999; SAIDE, 2001; Zalat, Hamed & Bolbol, 2021).

In the case of the University of the Witwatersrand, the reading room library housed only books in the History and English Departments and some classics. Over the years, the book collections increased as a result of the increasing demand and the need to furnish the library also increased. To this effect, a memorandum was submitted to the Senate of the university in October 1927 setting out in full, that the absence of a viable library allowing student access presented a counter-productive or anomalous situation (WITS, 2020b).

The issue of student assistants surfaced in 1927, but only materialised in 1929 when the University Librarian was appointed to operate the library and also allocated a seat in the Senate to adequately represent the needs of the library in that forum. Faced with the task of organising a large collection, the University Librarian then adopted the Library of Congress Classification (LCC) for the Wits library. This classification system made use of Library of Congress printed cards. It is most instructive that the LCC system is still in use in the WITS library.

By 1931, there were approximately 30 000 volumes on the shelves of the library when the university closed for the Christmas break (WITS, 2020b). Among these volumes, there were different collections such as 'the Gubbins library' of Africana, and many others donated to the library by individuals, private and public organisations. In the same year, the library was befallen by a fire catastrophe that consumed the precious book collections. Apparently, the fire had originated from the central portion of the University building and destroyed the entire book stock (WITS, 2020b).

## 1.5 RESEARCH PROBLEM

A research problem relates to a situation which presents difficulties, such that informed means are required to resolve such a situation insofar as it relates to the researcher's declared purpose in conducting the research (Anderson & Poole, 2014). Furthermore, it is on the basis of the research problem itself that the study and the researcher determine the mechanisms for collection and analysis of data in order to resolve the problem being investigated (Anderson & Poole, 2014). In the case of this study, the problem being researched is fundamentally located in both the ability and capacity of subject librarians to conform to changes that have been ushered in by information and communication technologies.

These changes have affected the manner in which information users access their required information in fulfilling their different interests and needs. Such needs and interests are no longer reliant completely on book information since the advent of information and communication has made it possible for abundant sources of information and knowledge in virtually all the known fields of research and knowledge (ALA, 2006). Accordingly, the users, sources, and platforms of communication and their rapid increase have propelled the convergence of information and knowledge as required or demanded for various reasons. Such a state of affairs poses challenges on subject librarians and the methods by which information is accessed (Hall, 2004).

In this regard, the workload of subject librarians, together with their working practices has increased tremendously as they now have to teach users how to also access information using multimedia platforms (Browne, 2003). This is an indication of the impact of lifestyles and information demand as communities evolve and their increasing demands for information grows concomitantly. Therefore, the increasing demand for knowledge both within and outside of the university has necessarily changed the agenda of institutions of higher learning (Harris, 2016). It is then imperative for various subject librarians to be trained accordingly, in order that their workload does not become a factor of techno-stress. The below mentioned statements are some of the examples that show influential circumstances and developments with the potential to shape how the role of a subject librarian may be affected:

- The clients' increasing demand to obtain and retrieve information;
- Growing demand by academic staff who need to teach and bring about information literacy, which requires the resourceful skills of subject librarians;
- A need by students to access information remotely;
- The pressures of collaboration necessitated by working together between role players such as subject librarians, IT specialists, lecturers, and publishers in the quest to promote learning;
- The reconfiguration of practices from the subject librarian dependency to user dependent functionality.

Given the range of technologically induced changes mentioned above, the study then seeks to explore the subject librarians' expansion skills and their experience to accommodate the new environment of information access, considering the inevitable erosion of the traditional roles of academic libraries and librarians (Kamila, 2013).

Therefore, the work of subject librarians now incorporates a range of activities such as communication skills, cultural awareness, and information literacy for the purposes of providing

satisfactory services to international requests. Over time, new skills evolved including more electives in support of subject librarians' specialisations such as specialized subject-based reference coursework, information architecture and coding, web design and metadata (Weaver, 2019). Therefore, the internalisation or virtualisation of library services translate into real time and live chat reference services through the Internet in ways that are similar to provision of similar services in the library help desk (Harris, 2016).

## 1.6 PURPOSE OF THE STUDY

Basically, the purpose of the study has both the intention of the researcher and the reasons for undertaking the study (Anderson & Poole, 2014). Accordingly, the purpose for current study is two-fold, namely:

- To explore the current and emerging roles of subject librarians in the University of South Africa and the University of the Witwatersrand library services.

- To compare the roles of subject librarians in both the contact learning environment (Wits) and those of the subject librarians in Open and Distance Learning (UNISA) environment.

## 1.7 RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

Research objectives are basically the reduced version of the research aim insofar as they specify and articulate the actual activities to actualise the broad aim of the study (Anderson & Poole, 2014). Furthermore, research objectives are not peripheral to the research problem, hence they are closely linked with the research questions in order to establish a semblance of relevance between the problem of the study and the related question in resolving the very same problem (Babbie, 2014). In that regard, Table 1.1 below shows the continuum and seamlessness between the research aim and objectives on the one hand, and the research questions and possible data sources on the other.

TABLE 1.1: RESEARCH QUESTIONS, OBJECTIVES AND POSSIBLE SOURCES OF DATA

| Research questions | Objectives | Possible source of data |
|---|---|---|
| What are the traditional, current and emerging roles of subject librarians in these two institutions of Higher Learning? | Analyse the traditional, current and emerging roles of subject librarians at Wits and at Unisa libraries | Literature review |
| What duties and functions do subject librarians perform in academic libraries? | Describe the duties and functions of subject librarians in academic libraries | Questionnaires, Interviews, Focus Groups, or Content analysis |
| What challenges do subject librarians encounter? | Explore the kind of challenges the subject librarians face when executing their role | Focus Groups, Interviews, or Questionnaires |
| What are the job requirements of subject librarians? | Explore the current job requirements of subject librarians | Job Adverts Questionnaires |
| What are factors influencing or shaping subject librarians' roles? | Describe factors that influence or shape the current role of subject librarians | Interviews |

1.5.1 Research questions

As previously mentioned, the research questions basically respond to those objectives set by the researcher (Anderson & Poole, 2014). Accordingly, the following will be addressed in order to achieve the above-mentioned objectives in Table 1.1:

- To describe the new skills required of subject librarians at two academic institutions in South Africa in the current ICT environment

- To determine how subject librarians at two academic institutions in South Africa adapt to the current ICT environment.

- To establish the required current and education, skills and knowledge of subject librarians at two academic institutions in South Africa.

- To identify challenges encountered by subject librarians in executing their traditional, current and emerging roles at the two academic institutions in South Africa.

Based on the above questions, the study then reviews and compares the roles of subject librarians at the two previously mentioned academic institutions (Wits and UNISA), in order to establish whether any disjuncture exists between current and expected subject librarian roles in an open and distance and contact-based institutions.

1.6 SIGNIFICANCE OF THE STUDY

In essence, the significance of the study is determined on the basis of the contribution the particular study makes in the realm of knowledge (epistemology), to society, and to practitioners in the very same field being researched (Babbie, 2014; Corbin & Strauss, 2015). In this regard, the study is

particularly significant for librarians who aspire to provide effective and efficient quality services to their clients' needs. The study will always be of benefit to academics who will improve their information literacy and interactions with their students electronically. Most importantly, the findings of the study will make a contribution to library policy makers in terms of integrating the services offered by libraries. It is anticipated further that the study will make significant decision making in addition to employment of adequate library personnel, as well as the library training needs for students of all ages and needs receiving services of the library.

Undeniably, the role of subject librarians has required hybridisation (combination of both electronic and traditional services) as a result of which their roles have been significantly changed. However, since these roles cannot be entirely eroded, it is the researcher's firm view that the study will further contribute to new ways by which the job requirements of subject librarians could be reconfigured to meet the electronically based needs of students and academic staff (Chanetsa & Ngulube, 2016). The study will also contribute to the evaluation of the impact the libraries make on the broader needs of universities. In this regard, subject librarians will be equipped with research-based information and knowledge required to adapt to the vision, mission, and strategic objectives of their universities on the one hand, while also conforming to the information needs of users without necessarily being physically present at the library.

## 1.7 SCOPE AND LIMITATIONS OF THE STUDY

Both the scope and limitations of the study respectively address the range reach and possible shortcomings that may be inherent in the study (Corbin & Strauss, 2015). The scope of the study addresses its epistemological, methodological, or even practice-related boundaries, or a combination of these three; as well as the extent to which each of these factors could possibly present an underlying shortcoming or weakness.

### 1.7.1 Scope of the study

There are indications in literature that early librarianship did not provide assistance to library users. Samuel Green, the 'Father of the American reference system' is credited with developing the file reference service at the Worcester Public Library in Massachusetts in 1872 (Merrill, 1999). From the 1800s, the idea of a reference librarian was created when librarians realised the need to help users in locating and interpreting library searches. The centralised reference desk was then born with librarians who waited on their desks to address the queries or needs of users. This practice was also adopted in academic libraries and their internal departments. In some instances, other universities only made their librarians available for consultations and removed them from the reference desk, which provided more in-depth and less interruptions for the users.

In the contemporary era, the reference departments or users' needs may have changed, but the essential service of guiding and teaching users has not changed (Chong, 2001). Over the years, some modes of service have been replaced, such as the telephone and email reference which have not significantly substituted the traditional face-to-face interaction between the reference librarian and library user.

It is incumbent on subject librarians to combine their 'people skills' with the required technological skills. For example, questions could be answered in real-time to acquire the assistance of an academic tutor providing one-on-one services using electronic reference tools with academic help (Darch & de Jager, 2012). In this regard, a list of reference desk phone numbers could be in open spaces where students search computer laboratories and menu-embedded screen reference. In this manner, the librarian's accessibility is unlimited by the librarians' whereabouts without leaving the library. Such a roving librarian is then able to reach users who could not access conventional services available at the reference desk. Such an approach also adds to personalised services which increase access of value to students and other library users.

Desktop conferencing can also be utilised to students who are in remote sites. The system could be equated to that of distance education, in terms of camera, telephone box, microphone, codex, application sharing software and Windows are required. However, online referencing does not replace face-to-face interviews, but provides viable alternative, especially on evenings, weekends or for those in remote areas (Harris, 2016). Due to the human disconnection that is inherent in technology- driven services, long-distance users may often feel lost or isolated without assistance readily available from an actual person.  On the other hand, resident students may be required to perform certain functions by themselves while the librarian is working with online students. This attests to the view that reference librarians have been intermediaries between the users and the information required (Callister, 2008). It is also an indication that librarians have generally adapted and adjusted their services beyond the physical constrains of the library in real-time.

1.7.2 Limitations of the study

Whereas the scope/ delimitations mainly address the actual areas or boundaries of the study, the limitations thereof basically relate to the inherent (deliberate or not) weaknesses or possible restrictive areas of concern of the study, which could possibly be a result of the epistemological, methodological, or even practice-related judgments on the part of the researcher (Creswell, 2018). However, it is to be noted that the limitations of the study do not necessarily suggest that the study in itself has been rendered insignificant or unable to fulfil its objectives. A researcher could be

aware of these limitations in advance, during or after the study. Limitations could also be observed by others who are (in)directly involved in the study (Punch, 2006).

Amongst some of the study limitations, the fact that the study is geographically limited to two selected Gauteng Province institutions of higher learning, could have some impact on possible areas of generalisation arising from its findings. The study is also restricted to two disparate higher education institutions, each of which has its own policy mandate (Harman & Meek, 2002). To that effect, the policy initiatives of each of the two academic libraries could be shaped and influenced by their respective vision and missions, considering that they both serve different student or user populations despite their compliance with the technology driven demands. The exclusion of students who are beneficiaries and users of library services could impact adversely on the study's finding, including the fact that other stakeholders such as academic staff were also not provided with the opportunity to add value to these findings. Most importantly, the exclusion of Senior Managers outside libraries (Senate or Council representatives) would deprive the much-needed policy perspective, since no academic library on its own applies policies that are disconnected from the broader academic institutional vision and missions (Harman & Meek, 2002).

## 1.8 LITERATURE REVIEW

Literature review refers essentially to the identification, consultation, and analysis of secondary information sources consistent with the research topic and its problem being investigated (Denscombe, 2014). The review of literature is also a product of the strategy that has been used by the researcher to identify the ultimate sources of information on a continuous basis until the study was concluded. In this regard, the reviewed literature addresses the evolution of the traditional academic library as well as its adaptation and adaptability to the new era of knowledge and information explosion and its technological drivers. The roles of subject librarians and their duties in an academic library setting are addressed as well.

The researcher also reviewed previous studies conducted in the field of research, including the exploration of whether or not problems faced by subject librarians have been resolved in addition to their job requirements. During the course of reviewing the relevant literature, the study found that networking institutions had a profound impact on subject librarians and the entire librarianship profession (Dakshinamurti & Satpathy, 2009). The researcher assessed librarians' perception of their roles in this era of information technology, which included the need for further and continuous training in order to align their skills and knowledge accordingly and not remain stagnant, and ultimately redundant. There was also focus on how far the needs of subject librarians have been met as well as the areas of their needs that still require improvement. There was also a

specific review of the roles of subject librarians at the two selected academic institutions (Unisa and Wits).

The reviewed literature also included important aspects of the research topic, such as: current trends in the delivery of library services to diverse user needs; user expectations; provision of access to data; instruction; cooperative arrangement for collection developments; as well as storage and retrieval of information (Covert-Vail & Collard, 2012). It is irrefutable that libraries are service organisations that need to be adaptive to the needs of their users. The studies conducted also revealed that subject librarians could adjust to current practices and services on account of innovative, creative, and flexible approaches to knowledge management and service provision (Covert-Vail & Collard, 2012). Such an approach was found fruitful for possibly predicting possible scenarios for the future needs of their educational requirements and needs. As technology changes and adds new challenges, there is greater collaboration among academic and private libraries. Therefore, there is an undeniable imperative for academic libraries to work jointly with their private counterparts as well as fraternal libraries within the higher education system in order to fruitfully provide services to the wide spectrum of stakeholders. More details on the literature review are presented in Chapter Two.

## 1.9 RESEARCH METHODOLOGY

While there are divergent views regarding both the conceptualisation and meanings of terms such as the research design, the research methodology, and research methods (Astalin, 2013), the current study has adopted an approach according to which the research design and methodology are viewed as different but complementary terms. Therefore, the research design would be viewed as the overall plans and approaches used to bring the study and its objectives to fruition; whereas the methodology would mainly refer to the actual methods used for data gathering and analysis purposes (Creswell, 2015). This study has adopted the qualitative research design approach in its declared goal to explore, describe, and analyse roles, experiences, and perceptions of subject librarians at the two research sites (i.e. Wits and Unisa). The fundamental focus is on the extent to which the subject librarians provide their views regarding the changing roles, qualities and skills within the continuously evolving academic library mode.

The research design and methodology in this study is largely informed by the nature of the research problem, which ultimately defines the type of research and logic of the particular research study (Bell & Waters, 2014). It is in this regard that the study has been framed in respect of the plans, strategies, management approaches on one hand; as well as the specific methods of collecting,

analysing, and interpretation of the findings. Further details and discussions on the research methodology are presented in Chapter Three.

## 1.10 DEFINITION OF KEY TERMS

The definition of the below-cited key terms is intended to clarify both their contextual (or connotative) and literal (or denotative) meanings on the one hand, as well as the implications such clarification have on the epistemological or disciplinary, methodological, and practice- related meanings (Babbie, 2014; Connaway & Radford, 2017).

### 1.10.1 Academic library

An academic library is an information and knowledge management centre in an institution of higher learning whose users are predominantly students, academic staff, as well as other users whose registration with the particular institution or membership to such library entitles them membership access and use of services provided in the particular library (Blummer & Kenton, 2017).

### 1.10.2 Contact classroom learning

It refers to a formal student-centred approach to pedagogy in terms of which there is direct physical, individual, or face-to-face contact and interaction between the students and their teachers (Booyse, du Plessis & Maphalala, 2020). In the context of this study, contact learning applies to Wits university as one of the two primary research sites in the study because of the nature of the direct interaction between the students and their teachers or lecturers taking place within the physical parameters of their lecture rooms or classrooms; with the lecturer as the source of tuition or guidance required to achieve tuition according to the structured processes of the faculty or department (Deka & McMurry, 2006).

### 1.10.3 Institution of higher learning

An institution of higher learning is an established organisation or corporate body offering post-matriculation education and qualifications according to accredited and acceptable academic and intellectual principles, norms and standards (Bunting & Cloete, 2004; CHET, 2004). In the context of this study, there are two institutions of higher learning of interest to the researcher, Wits University and Unisa, each having its own academic vision, missions, and strategic mode of operation.

1.10.4 Library functions/ roles

This refers to areas of library performance in respect of the provision as mandated by the policies of the acceptable librarian profession. In the context of this study these functions or roles pertain to those expected to be delivered by academic institutions through various personnel especially the subject librarians (Kamila, 2013).

1.10.5 Open and distance learning (ODL)

A mode of learning emphasising technologically propelled tuition with undue constraints of the place and time of learning (ref). In this study, UNISA is an example of an open learning distance learning institution (Browne, 2003; Herman & Butler, 2019).

1.10.6 Subject librarian

A professionally trained and competent individual assigned to inform about the events in the library, and learns from the self-same departments about their library needs. Amongst other functions, the roles of subject librarians include: selection of books and journals, databases, and other materials for respective disciplines as listed by the departments; giving instructions in the use of the library; as well as handling of specialised library departments. As an individual, the subject librarian is the user's first point of contact with the library (Gregory, 2005). The subject librarian is usually a specialist in a specific field. Hence, his or her being the first point of contact with students and their specific requests or queries in their respective subjects or discipline. It is also the responsibility of the subject specialist to select and evaluate library material in particular subject areas, as well as bibliographic organisation of such materials

1.10.7 Traditional library

A library (whether academic or not) that still abides by its pre-ICT protocols and service approaches (Hart & Kleinveldt, 2011). In the context of this study, the traditional library would relate to libraries of academic institutions that function according to their primordial roles, with little, or no adherence to the very needs and interests of the students or clients who may be situated in any part of the world. Therefore, a traditional laboratory would conform, and not adapt to post-modern information and knowledge management styles or approaches to service delivery.

1.11 ETHICAL CONSIDERATIONS

Treatment of human beings as participants in a respectful and dignified manner is of cardinal importance in research studies (Green & Thorogood, 2018). It is in this regard that ethical considerations are first and foremost concerned with other people and professionals in the ways that the researcher has interacted with her/ his participants, especially during the execution of the

study's empirical stages. In the context of this study, there are research-focused and researcher-specific ethical considerations. In terms of the researcher-focused consideration, the researcher is bound to adhere to all ethical requirements of the institution that has granted permission for the study to be conducted (Green & Thorogood, 2018). In this case, the researcher required approval of the University of South Africa before the study could be undertaken. For this reason, the researcher first obtained ethical clearance from UNISA (Ref #:2019-DIS-0034), after which she then proceeded to seek for approval from the University of the Witwatersrand as one of the research sites involved in this study.

In the case of research-specific ethical considerations, particular emphasis is placed on acceptable practices such as respect for the dignity of selected participants as autonomous human beings who are entitled to make decisions voluntarily regarding their involvement or non-involvement in the research site (Iphofen, 2016). Such respect for their dignity also entails that no false promises or monetary inducements are made to them, including the threat for penalty or reprisals if they refused to participate. Furthermore, the researcher ensured that she drew an informed consent form which fully detailed the purposes of the study and how participants were to be involved during interviews (Iphofen, 2016).

Participants were also made aware of their right to withdraw at any time should they feel that the researcher was not behaving or treating them according to expectations as indicated in the informed consent form in which the further request was made for their participation in the audio-recorded interviews. In addition, the researcher assured the participants as indicated in the covering letter, that they would not be exposed to any form of harm or injury to themselves, and further undertook to protect their privacy, confidentiality and anonymity. It was also important for the researcher to formally make the participants aware that aspects of their input and views may not be published or made public without their written consent under any circumstances (Harding, 2013). Most importantly, the researcher also made sure that the participants were aware of their right to legal recourse in the event of any *mala fide* intentions or unprofessional conduct occurring during the study.

## 1.12 ORGANIZATION OF THE DISSERTATION
The study is delineated into six chapters as indicated below:
**Chapter One: Introduction and Background to the Study**
This chapter provides an introduction and background to the study in respect of the main units of analysis, which are discussed more elaborately in the ensuing chapters.

*Contextual setting:* a brief outline of two divergent learning environments is provided in the context of their main tenets and fundamental areas of dissimilarity.

*Research problem:* the problem of the study is outlined in the context of the physical characterisation of libraries and the virtual library mode.

*Purpose of the study:* focus is on exploring and comparing the subject librarians' role in the context of two higher education institutions; one providing open and distance learning, while the other is a contact learning institution.

*Research questions:* the focus is on responding to the identified subject librarians' challenges at the selected two higher education institutional learning environments.

*Scope and limitations:* this research variable addresses the theoretical, methodological, and empirical reach demarcations/ boundaries of the study, as well as some aspects that are beyond the current study focus.

*Ethical considerations:* outlines the researcher- and research-focused moral, professional and legally binding behavioural practices, such as: compliance with institutional rules and regulations for ethical clearance approval; as well as dignified treatment of selected participants by taking cognisance of their rights, including the right to confidentiality, privacy and anonymity. These ethical considerations are essentially ethical an expression of the study's intention to 'do good' and produce no harmful or adverse effects to the participants.

*Definitions of key terms:* clarifies the literal and contextual applications and meanings of thematically important concepts that have been used in this study.


**Chapter Two: Literature Review**

The chapter principally outlines the main issues, topics, and debates in the research field. The core or perennial units of analysis in this chapter revolve on the transitioning of traditional university libraries into the ICT mode; the changing nature of the librarianship profession (especially, the subject librarian); as well as the diversity of library users' needs and interests as shaped by their heterogeneous backgrounds that is no longer restricted to the previous 'gold standard' of young and recently matriculated learners who are not bound by family or work obligations. identify the gaps in the literature and finds ways of filling in the gaps where necessary by:


**Chapter Three: Research Methodology**

The chapter mainly outlines and discusses various strategies, approaches and methods designed for actual implementation in the study's development of acquisition of relevant information and

data required in resolving the research problem and providing answers to the research questions. In doing so the chapter outlines the following important research variables:

*Research paradigm*, for the specific philosophical orientation adopted by the study;

*Research design* and *research approach,* for the specific strategies, processes and procedures applied in the study's mixed-methods data gathering, analysis and interpretation processes;

*Data collection:* the implementation of the qualitative (e.g. literature review, observation of participants, field notes) and quantitative methods (e.g. questionnaires)

*Study population* and *sampling:* the research milieu and setting are highlighted, including study participants and sampling methods and considerations (criteria) for their involvement;

*Trustworthiness:* the validity and reliability measures are outlined as the criteria for establishing trust in the study findings.

*Ethical considerations:* the principles of respect for dignity of the participants, their privacy and the study's non-maleficence are outlined.

**Chapter Four: Presentation of the Findings**

The actual interview- and questionnaire-based findings are arranged thematically and explicitly presented in this chapter but preceded by the bibliographic/ demographic characteristics of the participants.

**Chapter Five: Discussion of the Findings**

The findings presented in the preceding chapter are discussed (analysed and interpreted) in respect of their qualitative and quantitative categories. In both instances, the main narrative themes derived from the interviews and common quantitative patterns of frequency/ occurrence are analysed sequentially for their ultimate convergence as the findings of the same single study, and not two separate studies. Both sets of findings are discussed in conjunction with the various literature perspectives on the metamorphological developments of academic libraries and the concomitantly evolving roles of librarians (particularly subject librarians) in the context technologically induced changes in the realm of library services provision.

**Chapter Six: Summary, Conclusions and Recommendations**

This chapter presents a summary of the main findings as the basis for concluding whether or not all the research questions were effectively responded to way forward. This is followed by the researcher's own recommendation for improvements in some aspects of the study as accruing from the research findings

## 1.13 SUMMARY OF THE CHAPTER

This introductory chapter outlined the background of the study in relation to the research problem, aim, objectives and questions; followed by a highlight of the study's significance, scope and limitations; literature reviewed, definition of key terms, as well as an outline of the ethical considerations of the study.

# CHAPTER TWO
# LITERATURE REVIEW

## 2.1 INTRODUCTION

The structure of the chapter entails: the traditional and current roles of subject librarians; duties and functions of subject librarians; factors influencing the roles of subject librarians; changes in higher education and academic libraries; job requirements for subject librarians; as well as challenges encountered by subject librarians.

In essence, literature constitutes the initial mechanism according to which the researcher gathers relevant theoretical or secondary information in the preliminary or early stages of the research study (Creswell, 2014). It is in that context that literature review is posited as a methodically executed process for the search, identification, consultation, processing, and analysis of the most appropriate (print and electronic) reading material that ultimately constitutes the foundational source for the study's required supporting evidence (Machi & McEvoy, 2012). In the latter context, literature review is seen as providing the appropriate context for establishing the study's significance, while also benchmarking the study results. Similar to the process of assembling a jigsaw puzzle, the researcher discards, eliminates, and ultimately decides on the relevant parts of the reviewed literature (collected material) or 'puzzle' appropriate to address the research topic.

Given the above description of the review of literature, it could then be inferred that the primary purpose of such a review process is to contextualise the study within a particular frame of scholarship reference (Cooper, 2011; Edmonds & Kennedy, 2013). Therefore, in addition to familiarising and exposing the researcher to the theoretically dominant aspects of the study, the review of literature is also helpful in evaluating the work and contributions of other scholarly authorities in the field of study in which the current topic is located; and also identify the areas in which further research is still needed to address some gaps, challenges, or some outstanding issues in the same field of research (Edmonds & Kennedy, 2013). In the case of this study, reviewing relevant literature sources was also helpful in enabling a context for comparing international and local trends, practices, methodological developments, and the most recent topical issues and developments in relation to academic libraries and the role of ICT in knowledge management and information literacy.

The systematic search and processing of the relevant literature sources was facilitated and enabled through a resourceful search strategy that focused on academic books; published and unpublished dissertations and theses; official policy documents; research-based articles in accredited journals;

scholarly papers and reports presented at academic conferences; as well as reputable academic platforms, databases, and search engines such as Google Scholar and ResearchGate and SABINET. In sum, therefore, the review of literature facilitates the exploration, description and analysis of the problem, recaps previous enquiries to update readers about current investigations; while also recognising existing associations, paradoxes, discrepancies and gaps, as well as proposing theoretical and field-based knowledge as the way forward for resolving issues (Henning, Gravett & Van Rensburg, 2013). Therefore, the lack of a protracted review of literature denies the study of its foundational contribution to the knowledge base in the particular researched field. It is of further noting that both the literature review and the adopted search strategy applied by the researcher were influential in providing structure and content of the current chapter based on the most dominant, topical and frequently emerging issues (themes) inherited in the research topic (Marshall & Rossman, 2016).

## 2.2 TRADITIONAL AND CURRENT ROLES OF SUBJECT LIBRARIANS

This section outlines the traditional and current roles of subject librarians (sometimes referred to as bibliographers) in an academic library setting. Mabry (2001) and Soraja and Minhaj (2015) inform that the basic role of the librarian has been that of serving as an intermediary between people (information users) and the information itself that is stored inside the library. Bailey (2005) elaborates further that the reference librarians is comparable to the ears and eyes of the library because they understand first-hand the needs, interests, perceptions, and background of their clients; as well as know what is beneficial and what is not. Such knowledge also empowers them to develop skills they could apply to inform, assist, teach, and persuade the users.

The field of subject librarianship emerged prominently between the 1950's and late 1970's through the confluence of factors such as higher education expansion and the attendant diversification in academic offerings; scholarship based on print; collection-focused libraries; and limited options to local libraries in higher education (Hazen, 2000; Pennington, 2012). Since the 1990's, other factors that shaped the generic model of library services included the continuing restlessness among library support personnel concerning future employment prospects in an environment of self-service checkouts and outsourcing of technical processes (Karasic, 2016). For Feldmann (2006), the subject librarian is quintessentially in many ways the librarian performing the duties of collecting, organising, and disseminating information as required by the information seekers or library users.

In addition, the subject librarian is recognised as a specialist with the capacity to cooperate with users and support groups; exploring and embracing new techniques and roles of addressing user

enquiries; and practical application of operational methods (Karasic, 2016). The subject librarian is also known for involvement in participatory application of informative knowledge tools relevant to group discussions and assignments (Pinfield, 2001). For Gaston (2001), the subject librarian's main roles reside predominantly in two areas which could be regarded as either disastrous or an opportunity. These roles are teaching and training oriented, while the other is liaison-oriented. The liaison role entails a greater degree of interpersonal skills and extensive knowledge of resources available in the library, while the teaching and training role requires detailed understanding of learning processes and information literacy skills (Schroeder & Hollister, 2014). Table 2.1 below is a diagrammatic illustration of the traditional and current librarianship roles.

TABLE 2.1: REPRESENTATION OF TRADITIONAL AND CURRENT LIBRARIANSHIP ROLES

| Traditional Roles & Qualities | Current Roles & Qualities |
|---|---|
| Vital support in all disciplines | Comes into profession with variety of personality temperament |
| Highly intelligent & professionally trained librarianship, but untrained in other fields. | Ability to work in multi-professional background |
| Member of their library forums | Interaction with any faculty or departmental memb |
| Checking of references and articles within knowledge of the author before printing or produci book. Searching down references and borrowing and rare manuscripts on the ILL (inter-library loan) | Making use of available online reference tools verification before printing. |
| The desire to help others unselfishly, with satisfac on a job that is well done. | Guiding those who are overworked & in need reassurance & the comfort that their information ne are fulfilled |
| General way of doing things | Influenced by impact of ICTs for preparing user become lifelong learners |
| Cataloguing, storing & indexing of library materials access by users. | Investigating methods for use of new tools and t relative effectiveness |
| Personalised reference consultations by users queu at information desk for assistance. | Online consultations through ICT tools such as ins messages & email |

*Source: Researcher's compilation from different sources*

Subject librarians in the contemporary era provide services for referencing and research in their specialisation fields; liaise with faculty concerning subject-specific instruction resources on advancing information literacy by incorporating research skills into their courses; and decide on purchasing of materials for their subject collection areas. Since libraries have transitioned over the years from print to information services, it is imperative for their acquisition of correspondingly new reference services skills (Loestcher & Koechlin, 2014). These skills include assistance provided to clients through instant messaging (IM), email and in-person. As they purchase materials for their collection development, they also negotiate vendor agreements and funding,

and also assess resources in different formats for university departments to ensure that faculty and students' needs are fulfilled (McCaffrey & Breen, 2016).

It is stated further that the gradual fading of the library's old-fashioned mode of operation and its transfer to para-professionals has saved time for librarians to be more engaged in learning support and other jobs that intensify relationship, confidence, and trust building with clients. Such a development is further indication of library professionals' inextricability from information technologies and their demand for technical skills. As such, the current repertoire of subject librarianship should encompass abilities in identifying, evaluating, and systematizing electronic information resources for delivery to users by electronic means (Ramzan & Singh, 2010). Thus, the involvement of subject librarians in teaching (delivery service) combined with the impact of information technologies has significantly altered and reconfigured the subject librarian's traditional role.

According to Baker and Evans (2011), some of the skills necessary for subject librarians' transitioning include: above-average negotiation acumen; detailed copyright and licensing knowledge; synchronization of disparate learning, information and research systems; outsourcing skills for some of the library's core systems and still maintaining data control within data protection laws; project management skills for delivering collaborated inter-institutional transnational projects; as well as enhanced expertise in workspace design and ergonomics (Martin, 1996; Pinfield; 2001). It is evident from the consulted literature that the erstwhile mode of subject librarianship is becoming instinct, and that the convergence of services demand multi-purpose or multi-functional responsibilities, which has also de-emphasised the role of the electronic library subject (Law, 1999; Rolfe, 2007).

In most academic libraries, compact disk-read only memory (CD-Rom) networking or hyper- text markup language (HTML) authoring rationality appears to be more professionally viable and functional skills than subject knowledge (Rolfe, 2007). In such instances, subject librarianship is still dominant, and shows few indications of any radical change occurring soon.  This is also the case even in at the two academic libraries are the primary subjects of investigation in the present study, namely, Wits and Unisa. Fourie (2004) emphasises that the preponderant electronic networks and information technologies are continuously reducing and outmoding the traditional methods and functioning of academic libraries in keeping with the equally continuing and diversified needs of "the information poor" across "the digital divide" and suffering from "technophobia".

Factors that have influenced or shaped the profession of subject librarianship are explored in more detail in the ensuing Section 2.4. Suffice that information and technological advancements are pivotal, and necessitate that a subject librarian should strike an equilibrious momentum in their primordial roles and current functions and expectations (Mwaniki, 2018). Accordingly, they could be instrumental in developing digital projects with content that is most beneficial for their institutional repositories and user needs, which would elevate their professional status and indispensability even in the contemporary knowledge- and information-driven era (Mwaniki, 2018). Such an orientation would dispel the myth that subject librarians are resistant to new technology because they lack the requisite confidence.

## 2.3 DUTIES AND FUNCTIONS OF SUBJECT LIBRARIANS

Historically, librarianship was considered as merely a book-keeping practice (Schroeder & Hollister, 2014). However, subject librarians mostly render their services to individuals or groups of individuals at a centrally located desk inside the library. A librarian is a change agent who will not let the inquirer to leave the library without a satisfactory service or answer to his/ her question/s. The librarian should act like a shopkeeper who will not allow a customer out of the store without making a purchase. Information technology provides numerous platforms (e.g. online chat and email), but such formats do not significantly change the reference transaction. Mwaniki (2018) submits that the liaison role (which is less a science than an art) requires the subject librarian's time, creativity and patience in order to develop departmental and faculty relationships. Listed below are seven of the most profound duties generally performed by subject librarians, and are still more relevant and applicable even in today's subject librarian duties, including at Unisa and Wits libraries:

- attendance of meetings for course planning; providing programmes for study skills tuition; engagement in academic auditing and quality assurance; assistance to academic staff concerning resource availability; rendering technical support for electronic databases; providing student assistance on access and technical problems they encounter in the library; and producing materials that are of educational value (Mwaniki, 2018).

Subject librarians are attached to each academic institution's department or programme, and coordinate all relevant activities and services between the university library, faculty/ department and students. Also, subject librarians are part of the academic faculty, tasked with, amongst others, selecting, acquiring and maintaining resources provided by the institutional library (Turner et al., 2013). In order to play this pivotal role, subject librarians should be skilled and knowledgeable in user needs prioritisation and assessing information resources in their respective formats. They

should also have an understanding of scholarly communication processes, which is part of the library's role in the information marketplace (Turner et al., 2013).

The ensuing discussion (Section 2.3.1 to Sub-section 2.3.4.6) outlines the University of Washington Libraries perspective of the overall responsibilities and duties of various categories of librarians, particularly the subject librarian as observed and articulated by Ray and Macy (2014).

### 2.3.1 Collection building

The expansive responsibilities of subject librarians are underpinned by selecting and initiating orders for materials based on the collection development policy subject statements for the respective university libraries' collections (Ray & Macy, 2014). They are further charged with identifying multi-platform resources for supporting academic and research programmes that are in existence already. Additionally, they consult and communicate with teaching faculty about their curricular and research needs.

### *2.3.1.1 Review and evaluation of library resources*

Subject librarians plan, assess and evaluate existing collections of libraries by aligning their academic units' varying needs. They prepare support documentation for library accreditation purposes, and periodically review collections for identifying obsolete materials, which helps in recommending titles and/ or cancelation of others (Ray & Macy, 2014). It is also in the purview of subject librarians to review stolen, lost, brittle and/ or damaged titles, which enables them to recommend withdrawal or replacement.

### *2.3.1.2 Fiscal management*

Subject librarians also oversee budgetary allocations to their subject areas and should manage spending within deadlines and fiscal limits where there might be special allocations.

### *2.3.1.3 Communication and liaison responsibilities*

Subject librarians also establish and maintain frequent contact and communication with departmental and faculty units or programmes in order to understand their goals and reciprocally ensure that libraries fulfil all their stakeholders' information needs (Ray & Macy, 2014). In this regard, the subject librarians consult with, and alert faculty concerning cancellation or addition of those library materials obtained by the library. They also acquaint library staff and colleagues with relevant departmental concerns, and update them on changes in information resources in their subject or disciplinary areas.

*2.3.1.4 User education and instruction*

Subject librarians assist and educate students on utilisation of library services and book collections, and also train clients individually, in reference desk group consultations, or as guest lecturers in the classroom (Ray & Macy, 2014). They also act as information literacy course instructors in the university, and could even collaborate with academic departments in information literacy classes for specific needs of students.

2.3.2 Additional responsibilities

Subject librarians are part of the library and university governance as mandated by the university's academic faculty (Ray & Macy, 2014). As such, they are on committee leadership structures within the university library community, undertake research and consequently publish their papers while also actively participating in professional, academic and community service organisations. Subject librarians further render core services to university departments, which include: collection development, reference, outreach and instruction services, as indicated below.

**Outreach, marketing and communication:** engaging actively with students, faculty and staff in developing durable working relationships in their respective assigned areas;

**Collection development and management:** using library approval plans for assessing the needs of users for acquiring, developing and maintaining relevant collections (books and electronic resources) of high quality through publisher profiles that do not require continuous vetting;

**Teaching and learning:** designing, delivering, assessing and implementing digital online instructional and learning tools; while also conducting strategic multiple assessment of classroom learning and instruction outcomes and programme initiatives;

**Scholarly communication:** educating and informing campus administrators, faculty and graduate students about issues on copyright, scholarly communication and their authorial rights; open access, subject librarians also advocate, support and promote research work for developing digital materials and preserving content recruitment;

**Reference services:** reference services differ also according to the professional orientation and area of expertise of the librarian (Ray & Macy, 2014). In that regard, subject librarians are most helpful in responding to queries regarding subject-specific and other in-depth specialised areas requiring in-depth knowledge in those subjects or disciplines. They also address research-related questions in respective disciplines to individuals or groups of individuals seeking consultations to answer their questions and queries. Following below is a range of other duties and functions of librarians in their various professional orientations.

2.3.3 Other librarians' duties and functions

As mentioned earlier, the type and size of a library, in conjunction with the range of library personnel skills is also influential in showing the different types of services offered by a range of librarian categories (Cassell, 2015; University of Washington Libraries, 2017).

**Electronic resources librarians:**
They manage licensed library databases from the third-party vendors;

**Instruction librarians:**
They teach face-to-face and/ or online information literacy skills. These are most common in academic libraries where library users are taught how to search, assess and utilise information productively;

**Outreach librarians:**
They provide library and other relevant information services to marginalised groups, such as the disabled, and indigent neighbourhoods, homebound seniors and adults, former convicts and the incarcerated, as well as the homeless and rural communities (Wand, 2011). In other instances, outreach librarians could also attend to students of all categories, particularly in minority communities;

**Public service librarians:**
They regularly address public queries and concerns from their central reference desks. In large libraries, some service librarians focus particularly on special groups such as teens, and references such as periodicals, and any other special collections;

**Reference or research librarians**
They implement structured reference interviews to help users and researchers locate and identify the various categories of information they seek, such as answering specific research questions, usage of databases and various electronic information tools; or accessing and caring for expensive or delicate materials (Ray & Macy, 2014; University of Washington Libraries, 2017);

**Systems librarians:**
They ensure library functionality by developing, troubleshooting and maintaining its systems, which includes the cataloguing as well;

**Technical service librarians:**
They work in the background ordering library materials and database subscriptions, computers and other equipment, and also supervise the cataloguing and physical processing of new materials (Ray & Macy, 2014; University of Washington Libraries, 2017).

## 2.4 FACTORS INFLUENCING/ SHAPING SUBJECT LIBRARIANS' ROLES

This section outline factors that influence or shape the roles of subject librarians in relation to ICT. In that regard, ICT influence and impact, as well as changes in higher education and academic libraries constitute the foremost factors influencing these rules. Innovative tools and methods are constantly replacing old ones in society. In order for subject librarians to sustain themselves as knowledge workers, they should be lifelong learners and remain information literate (Silka & Rumery, 2013). As a professional group, librarians need to make use of the available technological opportunities to pursue, manage, retrieve and use information. In academia, librarians are seen to take the approach of giving presentations, developing instructional modules, helping to shape and grade research assignments, and counselling student project teams. In all these, subject librarians are full curriculum review and development partners who contribute towards information literacy and other curriculum matters (Loestcher & Koechlin, 2014). The traditional focus of the librarian was to deliver external information in the form of books, serials, technical reports, and many others. However, all that has changed because of the influence and impact of technology.

### 2.4.1 ICT influence and impact

Librarians generally organize and retrieve knowledge and information by others. However, 20th century technological advancements in the form of computerisation have introduced a major turning point in librarianship and library services (Silka & Rumery, 2013). Accordingly, integration of Internet-based and computerised services into the library has rapidly and radically changed librarianship and its associated career paths (Dolan & Schumacher, 1997). As such, organising knowledge has become an enormous and complex task for subject librarians as they attempt to deal with both new information sources and new equipment, software and hardware with sparse formal training or prior experience in using such equipment.

Technological developments have also introduced changes in the collection development role of the subject librarian in an era of consortia agreements intended to regulate large interdisciplinary databases, influenced by the fact that the web has increasingly become the students' first place searching for materials. However, Feldmann (2006) and Sharp (2006) anticipate that the intermediary role of information professionals will become important as well. According to Blummer and Kenton (2017), it is still relevant to expose the library user to the traditional information literacy mode in order to enhance their knowledgeable and skills on the use of available subject-based resources in an Internet-intensive environment. In such a situation, librarians are vital for successful information interventions by successfully transferring and

adapting their foundational or traditional professional backgrounds to the new technology/ Internet driven mediums (Darch & de Jager, 2012).

The Internet has become the primary medium of accessing physical materials, books and other text-based information by mediating time and monetary costs since library records and archives are now computerised to accommodate more efficiency and effectiveness of lending systems, as well as quicker methods to locate resources and assess available items (Qualiaroli, 2017). Internet search engines also facilitate non-mediated means to resolve information retrieval challenges for users and the professional librarian. In addition, changes emerging in digital reference services have sophisticated and sharpened end-users' capacity to access information resources (Rodwell, 2001).

It is in the above regard that libraries are viewed as transcending their primordial custodial role and assuming the management of multimedia digital content, which has increasingly required or pressurised reference librarians to acquire higher computer skills to mediate their previous electronic access limitations. Kemp (1997) and Welch (2002; Clem, 2021) advocate that the technology-induced changing roles compel that reference librarians or subject specialists should be technologically informed to make reliable judgments concerning material purchases in their appropriate formats; as well as consortia agreements in respect of acquiring access to databases and thousands of periodicals and other collections. Subject librarians have frequently recommended the regular input of system librarians, faculty and students in order to improve both their collection management decisions and viability of acquiring new electronic products.

Undeniably, the preponderance of information and communication technology and its associated 'digital revolution' or 'knowledge explosion' has had an indelible effect on academic institutions and their libraries (Shafique, 2007). Necessarily, subject librarians' roles are more essential in the performance of tasks and acquisition of skills in areas such as: Internet navigation for checking scope of reliable subject content on certified online sites; as well as tailored end-user consultation and interpretation of electronic resources, particularly in institutions that are linking their information technology systems or divisions to their libraries (Marcum, 2000; Wood & Walther, 2000; Mwaniki, 2018).

Furthermore, librarians in the past were viewed as scholarly and dynamic organisers, cataloguers, and classifiers of information. Those who managed libraries used to be very knowledgeable were even referred to as 'bookworms' who were sufficiently 'omniscient' about all existing subjects, which nowadays relates to the subject librarian. Initially, people working in libraries were not

receiving training, but worked on trial-and-error until the apprenticeship training was introduced between 1850 and 1875 (Shafique:2007). It is against this background that the dawn of the Internet age and its rapid developments in the World Wide Web has also introduced a phalanx of terminological references, such as virtual, electronic and hybrid libraries. This new nomenclature has also changed the way subject librarians work and rendered them more as crucial mediators between the information sources and users.

The library information schools have now adopted the trend towards adopting information technology skills such as database design, information use and value studies, as well as online search strategies (Baker & Evans, 2011). On the other hand, institutions of Higher learning benefit by offering short information literacy courses and workshops as part of a continuing education to improve the skills, knowledge, and abilities of individuals to develop in their professional environment. This has enabled distance learning programmes in LIS to be delivered at remote sites using an assortment of communication technologies such as TV, radio and the Internet. As a distance learning institution, UNISA affords its students' tuition through the use of these technologies which are also viable and effective for conferences, seminars, workshops, symposia and other technology dependent activities (Qualiaroli, 2017).

For subject librarians, they are now more involved in academic teaching activities, such as teaching study skills, course planning and related activities that would traditionally not be classified as their roles. Before the technology-driven (networking) age, reference transactions were conducted through personal consultations, with clients queuing at information desks to seek assistance from subject librarians. In this regard, digitalisation brought in changes in the dynamic user populations and in terms of which both offline and online access and its new tools added to the complexity of the librarians' work (Jaguszewski & Williams, 2013).

Technology has now de-emphasised the physical boundaries which makes the reference librarian to have the entire population as their potential clients. In academic libraries, the Internet is accessible and available to anyone except in cases of databases requiring campus user authentication (Gerlich, 2009). Accordingly, Internet has enabled the majority of academic reference desk services to expand beyond their physical campuses, which requires cross-cultural awareness and competency in communication skills for fulfilling effective reference requests worldwide. It is in the latter regard that subject librarians offer virtual services (e.g. real-time live chat reference services) to assist remote online users in order to reach potential clients globally through networked systems the same way they would assist a walk-in person at a physical library

desk (Kamila, 2013). This also is the main type of reference that Unisa is using to reach its clients in any parts of the world.

Moniz (2014) states that another relatively recent development in the history of the library profession has been the implementation and continuous development of electronic resources. Libraries used to focus their efforts more on physical resources, but that has since changed as they (libraries) now also offer access to online databases, streaming videos, e-book collections and other virtual resources. These are coupled with the development of hybrid (online and offline) classes, learning management systems such as Moodle and Blackboard, and Massive Open Online Courses (MOOCs). All these developments have jointly led to a radical shift in the perception of library services and how users, administrators and other key stakeholders experience these services. Internet and web technology has engendered the development of massive numbers of online course offerings that have grown organically from past experimentations with the use of TV, radio, the fax machine and video cassettes (Moniz, 2014).

2.4.2 Changes in higher education and academic libraries

The post-modern era is characterised also by moments of significant technology-induced changes in the corporate/ private sector as well (Paniagua & Simpson, 2018). For instance, corporate monoliths and mergers are being formed in an attempt to mediate the negative factors such as downsizing of workers and work processes and systems. Moreover, rethinking of corporate strategic plans has also effectively reconfigured workplace patterns and organisational systems from closed hierarchical systems to novel flexible, open and virtual settings. Such corporate sector developments are essentially meant to enhance organisational progress and survival from extinction (Tinuoye, Omeluzor & Akpojotor, 2016). On the other hand, academic institutions of higher learning and their research responsibilities/ agendas have had to undergo and adapt to the rapid and radical changes in their external and internal environments (Glynn & Wu, 2003; Mpungose, 2020).

Consequently, their erstwhile teacher-focused curriculum modes are now compelled to transition from instruction-based delivery of content to more flexible and participatory learner-focused modes in which the learner or student is more of a producer than merely a consumer (Tinuoye et al., 2016). Therefore, such an environment compels that the important role of the subject librarian should be seen as contributing crucially to a user-driven, rather than a technology-driven library. The former (user-driven context) empowers and develops the subject librarian's capacity in training users to find information speedily on the web and in databases.

It is irrefutable that the evolvement of the library profession is incumbent on its self-redefinition in meeting the challenges imposed by the continuously changing information-based environment in order to improve its conditions and efficiency to its clientele, regardless of the library size or type (Nakhoda &Tajik, 2017). As such, the changing school librarianship concepts have an affinity with the Internet-induced environment on the one hand, and the new environment of enquiry-based learning on the other (Lo & Chiu, 2015). In the changing environment of higher education, academic librarians are now assuming roles and technical activities in staff and information management and support in order to produce excellent services that meet the users' expectations. Although they sometimes appear difficult to reconcile, these client/ user expectations and new librarian roles are emblematic of coping with internal and external changes and their attendant accountabilities (Cullen, 2003; Melo & Sampaio, 2006).

Academic librarians bear different titles based on their job descriptions and the broad diversity of faculties they serve (McLaughlin & Faulkner, 2012). For instance, not all academic librarians are required to publish, but may publish only to fulfil an internal desire of sharing their knowledge and expertise in librarianship. In this regard, librarians are a frequent feature at conferences presentations and proceedings to raise their profiles within the profession; or to enhance the librarianship reputation (McLaughlin & Faulkner, 2012). Unexpectedly, academic librarians have full-time positions structured within a working week similar to other LIS sectors, schools, and special and public libraries. Depending on their work schedules, most university and college librarians work on twelve-month contracts, unlike their teaching faculty colleagues (Gregory, 2005). In other instances, some librarians are tied to stacks of original cataloguing or public service desk schedules and often work eight-hour days that include evening or weekend shifts, but still manage to include research, creative activities, and publishing. As such, Gregory (2005) finds it to be very true that librarians are practitioners as well as professionals.

It is anticipated that the diversified needs of future library users could lead to an information demand overload occasioned by the proliferation of independent researchers influenced by self-access and open access collections services made available to them (McCaffrey & Breen, 2016). Notwithstanding, these users will still require advice and assistance from subject librarians concerning aspects such as database quality, search techniques and database development. Therefore, then, subject librarians will need astute judgment for advising clients about accuracy and quality of the information provided (Litsey & Mauldin, 2018). It is noteworthy that the academic library has shifted from being a centre of managing physical collections, to the important delivery of virtual/ technological services focusing on synthesised computer-mediated

functionality. Such functionality emphasised on communications software such as email, newsgroups, and online methods of delivering course materials, such as the websites.

As virtual learning environments, libraries focus on accommodating learning goals and styles different from the classroom setting (McCaffrey & Breen, 2016). Similarly, Unisa as a distance learning institution encourages collaborative and resource-based learning that allows greater sharing and re-use of resources. On the other hand, Wits as a contact learning institution as a stand-alone comprehensive academic and research institution, encourages collaborative and resource-based learning that allows a limited or closed sharing and re-use of resources.

Meanwhile, Moniz (2014) states that MOOCs in particular are typically open to anyone and are completely changing the higher education landscape. This has shifted the role of academic library liaisons more from knowing the resources in a given area towards establishing and building strong personal relationships with faculty in a given department, understanding faculty needs, and being able to assist faculty in new and often creative and collaborative ways. Such shifts are emphasised in a survey conducted on behalf of the Universities and Colleges Information Systems Association (UCISA), which found amongst others, that the virtual learning delivery environment enhanced teaching and learning, and significantly reached distance students (Corrall & Keats, 2011).

Subject librarians in higher education institutions are commended for their repertoire of teaching study and course design skills, because more and more students are asking questions that demand pedagogical and subject knowledge of the library staff (Hart & Kleinveldt, 2011; Machi & McEvoy, 2012). Therefore, their role in higher education institutions has become firmly established as a result of the indispensable co-operation required between teaching staff and information professionals in the provision of teaching and learning (Rodwell, 2001).

It is also to be noted that some political, technological and economic factors have compelled university teaching personnel to re-evaluate their traditional curricula offerings and delivery modes. In this regard, the advent of non-traditional higher education curriculum providers has introduced the deconstruction of traditional teaching activities, with academic staff no longer having sole responsibility for critical curriculum decisions in materials and delivery design; student services and support; interaction with students; marking assignments; as well as quality assurance of both course and teaching and learning process (Doskatsch, 2003; McCaffrey & Breen, 2016). This affords greater opportunities for subject librarians to assume an active educative role in contributing towards teaching and learning.

In some higher education institutions, librarians do more than just teaching. In this regard, academic librarians have been embedded in non-teaching activities, although in some ways their experiences are more diverse than those involved in information literacy instruction (Ntoka, 2017). Accordingly, subject librarians then become more than just librarians providing a service, but they become colleagues of the academic administrators and subject faculty. Shumaker (2012) supports Dewey's (2004) manifesto indicating that librarians, as methodological experts who work across all disciplines and nearly every sector of the university, are uniquely situated to contribute to core and strategic activities. Dewey further advocated that librarians should immerse themselves in all academic phases and facets; that is, research, teaching and learning and service, and that they volunteer for leadership roles.

The most effective contributions by subject librarians to challenges of higher education is in the realm of their assistance to faculty members' endeavours in helping students to filter, critically analyse and synthesise information from multiple information resources divorced from the traditional lectures and prescribed texts. In this regard, Doskatsch (2003), Herman and Butler (2019) and McCaffrey and Breen (2016), suggest that the library could contribute to the re-engineering of the learning and teaching environment by means of the following: providing resources that support development of curriculum; integrating information literacy and online learning resources into the curriculum in collaboration with faculty; intermediary/ facilitation roles to support resources and service access in the complex information environment; enabling simple, easy to use and direct access to resources and services; and ensuring librarians' involvement in curriculum development committees.

Given their indispensable roles in both information services and teaching support, the hiring factor of librarians can be one of the positive influences on employees and stakeholders in a higher education organisation (Bradutanu, 2015). To that effect, they are viewed as change agents with a bearing on the organisational structure and culture; management style; personnel policy and information systems; all of which shaping their new roles as subject librarians. Change management is important for resolving large or small individual or group problems, which may also be found in or more university division or departments, the entire organization, or one or on more aspects of the organisation's environment (Nickols, 2016).

Resistance to change is a natural reaction by those opposed to such change (Nakhoda & Tajik, 2017). Therefore, it is inevitable that change will be attacked by those whose security is endangered in defence of a current situation (*status quo*). However, resistance tends to diminish when there are no other alternatives (Franklin & Aguenza, 2016). According to Nakhoda and Tajik

(2017), in the case of libraries, the most influential personal factors contributing to resistance to technological changes include:

- Ambiguity: distrustful of the nature and outcomes of change;

- Threat perceived to current conditions: uncertainty about what will happen to an individual and her/ his roles;

- Habit: reluctance to changing current practices that are comfortable;

- Lack of interest: imbued with work disillusionment, indifference and poor or low motivation;

- Need for relearning: need to further instruction commensurate with emerging technology in the organisation;

- Inefficient rewarding system: the belief that material rewards should be in accordance with the new technology;

- Emotional reactions: anxiety, distress, fears of failure and lack of self-confidence during the process of the change;

- Lack of understanding: not realising that the change is positive and not worthy of resistance;

- Inflexible beliefs: not realising that current norms could adapt to the prevailing change;

- Hegemonic entitlement in the organisation: the feeling of a veteran with a long background, and cannot surrender to the new change in the organisation; and

- Misperceptions: negative views and doubts about the efficacy of the change.

In the technological era, the librarian is an agent for change rather than the change itself because of their role in helping users to be familiar with the functioning of a library in the internet age (Ramzan & Singh, 2010). The IT environment in which the librarians function compels that their evolving roles should also adjust and transition from traditional card catalogues to online public access catalogues (OPAC). In that regard, Qualiaroli (2017) and Ramzan and Singh (2010) propose the following general approaches:

- Developing software and MARC standards for electronic cataloguing of records;

- Purchasing and running the computers necessary for the software

- Teaching the public the use of the new technologies as a transition to more virtual environments;

- Moving from electronic databases (including the Internet) to logistical functions such as bar codes (including RFID); and

- Providing virtual reference services (via web-based chat, instant messaging, text messaging and email) in digitising initiatives for collections in the public domain, and teaching information literacy and technology classes.

The above examples are emblematic of the ways in which librarians are using technology to fulfil and expand upon their historical roles.

2.5 JOB REQUIREMENTS OF SUBJECT LIBRARIANS

This section outlines the subject librarians' job requirements in respect of their professional learning support. According to the American Library Association (2006:1), a subject specialist librarian is "a staff member with superior knowledge of a subject or discipline, with responsibilities for the selection and evaluation of the library's materials in the subject areas and sometimes with the added responsibilities of information service in the subject area and the bibliographic organization of the materials". The literature review sought to find out whether there was any further training required for subject librarians to align their roles in accordance with the new technological developments taking place in libraries. This section also explores the extent to which subject librarians do meet user needs, and any ameliorative measures could be taken to resolve any identified deficiencies. The ensuing section discusses the role played by subject librarians as hybrid learning support professionals as well.

2.5.1 Subject librarians as learning support professionals

Academic libraries have had positions for subject librarians and liaison librarians for years (Shumaker, 2012). These positions were mainly associated with specialised branch libraries, which were also linked to academic departments to provide convenient access to subject specific collections. This is still practiced by subject librarians at UNISA and Wits (Darch & de Jager, 2012).

In a study of university library subject specialists, McAbee and Graham (2005) found that the subject specialists actually ranked reference desk service as their most highly valued activity, with library instruction, reference provided in office consultations, and collections development as the next highly valued activity. The latter range of activities were followed by liaison with faculty departments as another highly valued activity. In higher education, embedded librarians are found to be teachers at all levels, from undergraduate to postgraduate level (Darch & de Jager, 2012). They teach in different disciplines, be it face-to-face classrooms or in virtual distance education environments. In such cases, subject faculty and librarians work closely together in developing the syllabus, designing assignments with application of information literacy skills, sharing teaching responsibilities and grading papers collaboratively. In some cases, librarians are addition to the course instead of becoming full-time partners. They also attend classes either in person or virtually, and act as consultants to students (Shumaker, 2012).

Reference is a frontline service to the public. As such, a reference librarian is expected to be welcoming and not intimidate clients because that could become a barrier to clients asking questions and seeking assistance (Darch & de Jager, 2012). Subject librarians should broaden their knowledge and learn to expect the unexpected, especially during instruction sessions, especially that more information is accessible online nowadays. In order for subject librarians to align their roles, they ought to adapt their partnerships within the larger domain of the institution's mission and the assumptions and the expectations of academic staff and the library's programme (Ojennus & Watts, 2017). Collaboration with teaching faculty is essential, although it could be challenging in cases of expertise that librarians bring to the partnership is misunderstood. Most importantly, librarians need to be aware of both the institutional and the library culture. In order to influence the faculty's view of librarians while also giving the librarians opportunities for collaboration with teaching faculty (Ojennus & Watts, 2017).

Academic librarians are considered as knowledge builders and experts by tapping into scholarly conversations and guiding students through epistemological typologies to assist them discover the relationships they could not be provided by any single department or professor. This is enabled by the expertise librarians provide by organising, evaluating and providing access to the required information, enhancing teaching, research and curriculum needs in different disciplines (MacColl & Jubb, 2011). All these play a key educational role in complementing the teaching faculty and disciplinary specialties. The faculties are now beginning to depend on librarians as a point of contact and experts in various disciplines; especially that the curriculum is more interdisciplinary and less structured with the ability to transcend subject matter (Gerlich, 2009; Macauley, 2001).

Subject librarians need to develop new measures based on a new paradigm in order to evaluate libraries and their changing roles. Librarians as educators also need to imbue students with the value of intermediated information resources. In this regard, Callister (2008) states that librarians need to spend as much time as possible "at their desks" because of budget constraints or misperceptions. While they are most often discouraged from participating in local, regional and national organisations, their networking capacity could be affected adversely. Librarians need to network, learn about best practices, new technologies and trends and know their counterpart in terms of need or reference should they not have sufficient resources and expertise within their respective organisations. This is better demonstrated in the vast interlibrary loans networks which librarians have built and the licensing consortia and advocacy groups (Turner et al., 2013; Wand, 2011).

The subject librarian's role is viewed as a combination of their traditional and contemporary duties in respect of teaching. In this regard, Gerlich (2009) outlines two distinct categories in reference service as follows:

- General: guidelines that are applicable in any type of reference interaction, including both in-person and remote library transactions. The UNISA library applies this type of reference as an open and distance learning institution; and.

- In-person: further guidelines that are specific to face-to-face situations. The Wits library as a contact learning institution, applies this type of reference.

Academic librarians perceive themselves as educators, teaching/instruction librarians, trainers, information coaches, and partners in learning and educational change agents (Doskatsch, 2003). Therefore, librarians ought to be conversant with pedagogical concepts as early as their pre-service education, which would position and empower them with key instructional skills, confidence and professional confidence similar to their academic partners (Doskatsch, 2003; Peacock, 2001). On the other hand, academic librarians are also perceived to play a pivotal role in advancing universities' strategic priorities through constant collaboration and embedding themselves in various avenues to ensure full integration of all aspects of the academic curriculum. Shumaker (2012) points out that personal librarians are designated by some academic institutions to help students with information problems just as academic advisors give advice on academic courses and programmes. In such instances, subject librarians in particular function as consultants on call, experts of the subject applying their expertise to meet information needs of all clients.

The visibility of subject librarians in the college or faculty meetings adds value to the physical co-location in developing relationships (Choy & Goh, 2016; Shumaker, 2012). This close proximity and physical presence (co-location) of a librarian in faculties contribute to the betterment of great partnerships and collaboration, and shows commitment in working with librarians since it provides the librarian with an opportunity to invite questions and conversation on library matters (Shumaker, 2012).

2.5.2 Specific job requirements of subject librarians

Subject librarians are expected to have practiced their subject areas depending on the faculty they serve (Moniz, 2014). For example, law subject librarians would have practiced law or have efficient technological skills. It is also common for a given department to have a librarian assigned to that specific department's course-related needs, and the librarian may also assist faculty members with their personal research projects (Moniz, 2014). Moreover, the librarians should be able to instruct, educate and think in a way students can respond to. Librarians can effectively

work on their professional relationships by providing instructional services, improving interlibrary loan services, facilitating difficult requests, and helping with symposium and student note topics (Moniz, 2014). They can also foster relationships of trust by negotiating competitions, working closely with student clubs and societies, and participating in student events (Callister, 2008).

Librarians also need to participate in the broader aspects of the university (e.g. grant funding and initiating new digitisation projects) and the local communities, thereby building new relationships outside of their traditional circles (Young & Kelly, 2018). Such new partnerships with their universities may lead to developments such as the acquisition of interdisciplinary databases, professional development opportunities and avenues to influence university policy on important areas such as information literacy, budgets, security, digital repositories, copyright policy, licensing practices and information technology services (Young & Kelly, 2018). The new roles of subject librarians imply they need to move beyond just training to educate students to recognise and appropriately use intermediated and disintermediated systems in terms of research technologies. They should also understand the power and influences of different search techniques such as the use of natural language verses and Boolean operators. This will also assist students to determine the relevance, interpretation and appropriate contextualisation of their search results. Clearly, the complexity of modern research requires subject librarians to be educators rather than trainers, and need to actively teach research skills and educate students on how to develop their thinking and problem-solving capabilities (Callister, 2008; Wexelbaum, 2016).

Librarians would continue to bear their traditional names, that of carrying out traditional duties of selecting, organising, preserving and providing access to records and human knowledge in whatever format. However, the capacity for users' direct access to information sources projects the role of future librarians to be digital reference librarians, technology experts, navigators, archivists/ information specialists, mediators, database developers and cyberspace organisers (Shafique, 2007). The technology-induced hybridisation of librarian roles necessitates flexible qualities and competencies, vision and the ability to think both critically and synthetically (Young & Kelly, 2018). It is emphasised that librarians ought to transition from the traditional "guardian of knowledge" to the more modern "intermediary" to that of the postmodern "enabler". (Shafique, 2007:22). As an enabler, a subject librarian learns and uses accumulated new ideas to network with others, and make use of the new sources to assist others to apply the critical information literacy skills needed to process information. The information professionals will therefore, become continuous learners to assume this creative role (Shafique: 2007).

Friedman (2005:238) advocated that librarians should also strive to become "untouchable" professionals and practitioners; that is, people whose jobs are "safe" and cannot be outsourced on the basis that they are special; possess specialised skills and knowledge; are "anchored" on the demands of their profession; and are exceptionally adaptable. Subject librarians are anchored over time since they initially did not have specialised knowledge in the sphere of technologically inspired service provision. Given this new technological environment, subject librarians have had to combine their specialised context knowledge and knowledge of specialised information sources and processing methods together with their generalised information management competencies, which adds unique value to their work (Peterson, 2013).

To some extent, the duties of the virtual librarian are perceived as assembling course packs, attending course planning meetings and the compilation of electronic, indexed subject guided in a library focusing on providing access to remote information sources rather than its own holding. In a hybrid environment, subject librarians are mostly responsible for integrating new systems and sources, and engaging in user instructions (Silka & Rumery, 2013). The subject librarians form a unique team in liaising with academic schools for the purpose of identifying, selecting and evaluating resources in varying formats. It has always been the core activity of subject librarians to provide appropriate materials that support teaching and research and facilitation of the use of materials through user instruction (Peterson, 2013). For several years, reference librarians were accustomed to being at their reference desks waiting for enquiries. Nowadays, subject librarians are at the forefront of information, and take information to the people via technology. A search can be conducted not only on a fixed location but also in meetings, while travelling, shopping, and so forth.

The librarianship profession has developed an emphasis based on the understanding to seek more information through the reference interview, which is a valuable skill they possess. Interestingly people do not think of starting at the library or at the reference librarian when they need information, but rather focus on their peers, colleagues, friends, families, classmates, and others. This behaviour is even applied to all, including the highly educated technical professionals (Shumaker, 2012).

Within the United Kingdom (UK) higher education library environment, subject librarians were often at the forefront of technological change, which makes their evolving role even more important (Ojennus & Watts, 2017). The increase in the use of IT, changes in the delivery of higher education and its enterprise culture increasingly rendered subject librarians to be highly involved

in teaching functions, which have hitherto been the responsibility of academics. This gap, however, is left to be filled in by support staff.

Librarians are part of the global world and function in a milieu of environments characterised by personal, home/ domestic, organisational, political, social, economic, ideological, educational and digital divide factors and circumstances (Shumaker, 2012). Accordingly, they function within influences of professionals, practitioners and all society role players, including the IT industries. In all these spheres, librarians have to secure a cyberspace future and balance the needs of the information poor and the illiterate; the poor and the rich; those with wireless access and those who do not have Internet connections (Litsey & Mauldin, 2018). They need to establish new relationships with information users, the community, the university and everyone who operates in every sector of the profession.

The conceptualisation of a librarian as someone who works in a library has changed. Library users no longer have to be physically present in the library, but can obtain information from various places and sources, and in various formats using an assortment of gadgets; such as laptops, smart phones and tablets. However, people visit the library for many other reasons, such as enquires about programmes offered in libraries, needing a quiet place for group discussion or study space, or for the use of computers (Harris, 2016). They may not come to ask for assistance from reference librarians, as a result of which this activity has declined (Shumaker, 2012).

## 2.6 SUBJECT LIBRARIANS' CHALLENGES

The study sought to explore challenges faced by subject librarians in relation to their job requirements, and how such challenges were resolved in those contexts. It was Newman, Porter and Young (2001:25) who ominously mentioned that "no profession will undergo more radical change between 2000 and 2010 than will the information professional". The question that could arise then, is how the librarianship profession will survive in the technologically intensive environment within which it is functioning irreversibly. It should be noted however, that librarians are not the only group of professionals whose jobs are constantly facing digitalisation and technological provision of services. Many other job categories outside of information and knowledge provision services are also affected by the new organisational and work patterns induced by technology.

### 2.6.1 Technological advances/ trends

From the dawn of technology, many people have wondered whether there was a future for libraries/librarians, or whether the profession was going to fade away. However, Moore (2010)

proposes that libraries may indeed fade away so that they become modified something and different, new and better unperturbed because they perform more than internet-based functions. Loestcher and Koechlin (2014) contend that many of the librarianship roles, have not necessarily changed in recent years. Rather, the changes that have occurred allocated in the preservation of information and provision of data. Therefore, the most important relates to how librarians fill-in their roles within the new technological trends.

User expectations, changing technologies and economics constitute some of the technologically induced challenges faced by the librarians. In terms of user expectations, many of these clients have been educated in an age of technology where a classroom without computers is unknown and unacceptable. Clients believe they are experts at finding data online, and expect immediate satisfaction of any need or enquiry. Students do not rely on objective data to establish reliability, but on the subjective sense of the validity of the publication (Loestcher & Koechlin, 2014). For subject librarians, it means the traditional instructional role has expanded. Accordingly, librarians should first persuade the student to recognise that instruction can be beneficial, and not only to instruct students on research methods. In this regard, subject librarians have found many ways to provide self-help material such as specialized research guides or just-in-time instruction such as podcasts to closely work with faculty in lecture rooms when delivering in-depth research. The role also encompasses training on online resources such as Blackboard, web courses and tools that may be used to provide relevant documents to students (Qualiaroli, 2017).

The change in client behaviour shows that they no longer need to personally visit libraries or ask a librarian for help. These clients are surrounded by technology, have access to web search engines and web content from their various technological gadgets. It is in this regard that Shumaker (2012) views the library reference desk as a very limited forum for resolving information needs. The author states further that the librarianship profession is being propelled by these technological trends to find innovative ways that contribute to resolving people's information-related problems both in society and organisations of all types. Dakshinamurti and Satpathy (2009:1) suggested, "the fact that technology allows the users to have direct access to the products of information has paradoxically made it all the more necessary for the librarian to reach out to the users in a proactive manner".

Technology may not have shaped the librarians' experience, but it has changed their expectations in terms of how quickly they can obtain requested documents, and at what cost (Mwaniki, 2018). The students who usually recognise the library's services are those who discover a reference librarian during their first year working on their research assignments. Others attempts to do that

on their own but fail, and then seek assistance from the librarian because they realised it could result in an efficient and quick search. Therefore, subject librarians should strive to make students aware of their role and encourage a willingness to ask them for assistance (Ntoka, 2017).

Another challenge is that students are still anxious about logging on to the systems and may feel excluded from the developing online community (CHE, 2014). It has also been observed that most librarians, experience techno-stress irrespective of the type of information environment they work in. Technology is perceived as a quality producing factor and a major catalyst in job and morale satisfaction for experienced subject librarians.

The main competitors in the information marketplace are perceived to be the computing companies, business and management institutes, technical information centres and information agencies, learning resource centres, cross industry alliances between cable, telephone and software, and managers of global media corporations (Ray & Macy, 2014). Given this competitive environment, librarians are then compelled to be innovative and define their roles in an information model to overcome the learning resource and technical information centres which are being developed in advance for the purpose of counteracting the emerging technologies. The new emerging trends will reinforce changes in curricula and address future challenges with more focus on increasingly complex ICT skills, value-added research and information retrieval and brokering and continuous learning (Ray & Macy, 2014).

The other most potent factor in librarians' struggle for definition is the perception that technology is gradually constricting the life out of the profession, and will ultimately replace librarians with electronic equivalents (Schroeder & Hollister, 2014). Prior to the advent of electronic information technologies, librarians were the undisputed caretakers of the knowledge contained in print resources. The digital evolution has now reconfigured this belief.

2.6.2 Embedded information literacy and virtual learning

In the context of this study, the notion of embeddedness implies integration into an online class, and thus connected to each student (Moniz, 2014). Most authors recognise that "embedded" usually refers to being connected to the class in a virtual sense. This connection allows the librarian to view assignments and posts, and to interact with students at a closer one-on-one level and with a deeper understanding of course content and needs (Moniz,2014). Information literacy is a key component of lifelong learning, and is most instrumental to the mission of higher education. This form of literacy enables students to excel in course content and expand their research projects

beyond the classroom, become more self-directed, and assume greater control over their own learning (Young & Kelly, 2018).

Embedded librarianship in higher education proceeds from a longer tradition of subject librarians but transcends the tradition in important ways ((Moniz, 2014). Embedded librarians integrate information literacy into classroom instruction and virtual or distance education. Embedded librarians are involved in introductory courses for first year students, advanced seminars for upper-division undergraduates, and at all levels of graduate education, including PhD programmes (Shumaker, 2012). They are shaping research assignments, presenting lectures, and conducting class exercises, creating self-paced tutorials embedded in courseware, and even participating in the grading of student work.

As embedded information literacy organisations, library associations will function as pressure groups for the rights of LIS professionals (Shumaker, 2012). Amongst others, they will be concerned with devising codes of ethics for library professionals, intellectual property rights and acquiring support for libraries in the community. This does not diminish the fact that library associations should exist to unite librarians through various means such as holding of meetings and conferences, support the better administration and development of libraries, improve the status and qualifications of librarians, promote legislation, encourage bibliographical study and research and represent the LIS sector to Government and other stakeholders to enhance the progress of libraries and librarians.

In most institutions, the virtual learning environment content is maintained by academics, while subject librarians collaborate with course tutors to form subject teams. In the context of this study, Wits academics expect subject librarians to provide the best to its residential students (Corrall & Keats, 2011); whereas co-operation between library and academic staff at Unisa is still to develop the expectations (Biophy, 2005; Secker, 2004; Adeniran & Unuigboje, 2018). In many other instances, the idea of embedded library-faculty cooperation has been marred by claims of subject faculty members resisting the idea of partnerships with librarians Shumaker (2012:59). Such a situation of claims makes it difficult for the academic librarian to effectively apply the available technology for students' benefit, which is in itself counter-productive to the value of embedded information literacy instruction (Shumaker, 2012). It is in the latter regard that embedded librarians lament the loss of communication and collaboration with their librarian colleagues (Miller, 2011). Such isolation could be socially and emotionally damaging as it inhibits knowledge sharing and affects the librarian's performance evaluation. Contrastingly, McAbee and Graham (2005) report that librarians who work closely with faculties experience less problems.

The future (long-term) sustainability of subject librarians' partnerships with academic departments is still unclear, considering that development of the electronic library is inextricable from academic teaching in the new flexible student-centric pedagogic mode (Baker & Evans, 2011). Subject librarians may still encounter challenges even with clients who have advanced computer skills that could be rendered ineffective without the intervention of a highly knowledgeable reference librarian who is equally conversant with different ways of searching the current intricacies of electronic resources. Other library-faculty challenges relate to faculties not providing sufficient space for subject librarian to teach, or including them in meetings, activities and initiatives (Baker & Evans, 2011). Such exclusionary perceptions are contrary to the embeddedness of academic learning and teaching with technology-inspired information literacy, which essentially enabled valued resources (e.g. quality-assured journals) to be accessed asynchronously from anywhere in the globe. There are still some academic institutions that are of the view that they can do without libraries completely, since libraries only exist for licensing of user access to online information and knowledge services.

A critical skill is required to a virtual client who never set foot in the library building. A thorough introduction and the same level of assistance in navigating various databases available on the website is also critical to such a virtual client. Wexelbaum (2016) alludes that the interactions of a virtual interview, while similar to live consultations, maybe more time consuming due to the nature of the asking and answering process. Some of the challenges include the typing mode while waiting for a typed response, when conducting the reference interview, on the other hand multitasking clients who may focus their attention somewhere else. Another time consuming are steps taken in explaining the procedure in information retrieval techniques screen by screen than the in-person client interviews especially if the native language between the librarian and the user differs. Other challenges with virtual clients relate to issues of compatibility and connectivity and technical problems (Wexelbaum, 2016).

Another fundamental challenge subject librarians face today is that of the ongoing struggle for definition and identity. In this regard, the difficulty experienced by library users is that of understanding precisely what librarians do (Turner et al., 2013). Such a situation prevails, because users find that some are employed in the library and identified as professionals, while other library workers are not considered as such. These are some of the perceptions and problems that form the root of many challenges librarians are faced with in the information age.

Among some universities, the pedagogic transformation challenge has compelled coalitions and co-operative endeavours between academic staff and other professional staff, including librarians

in order to diminish the impact of functional silos and their detrimental impact on learning and teaching in that many academic staff were reluctant to accept collaborative programme planning and teaching together with professional library staff (Doskatsch, 2003; Turner et al., 2013). To this effect, there seems to be some disjuncture between what librarians perceive and the beliefs of senior academics. Not all academics are fully conversant with the latest technological advancements and have time for self-sufficient information seeking. Most still need the services of librarians to support their research and literature searches. The library-student relationships also pose challenges, and require library services to be effectively expanded through outreach programmes to prevent students' under-utilisation and poor understanding of services that librarians offer (McLaughlin & Faulkner, 2012).

Librarians' operating assumption is that all librarians are interchangeable in a traditional reference work according to which it is expected that librarians should deliver consistent service unhindered by the nature of the request. In other words, they are expected to deal with any client and with any query they encounter since they work in multi-purpose environments (Shumaker, 2012). There is the (mis)perception that librarians who develop closer relationships with faculty groups or research groups also inadvertently dilute their relationships with central library staff and operations. Such a view entails that the value of embedded information literacy instruction is attenuated, and therefore, deny space for subject librarians for other commitments such as funding, offering time in meetings, and many other initiatives. On the other hand, poor communication is also identified as another challenge that is inimical to building relationships between the subject librarian and various academic units. Shared goals and collaboration needs to be established for better communication and social relationships (McLaughlin & Faulkner, 2012; Shumaker, 2012).

## 2.7 A BRIEF REVIEW OF RELATED STUDIES

A study by Chanetsa and Ngulube (2016) ascertained the impact of technology has been such that subject librarians have had to update and rethink their responsibilities, roles and skills in order to remain adaptive and relevant in the new information-driven environment. The study also showed that subject librarians' roles have not changed fundamentally, but the technological emphasis has definitely changed. Generally, the duties of subject librarians mainly addressed the following areas: supporting the learning, teaching and research initiatives of faculty, students and staff from respective departments in their subjects or disciplines (Chanetsa & Ngulube, 2016). Such support also extends to the selection, management and dissemination of discipline-specific information; training and empowering users in life-long learners and independent information users for their various interests and needs.

The above-cited study concluded that subject librarians were considered as knowledgeable in the entire sphere of information, regardless of subject area. Despite the many duties they perform and the challenges experienced, their job was found satisfactory by many, which augurs well for the future of the profession. Challenges encountered in the profession over time were largely due to developments in technology, which affected the methods of task performance, compelling subject librarians to frequently upskill themselves for relevance and effectiveness (Chanetsa & Ngulube, 2016).

Another study by Mugwisi (2015) focusing on information literacy also highlighted the role of librarians in an ICT era. The study found that as more and more Internet influenced the way information is made available, users still required certain skills to wade through voluminous information mounds in order to identify the appropriate information they required. The role that librarians play in this regard was that of creating information literate graduates (Mugwisi, 2015).

In the study by Burke (2002; Veeranjaneyulu & Prabhakar, 2018), it was found that the Internet and increasing developments in the World Wide Web have ushered-in further change in respect of encouraging users to be independent researchers motivated by open access collections and self-access services at their disposal. The study examined the role of librarians in the virtual library environment as compared to the role they have filled in the past. It was established that there was insignificant distinction between an archive and a library in its primordia mode of existence. The librarian's role emerged from a collector and preserver of information resources to a professional involved in complex organisation, dissemination of, and access to information (Karasic, 2016). The self-same study by Burke (2002) established further that librarians were concerned with the safety of their roles in the virtual library environment. This study showed further that many searchers, especially the novice Internet-users, could not fully exploit the benefits of search engines. Consequently, they were unable to retrieve pertinent information without the librarians' professional assistance. The study proposed that librarian's roles would continue to include selection of suitable resources, providing access to such resources, offering instruction and assistance to users in interpreting resources and preserving both the medium and the information contained therein. As such, librarians would continue to represent information access issues of access to both individuals and the broader society (Karasic, 2016).

The study by Melchionda (2007) established that librarians were now actively involved in the building of online courses by providing assistance in respect of finding current and valid information for Internet instructors, who ought to be flexible and open to the benefits thereof to

users. The study also found that librarians have to improve and transform some of their core skills to the new information and technology environment. The study further underlined the future professional existence of librarians on account of designing strong user-centred perspectives. Furthermore, the study also declared that librarians would remain in demand, their future is exciting, they have changed and modernised their practices and attitudes, becoming more like information scientists (Melchionda, 2007). The study further established that librarians in the Internet age needed to be familiar with their patrons' new information habits and their working environment.

The study by Shen (2006), found that higher education information competency has become an increasingly significant issue occasioned by technology-induced changes. Furthermore, academic users, faculty and students were becoming more dependent on the librarians for information they needed for their learning, teaching and research. The study found that librarians were educators, researchers, subject specialists, web designers and information specialists. They were at the forefront of enhancing the curriculum and have become effective information resources for educating students, enabling them to continue their life-long learning.

The study by Otiango (2016) established that the role of librarians at the University of Nairobi has not changed significantly in respect of their duties, functions, responsibilities, and processes. What was found to have changed was the intensity of their roles. Overall, the main challenge was found in staff re-training and ICT use.

## 2.8 SUMMARY OF THE CHAPTER

This chapter provided a literature-intensive overview of the functions of librarians and how they have evolved over time as a result of the impact brought by information technologies. Subject librarians were generally employed on the basis of their subject specialist knowledge in the involvement of liaison, collection development, reference enquiries, user education, compilation of bibliographies, cataloguing and classification (Gaston, 2001). However, their subject knowledge has enabled them to provide a high quality of user-oriented service in the rapidly-changing information industry.

The role of subject librarians has been transformed by the impact of electronic information access. The increasing access to electronic information has correspondingly necessitated users skills to navigate the very electronic resources. Learning style changes from teacher-centred to student-centred learning requires students to interact with learning, and not only acquire knowledge from the lecturer in tutorial rooms (Harris, 2016; Mwaniki, 2018). Consequently, subject librarians are

increasingly engaged in study skills instruction centred on the use of electronic resources and closer cooperation with academic units.

The subsequent chapters focus on the current and emerging roles of subject librarians at the two selected academic institutions, the contact learning (Wits) and the open and distance learning institution (Unisa).

# CHAPTER THREE
# RESEARCH METHODOLOGY

## 3.1 INTRODUCTION

The previous chapter fundamentally addressed the pertinent literature approaches and perspectives that were garnered by the researcher in the quest to obtain the theoretical foundational tenets pertinent to the research topic (Astalin, 2013). The present chapter focuses principally on the research methodology as both a factor and product of the very literature review itself, and as materially relevant in the construction of a methodically developed pre-investigation framework for the ways in which data was collected with the utilisation of specific research instruments or tools (Babbie, 2014). While the chapter mainly focuses on the research methodology, it is worth mentioning that the term/ concept, "research methodology" invokes different forms of understanding by different research practitioners, professionals and scholars, depending on their intellectual or scholarly traditions, persuasions or cultures (Bell & Waters, 2014). In this regard, some research scholars perceive "research methodology" as synonymous with, and encapsulating "research design" and "research methods"; while others differentiate between these three research nuances. According to the latter view (differentiation), "research methodology" is viewed as distinct or separate from "research design" and "research methods" (Anderson & Poole, 2014). For purposes of uniformity and consistency in this study, an inclusive approach was adopted, in terms of which "research methodology" is understood as different from, but complementary to "research design" and "research methods".

Research methodology is the systematic process according to which the planning, design, strategies and overall direction of the study is structured and framed (Corbin & Strauss, 2015). It is on the basis of its research methodology that a study's philosophical orientation also provides and defines concomitant processes and mechanisms intended to contribute towards resolution of the research problem, achievement of the research aim and objectives; as well as cogently answering the research questions. Most importantly, the research methodology is also prominently valuable insofar as guiding and providing informed decision-making regarding the nature and type of tools or instruments required to generate data, as well as the appropriate processes and procedures for analysing and interpreting the very data in its preparation for developing the much-needed findings of the study (Corbin & Strauss, 2015).

It is in the context of the capacity of the research methodology to yield structure to the study, that the current chapter is fundamentally delineated into: the research paradigm, research design and approach; research setting; population and sampling procedures and methods; data collection,

analysis, and interpretation processes; as well as an overview of the pertinent ethical issues and trustworthiness of the study.

## 3.2 RESEARCH PARADIGM

Rossman and Rallis (2017) and (Bak, 2013). view a paradigm as a basic set of beliefs and philosophical perspectives that guide or inform the researcher's construction of reality, understanding of nature (environment), knowledge and interactions amongst individuals in society. According to Denscombe (2014), it is on the basis of their paradigms that researchers are inspired to embrace particular perspectives or worldviews regarding the nature, implications and magnitude of the phenomena they are investigating or studying. Positivism, interpretivism and pragmatism are three of the most commonly used research paradigms in research studies.

Positivism is mostly associated with quantitative study because its objective is to measure variables of a phenomenon, rather than seeking explanations that are based on non-numeric interpretations (Bak, 2013). Furthermore, the positivist paradigm or worldview is held in high esteem in quantitative research because of its objective approach to scientific knowledge. On the other hand, interpretivism is highly regarded for its focus on the construction of truth, knowledge and reality as interpreted by those with sufficient knowledge on the subject matter being interpreted (Denscombe, 2014). As such, the interpretivist research paradigm or worldview is most recommended for research studies, based on its capacity to allow the researcher to explore the phenomenon under investigation actively with the participants in their environment (Denscombe, 2014). It is on account of these features that interpretivism was most appropriate in this study and its implementation of research instruments such as interviews and focus group discussions from participants in their own familiar ecological surroundings.

Meanwhile pragmatism entails both qualitative and quantitative aspects (mixed-methods) of research into a single study. Furthermore, the pragmatist approach is guided by what is applicable and practicable rather than being constrained by the research ideological parameters of either of the two dominant (qualitative or quantitative) approaches (Connaway & Radford, 2017). As such, pragmatism was not entirely applicable in this study, whose interpretivist philosophical orientation and qualitative methodological designs were most desirable to facilitate the nature of the researcher's engagement and interaction with the participants (Connaway & Radford, 2017).

## 3.3 RESEARCH APPROACH

The research approach relates to the strategies designed and subsequently applied by the researcher to ultimately render the study as a credible outcome of both the philosophical and methodological

parameters that underpinned and guided the self-same study's implementation and completion (Connaway & Radford, 2017). Furthermore, the research approach is not adopted in isolation of the research problem, aims and objectives of the study, and the data collection and analysis processes and procedures of the study. Connaway and Radford (2017) submit that there are three dominant research approaches, each linked with a particular philosophical perspective or paradigm. For instance, the quantitative research approach is commonly associated with the positivist paradigm, and the qualitative research approach is mostly attached to the interpretivist paradigm; while the pragmatic perspective/ paradigm is adaptive to the mixed-methods research approach. According to Green and Thorogood (2018), the most crucial factor that differentiates the three above-cited research approaches largely premises on characteristics or aspects such as the extent of deduction and induction; emphasis on hypothesis generation or testing; as well as the predictability and explanations associated with the tested phenomenon and standardisation thereof.

In consonance with its adopted interpretivist philosophical paradigm, the current study has adopted the qualitative research design. Alvesson and Skoldberg (2017), Creswell (2018), and Denscombe (2014) attest that the qualitative research approach is advantageous for its facilitation of the researcher as both a participant and the primary instrument for information collection. The researcher-as-participant emanates from the view that he/she is actively (and subjectively) involved on the field seeing, hearing and feeling the emotions of the participants as they provide their feedback and input to the questions posed to them by the researcher (Edmonds & Kennedy, 2013).

Therefore, the study has adopted the qualitative approach with an exploratory, descriptive and analytic orientation. The exploratory element implies that the researcher-as-participant is imbued with a sense of finding out more information (exploring) and details about the investigated phenomenon (i.e. the role of subject librarians in the information technology era) (Creswell, 2018). Whereas the exploratory aspect is mostly concerned with answering the *what, who,* and *where* questions, the descriptive aspect delves more on the *why* and *how* questions, since description entails provision of more details and explanations of that which is being explored (Corbin & Strauss, 2015). On the other hand, the analytic aspect depicts an expanded combination of both the exploratory and descriptive aspects in that, the researcher assembles all the information collected, and converts it into intelligible components that collectively provide answers to the research questions (Creswell, 2015). For these reasons, the qualitative research design approach was deemed to be more oriented towards the researcher's participant-centric interest than would have

been the case with the more restrictive and rigid quantitative approach and its detachment from the human 'feel'.

## 3.4 RESEARCH DESIGN

Bell and Waters (2014) and Flick (2014) refer to the research design as a systematically designed and executed plan outlining the entire research purpose, with particular focus and emphasis on *how* the data will be collected, analysed, and *which* instruments type will be utilised to make it possible for the investigator to respond to the questions he or she has posed. Without such a methodically designed plan for the specific requirements of the study, the overall research initiative could be rendered futile, worthless or even unscientific (Flick, 2014). According to Bryman (2012), the following five types of research designs are regarded as prominent in research studies: experimental and related designs; cross-sectional or survey designs; longitudinal design and its variable forms (e.g., a panel study); comparative design; and case study design. All the above-cited forms research designs instrumental in the generation of research findings (Harding, 2013). The case study research design was opted for, in this study, and is briefly explained below.

### 3.4.1 Research design: Case study

Neuman (2011) posits that a case study is a detailed investigation of an extensive quantity of information in the research field about every smaller cases or units over a specific period or across several periods of time. Additionally, Yin (2014) intimates that a case study is an empirically oriented inquiry of a prevailing phenomenon in its real-life manifestation, particularly in situations where the contextual separation of a phenomenon's variables becomes difficult to establish. In a case study, data is comprehensive and profuse, to a point beyond saturation despite that the focus is only on a few cases over a very limited time frame (Yin, 2014). Therefore, emanating from all the case study features and aspects above, it is evident that the single most distinguishing characteristic is the situatedness of the scope (delimitations or boundaries) of the object of study (Neuman, 2011).

In case study designs, the "case" itself could be a single person, group, institution, a specific policy, a programme, phenomenon or community; all of which serve as reference points of some known or unknown aspect/s or characteristic/s of the self-same case (Harding, 2013). It is possible for a researcher to investigate more than a single case, or even compare a specific set of cases by focusing on various attributes of those cases. It is against this specific background that Creswell (2018) views a case study as a qualitative design in terms of which the researcher is engaged in exploring a bounded system (a case) or more than a single bounded system (cases) over a specific time period by means of comprehensive in-depth methods of data

In this study, the researcher applied the comparative multi-case study design to compare certain aspects or manifestation of subject librarian roles and practices at two academic institutions (UNISA and WITS), each with its own disparate organisational mission (Bunting & Cloete, 2004; Darch & de Jager 2012). Multi-case or comparative case studies necessitate that the acquisition and analysis of data from the investigated cases be distinguishable from a single case study and its embedded sub-units or sub-cases (Creswell, 2018; Henning et al., 2013).

## 3.5 STUDY AREA/ CASE SETTING

The study area or case setting refers to the specific geographical location or physical place where the researcher is undertaking the investigation (ref). In addition to the *place*, the setting also relates to the contextual dynamics the *time* during which the study was/is held. Time in this instance is irrelevant to the clock connotation, but means a historical era during which the study was undertaken (ref). Accordingly, the study was held with UNISA librarians in Pretoria, and also in Johannesburg with selected WITS librarians. The study was conducted in (year), in a post-merger era following the reconfiguration of the South African higher education ecology. The *time* emphasis is of particular relevance in this study. It (historical period) also serves as an indicator of the extent to which these two academic libraries have contributed (or not contributed) to overall improvements in the quality of higher education services (Paniagua & Simpson, 2018; Turner et al., 2013).

UNISA is an open distance learning institution, and Wits is a contact learning variant. Collectively, the libraries of both these higher education institutions have been in existence for more than 70 years, and have more than 10 library branches whose access is network-connected to serve users nationally, continentally and beyond. At the time of this study, UNISA had a headcount of 300 000 students and over 4 000 academic and support staff (UNISA, 2020); while Wits University had over 18 000 students and about 6500 academic and support staff (WITS, 2020). Furthermore, the UNISA library has an overall collection of more than 2 (two) million titles; while the Wits University library has over 1,5 million collections (UNISA, 2020; WITS, 2020).

## 3.6 STUDY POPULATION AND SAMPLING

The study population pertains to the totality of all units or subjects that conform to a pre-determined set of requirements, specifications or standards that are homogenous in respect of the object of study (Henning et al., 2013). The latter author further adds that the study population comprises the entire group of persons that are of interest to the researcher and to whom the research results could be generalised.

Based on its focus, the study population in this study comprises subject librarians of all categories at institutions of higher learning. However, the impracticalities of involving the entire study population necessitated that the researcher should target a specific group of librarians from which a sample could be drawn, and to which the results from a sample are generalised (Neuman (2011). In that regard, the target population for this study is comprised of all subject librarians who are directly allocated to deal with subject related queries at both the Unisa and Wits University libraries.

These participants have different job titles, but share common responsibilities of a subject librarian in their various institutions. The subject/ personal librarians at Unisa were from the College of Economic and Management Sciences, College of Law, College of Education, College of Accounting Sciences, College of Human Sciences, College of Science, Engineering and Technology, College of Graduate School of Business Leadership, College of Graduate Studies. On the other hand, the targeted librarians at Wits University were from the Faculty of Commerce, Law and Management, Faculty of Engineering and Built Environment, Faculty of Humanities, and the Faculty of Science; and categorised as branch librarians, principal librarians, senior librarian, and faculty library managers.

## 3.7 SAMPLING METHODS AND PROCEDURES

Sampling is essentially the selection of prospective participants on the basis of the homogeneity or similarity of qualities, characteristics or attributes in relation to those possessed by the larger group (study population) from which they were chosen (Saldana, & Omasta, 2018). In addition, sampling methods and procedures are influenced at two levels, namely, context and participant sampling. In this case, the sampling of context considers the varying dynamics of an open and distance learning environment (UNISA) and those of a contact learning environment (Wits University). Meanwhile, the sampling of participants renders the viability of the study on the extent of efficacy of its primary or empirical domain in respect of the sample generated from all the subject librarians in the two academic institutions.

### 3.7.1 Sampling methods

Research questions serve as the basis on which the choice of sampling method or approach is sought (Ritchie & Lewis 2011). Purposive sampling was the primary method of selecting participants for their involvement in this study. Purposive sampling is a non-probability form of sampling which implies that it is not necessary to randomly select participants, and that the sample is not necessarily generalisable. Regular-centred sampling is another term associated with

purposive sampling, and involves choosing sample elements according to known characteristics from the viewpoint of the researcher as one whose judgement, knowledge and experience of the research environment is critical for the attributes of such sampled group (Ritchie & Lewis 2011). The benefit of using the purposive sampling is that the researcher is familiar with the participants under study based on her profession as a librarian in UNISA, which assisted the researcher to identify the appropriate participants at both the Unisa and Wits University libraries.

Purposive sampling is a variant of the non-probability sampling type, which does not safeguard the opportunity or chance of every person's selection in the sample with certainty/ probability (Saldana & Omasta, 2018). Other examples of non-probability sampling include theoretical, opportunistic, cluster, quota, convenience and snowball.

### 3.7.2 Sample size

The sample size basically relates to the actual number of participants who were finally sampled for involvement in the study for its empirical purposes (Thomas & Magilvy, 2011). The choice of participants and research sites is also a factor of how many documents to read, the questions being asked, the nature of data being sought, analysis in progress, and the resources available to support the study (Astalin, 2013). The sample of the current study consist of a total of 25 participants, 10 from Wits University and 15 from Unisa.

### 3.7.3 Sampling criteria

The sampling criteria refers to the basic considerations of the researcher in identifying participants who took part in answering the interview questions (Thomas & Magilvy, 2011). It is on the basis of the researcher's sampling or selection criteria that participants could either be included or excluded in the study. Accordingly, the following criteria were applied in the study:

- both male and female Unisa and Wits University librarians for more than one year working at the institution;
- librarians who were willing to participate voluntarily without any coercion, and respond to the interview questions;
- librarians who were highly knowledgeable in the profession of librarianship; and most importantly
- librarians whose core duties entailed subject librarianship.

## 3.8 DATA COLLECTION PROCEDURES AND INSTRUMENTS

Data collection essentially refers to the accumulation of information from both primary and secondary sources in order to translate or convert it into meaningful evidence of the study (Astalin, 2018). According to Creswell (2018), the most distinguishing features or aspects of data collection in qualitative studies are underpinned by the researcher's participation in the setting or field; observing research proceedings directly; and ultimately analysing the collected qualitative material.

**Participating in the setting**: it is about the researcher's relationship with participants. Such relationship enables the researcher to understand the viewpoints of the participants, their culture and emotional state of.

**Analysing documents**: processing and categorisation of documents and any other materially relevant source of data and information pertinent to the study. An appropriately conducted analytic process can enhance the researcher's participation and further interpretation of both onsite proceedings and literature-based perspectives. In this study, data collection was enabled primarily by means of the literature review (for theoretical/ secondary data), and in-depth semi-structured interviews for the empirical domain of the study. These are discussed below.

### 3.8.1 Literature sources

The review of literature sources was sufficiently addressed in Chapter Two. However, literature sources are worth mentioning in this section as well in order to highlight the importance of these sources as a verifiable mechanism of data collection, and not merely as an end in itself (Alvi, 2016). As a stand-alone data collection mechanism, literature sources were crucial in providing the theoretical background for the construction, development and implementation of the interviews, which was essential and enabled the researcher's better understanding of the interview mode of data collection.

### 3.8.2 Interviews

In essence, an interview is a verbal conversation or dialogue between the researcher and his/her participants, during which the researcher is able to observe the body language of the participants as they are usually not captured in the audio recordings (Patton, 2015). Interviews may exist in different forms, but the purpose is still to obtain information from the participants concerning some specific aspects of the research problem. In this regard, interviews may be structured, unstructured or semi-structured.

Cassell (2015) and (2x ref) allude that structured interviews are more formal and subscribe to a strict sequence of inflexibly structured questions. Semi-structured interviews are less formal and flexible, allowing the researcher to divert from the interview schedule based on the interview environment. In such instances, the researcher is able to direct the interview proceedings with the implementation of probing questions to elicit more answers from the interviewees. Furthermore, semi structured interviews enable the researcher to direct more focus on the specific issues of interest to the study.

On the other hand, unstructured interviews are characteristically informal, un-standardised and depend more on the researcher's ingenuity and interview skills (Alvi, 2016). In such cases a "grand tour" question may be used throughout the interview use. In this study, semi-structured and in-depth interviews were held with subject librarians as key informants, the purpose of which was to elicit detailed and comprehensive information concerning their roles in their respective academic libraries (UNISA and Wits); particularly in the contemporary error dominated by ICT as the critical driver of accessing information.

The core interview purpose depends mainly on the two partners (interviewer and interviewees) and their enthusiasm to participate in a profound conversation and dialogue concerning the subject under investigation. It is in that regard that Brinkmann (2013) defines interviews as a face-to-face verbal exchange in which the interviewer aims to elicit information or expressions of belief or opinion from the interviewee. Therefore, the critical part of a successful interview is based on the researcher's ability to follow up questions asked, and to expand on.

In this study, the in-depth semi-structured interviews were held *virtually* through Microsoft Teams on scheduled appointments with the participants. It is to be noted that the virtual nature of the interviews was necessitated by the researcher's adherence to Unisa's Covid-19 risk-adjusted regulations that prevent physical contact between researchers and their participants (UNISA, 2020).

*3.8.2.1 In-depth semi-structured interviews*
In-depth semi-structured were held with subject librarians of each institution (Unisa and Wits) as key informants. They were targeted in this study on account of their profuse work experience. The subject librarians were used as facilitators for the research, rather than solely relying on the information received from other librarian categories (e.g. personal and/ or reference librarians), as there could probably be some inconsistencies in their testimonies regarding service delivery

experiences in the library (Onwuegbuzie, Leech & Colins, 2010). The in-depth semi-structured interviews were used to ascertain the status and roles of the librarian heads in an academic environment. This group may express other important issues that may have not been expected by the researcher or would have come from the ensuing focus group discussions. In this study, the in-depth semi-structure interview facilitated for lesser groups in a clustered dialogue or conversation on some specific theme. This is another way of rapidly collecting data appropriately from numerous individuals at once, and clearly letting people to network.

In qualitative research, interviewing in depth is a broadly recommended method to create data from discussions taking place between two or more individuals about an importantly shared subject in terms of which the role of the interviewer is basically to intensively explore the interviewees' knowledge about a topic (Stewart & Shamdasani, 2015). Accordingly, an attempt was made during the in-depth semi-structured interviews with the librarian heads to obtain a more detailed understanding of the inherent challenges experienced by librarian heads. In-depth interviews were conducted after obtaining a better insight into the study area and with the help of the key informants and focus group discussions.

Fifteen (15) subject librarians from the Unisa library and another ten (10) from the Wits library were selected for involvement in the *virtual* in-depth semi-structured interviews following scheduled appointments intended to prevent any disruptions occurring in the daily routines of these participants (Marshall & Rossman, 2016). The focus of the semi-structured questions was on topical issues such as: (i) traditional, current and emerging roles of subject librarians; (ii) duties and functions of subject librarians in academic libraries; (iii) factors that have shaped or influenced the roles of subject librarians; (iv) challenges the subject librarians face in their new roles); (v) current job requirements of subject librarians; and (vi) recommendations to improve subject librarianship.

Other salient topical issues addressed during the in-depth semi-structured interviews included issues regarding the specific roles of subject librarians at academic institutions (with reference to the University of the Witwatersrand and the University of South Africa libraries); the effect of networked information on subject librarians and the library profession; the perceptions of librarians with regard to performance to their roles in the information age; whether traditional roles of subject librarians have a bearing on their current roles; the further training required for librarians in order to align themselves to new technological developments and evolving needs in library operations; as well as the actual duties and responsibilities of subject librarians.

## 3.9 DATA CAPTURING AND ANALYSIS

Data capturing preceded its analysis. To this effect, Creswell (2018) propounds that observational and interview protocols (in the case of this study) were relevant instruments to both enhance and facilitate the data capturing process.

On the other hand, the interview protocol entails a plan (such as an interview schedule) in which interview questions are asked, and recordings are prepared as a record of the answers provided by those being interviewed (Creswell, 2018). The latter author proposes for researchers (i.e. interviewers) to have approximately two pages of the interview protocol in length with a total number of questions ranging between 5 (five) and 10 that were prepared timeously well in advance of the actual interview sessions. Creswell (2018) recommends further that the interview protocol should encompass some basic significant components, such as: an introduction, interview content questions, clear response outlines to the interviewees; as well as with regular reviews and concluding orders.

Working as a librarian in UNISA library allowed the researcher to gather data related to the impact of ICT on subject librarians' roles in the system. The researcher also visited WITS and asked questions on the experiences of subject librarians in the contact learning system. The data gathered enabled the researcher to compare their current roles in the two universities with disparate organisational missions as prominently evidenced in their curriculum missions and student demographics (Harman & Meek, 2002; Qualiaroli, 2017). All the data captured were carefully transcribed as preparation for the ensuing analysis and interpretation processes.

### 3.9.1 Data analysis and interpretation

Data that was collected through the interviews was carefully treated and protected to prevent it from damage and contamination by digitally storing the interviews in USB after transcription from the audio recorder and preparation for data analysis. Flick (2014) and Merriam and Tisdell (2016) describe the analysis of qualitative data as the organisation, classification and categorisation of linguistic (prosaic) or visual material in order to make implicit or explicit statements about various structures and dimensions for meaning-making in the material and what it represents. For Creswell (2018), data analysis is concerned with addressing research questions in search of a broad understanding of the context in which the inquiry is carried out. This process of analysis involves the consolidation, reduction and interpreting (allocating meaning and understanding) what has been gathered, observed and read by the researcher (Merriam & Tisdell, 2016). These meanings, understandings or insights form the framework for developing the findings of a study.

*3.9.1.1 Methods of data analysis and interpretation*

Thematic analysis and content analysis were applied in this study. Content analysis is mainly concerned with identifying occurring messages (content) in the documentary and literature sources consulted by the researcher (Creswell, 2018). Meanwhile, Ritchie and Lewis (2011) contend that thematic analysis entails the grouping of similar data into different themes or main messages/ statements. Notes taken during data collection were used as a database to group, classify, analyse and interpret with the objectives of study (Ritchie & Lewis, 2011). Data was analysed by reading and re-reading in order to understand and have 'a feel' of the topic (Marshall & Rossman, 2016). The findings collected were structured and synthesized to provide meaning and relevance to the roles and duties of subject librarians in a predominantly ICT environment.

Although color-coding is recommended as a useful tool - especially for its completeness of the research writing - the researcher subsequently classified, analysed and interpreted the data collected by using alpha-numeric codes/ labels to link each individual theme or message to its associated question/s and participant/s who were kept anonymous to protect their identities (Creswell, 2018; Marshall & Rossman, 2016). The codes emanate from various causes that of literature review, real words and behaviours in the data and including the researcher's own inventive perception. Coding data is the concrete action taken during an investigative philosophy. Patton (2015) reiterates that qualitative data analysis is intended for conversion of data into discoveries since there is no recipe that exist for such conversion. The author states that data analysis is time consuming and involves cleaning up the unwanted or superfluous data and those that seem to be impossible. For example, the researcher has to record information according to the dates and times, the location and the encountered participants. Patton (2015 :440) further indicates that information gathered in qualitative methods can be massive and this can only be realized at the end of data collection.

Analysing and interpreting data entails attributing meaning to what was found, understanding the logic of the outcomes, proposing clarifications, drawing some decisions and implications, considering meanings and commanding a modicum of order or structure (Daniel, 2015). The researcher then explains the manner in which data will be recorded, managed, analysed and interpreted, and also allocates preliminary facts as to how data will be written and represented. That is to say, all the recorded data, images and text should be precise to the intended recipient. In that regard, Creswell (2018) explains that this involves segmenting the data in an efficient and systematic manner such that it shows how data will address the objectives of the research, as well as its quality and credibility of the end results (Marshall & Rossman: 2016).

After developing categories and themes and coding is in place, the researcher then interpreted the lessons learned. Interpretation is concerned with bringing meaning and coherence to the themes, patterns and types, developing connections and a narrative that makes sense and appealing to read (Clark, Foster & Bryman, 2018). When interpreting the data, the researcher is cautioned to guard against bias, as well as checking and verifying that the analytic approach was not compromised to suit his/ her needs and preferences or predilections (ref). In other words, the summary of the results should be based on the understanding found from the data. Triangulation is applied to also discover the reliability of the data interpretation processes and procedures and authentication of the participant's real views.

## 3.10 TRUSTWORTHINESS CONSIDERATIONS

In research, trustworthiness is a critical measure of quality assurance for determining the extent to which the research instrument/s and consequent findings could be demonstrated as true, accurate and worth trusting and believing (Thomas & Magilvy, 2011). Trustworthiness of the study further establishes the degree of the study's scientific rigour and acceptability within the research or scientific community and reading public (Thomas & Magilvy, 2011). In qualitatively inclined research studies, trustworthiness measures or criteria such as validity and reliability are usually inapplicable (Saldana & Omasta, 2018). Rather, it is the credibility, transferability, dependability and confirmability measures that are frequently applied (Marshall & Rossman, 2016).

### 3.10.1 Credibility

Credibility is premised on the view that the study and its findings are deemed to be accurate, authentic and believable from the perspective of the participants, rather than that of the researcher (Saldana & Omasta, 2018:272). In this study, credibility was ensured by means of prolonged stakeholder engagement with the concerned participants (librarians) in their various categories. Whereas the study's predominant focus was on the librarianship profession, the ICT field also formed an inextricable aspect of the research. Many librarians were schooled in the traditional ways of librarianship (Clark et al. 2018). Many academic institutions themselves went through 'the learning curve' of having to transition from their erstwhile traditional modes to the contemporary ICT culture or rendering library services (Hart & Kleinveldt, 2011). Therefore, the dual complexity of librarianship and Internet-based virtualisation or computerisation of library services necessitated that the researcher should opt for scientifically credible means to enhance the study's findings.

The researcher is herself a librarian by profession and is aware of the complex nature of the profession and the users' expectations in the era of the Internet. Therefore, prolonged engagement and discussions with fellow librarian colleagues and the sampled participants before, during and after the in-depth semi-structured interviews provided a first-hand opportunity to understand their perspectives, experiences, challenges, expectations and coping strategies in such a hectic environment (Clark et al. 2018).

## 3.10.2 Transferability

Transferability relates to the degree of the current research findings' applicability to other research contexts by other researchers with different participants, but under research conditions approximately similar to those that prevailed at the original settings (i.e. Unisa (Pretoria) and Wits University (Johannesburg) (Edwards & Holland, 2013). Many research scholars and professionals intimate that in qualitative studies, generalisability of the findings is not a primary purpose for conducting a study. It is in this regard that the present study relied on the audit trail to provide thick and dense descriptions that provide a texture for readers and interested researchers to understand the entire research process from its conceptualisation to the implementation thereof (Marshall & Rossman, 2016).

The researcher kept a comprehensively documented profile of the study containing, all the decisions taken throughout the entire research study and reasons for such decisions (Hart & Kleinveldt, 2011). This was to ensure that any future researchers could review all the theoretical and methodological trajectories of the study for possible application in their own situations.

## 3.10.3 Dependability

Dependability refers to the extent of the study findings' consistency and stability irrespective of the variability of circumstances and conditions in the external environment (Edwards & Holland, 2013). In this regard, the researcher firstly ensured that the interview-based data was uncontaminated and immediately transferred in USB format in order to retain its original condition. Furthermore, the researcher also applied the most possible measure of reflexivity by ensuring that her librarianship knowledge and professional experience did not constitute undue ground for bias in reporting the findings. It is in this regard that she sought the assistance of the various senior manager at the libraries in the selection of the eventual participants of the study as her familiarity and knowledge of the participants as colleagues could have 'clouded' her judgement as a factor of the judgemental sampling as well.

3.10.4 Confirmability

Confirmability relates to the extent to which the findings are viewed as a truthful reflection of the participants' perspectives and methodologically justifiable approaches in research (Denscombe, 2014). In this regard, the researcher applied the notion of member checking by consulting the participants and the respective senior library managers concerning the preliminary findings for their review, corroboration or rebuttal of the findings in the event they thought these results did not accurately capture and reflect the viewpoints of the participants during the study.

Furthermore, the researcher embarked on peer debriefing by consulting with fellow collegial librarians who were not involved in the study for their critical review of the study as a whole, particularly on the extent of (in)compatibility between the findings, conclusions reached, and recommendations made by the researcher (Flick, 2020).

3.11 SUMMARY OF THE CHAPTER

This chapter outlined the research methodology adopted by the researcher in relation to the theoretical (pre-investigation) processes in preparation of the eventual collection and analysis of data pertaining specifically to the roles of subject librarians at the University of South Africa and the University of the Witwatersrand. The study adopted the interpretivist paradigm in terms of which the other pertinent units of analysis were also integral to the rest of the chapter. These units of analysis or critical research variables refer to the qualitative research design, the study population and sampling domain, the data collection and analysis approaches, as well as the trustworthiness measures. Details and presentation of findings are discussed in the next chapter.

# CHAPTER FOUR
## PRESENTATION OF FINDINGS

### 4.1 INTRODUCTION

This chapter presents the findings of the study obtained from the qualitative data collected through the in-depth semi-structured interviews with the 25 purposively sampled participants. The purpose of the study was to determine the current and emerging roles of subject librarians in academic institutions in South Africa, with reference specifically to the University of the Witwatersrand and the University of South Africa libraries. The study is qualitative in nature, and the qualitatively analysed data enabled the establishment and consequent development of patterns and themes in the data to address the research questions and to discover relationships and insights of the main concepts from the problems being investigated (Bak, 2013; Clark et al., 2018). It is in this regard that the current chapter's structure fundamentally reflects two pivotal aspects in its presentation of data, namely; the overall demographic profile of the interviewed participants, as well as the specific responses they provided in relation to questions posed to them about the roles of subject librarians. The researcher emphasises that the current chapter focuses mainly on the presentation of data, and the discussion of the self-same data ensues in the next chapter (Chapter 5).

### 4.2 BIBLIOGRAPHIC/ DEMOGRAPHIC DATA OF THE STUDY PARTICIPANTS

The bibliographic/ demographic data or profile of the study participants are highlighted in this study. As mentioned in sub-section 3.7.2 of the previous chapter, 25 participants were eventually sampled (10 from Wits University and 15 from Unisa). The participants were subject librarians with different job titles, working at Wits and Unisa libraries, and have different job titles but share common responsibilities of a subject librarian in their various institutions.

The subject librarians at Unisa were from the College of Economic and Management Sciences, College of Law, College of Education, College of Accounting Sciences, College of Human Sciences, College of Science, Engineering and Technology, College of Graduate School of Business Leadership, College of Graduate Studies. The subject librarians at Wits were from the Faculty of Commerce, Law and Management, Faculty of Engineering and Built Environment, Faculty of Humanities, and Faculty of Science.

Table 4.1 (overleaf) is an illustration of the salient demographic variables of these participants, all of which have a direct link with the substantive issues and aspects of the research topic that were addressed by means of the researcher's engagements with the self-same participants through the in-depth semi-structured interviews.

TABLE 4.1: DEMOGRAPHIC PROFILES OF THE PARTICIPANTS

| Gender | Male | Female | | | | |
|---|---|---|---|---|---|---|
| | **6** | **19** | | | | |
| Age | 40-49 | 50 and above | | | | |
| | **3** | **22** | | | | |
| Marital Status | **Single** | **Married** | **Divorced** | **Widowed** | | |
| | 8 | 13 | 4 | n/a | | |
| Educational Qualifications | **PhD** | **Masters** | **Honours** | **Undergraduate Degree** | | |
| | 1 | 7 | 9 | 8 | | |
| Professional/ Work Related Experience | 1-5 years | 5-10 years | 10-15 years | Above 15 years | | |
| | **n/a** | **n/a** | **1** | **24** | | |
| Compatibility of Qualifications and Current Position | **Business & Management Faculty/College** | **Education Faculty/College** | **Humanities Faculty/College** | **Law Faculty/College** | **Science & Engineering Faculty/College** | |
| | None out of 7 | 1 out of 2 | 5 out of 6 | 2 out of 3 | 1 out of 6 | |
| Current Position/ Role | **Branch Librarian** | **Reference Librarian** | **Principal Librarians** | **Senior Librarian** | **Faculty Manager** | **Personal Librarian** |
| | 4 | 1 | 3 | 1 | 1 | 15 |

Extrapolated from Table 4.1 is that 19 (76%) of the participants are females, which is a general characteristic in many other academic and non-academic libraries. Such a trend has rendered the librarianship profession as female dominated. That 22 (88%) of the participants are 50 years of age and above, does not augur well for the self-preservation and institutional memory because these are professionals who will be retiring within a decade or so. It then means the minority (n=3, 12%) will continuously be replaced by a cadre of 'newcomers'. Also, the older the generation, the more technological challenges were likely to be experienced since they were mostly trained in the traditional methods of librarianship services.

However, the age-imposed challenges could be ameliorated by the fact that virtually all participants have postgraduate LIS qualifications, with the majority (n=9, 36%) who have Honours (LIS) degrees, and only 1 (4%) with a doctoral degree in LIS. It is of further noting that the distribution of the subject librarianship categories depicts the extent to which the study has attempted to establish a semblance of representativity, with the majority (n=15, 60%) representing personal librarians, and 4 (17%) representing branch librarians. Meanwhile, the fact that the majority (n=24, 96%) have more than 15 years of professional or work-related experience, is a positive indicator of the sustainability of institutional memory, which is reinforced by the fact that the self-same majority (9n=24, 96%) are of the view that there is significant **compatibility** or relevance between their academic qualifications and their current positions within the library organisation.

Therefore, and to a very large extent, the totality of the demographic variables bears significant association with the various thematically and logically presented findings in the following sections in this chapter.

## 4.3 THEMATIC PRESENTATION OF THE RESEARCH FINDINGS

The findings based on interviews are presented in accordance with the objectives of the study (Clark et al., 2018; Edwards & Holland, 2013). Data was deductively analysed for the development and generation of themes, categories and sub-categories on the basis of their commonalities and variability to reflect on possible groupings and their relationships. Consequently, the following six themes emerged: (1) Traditional, current and emerging roles of subject librarians; (2) Duties and functions of subject librarians in academic libraries; (3) Factors that have shaped or influenced the roles of subject librarians; (4) Challenges faced by subject librarians in their new roles; (5) Current job requirements of subject librarians and (6) Recommendations to improve subject librarianship. Table 4.2 provides a summary of themes, categories and sub-categories of the six themes as outlined above.

TABLE 4.2: TABULAR REPRESENTATION OF THEMES, CATEGORIES AND SUB-CATEGORIES

| Themes | Categories | Sub-categories |
|---|---|---|
| **Theme 1:** Traditional, current and emerging librarianship roles | 1.1 Roles performed in academic library<br>1.2 Traditional roles vs current roles<br>1.3 Librarianship changes in last 10 years<br>1.4 Predictions in 20 years | • Technological<br>• advancement<br>• Job descriptions<br>• Key Performance Areas |
| **Theme 2:** Duties and functions of subject librarians | 2.1 Duties performed in academic libraries<br>2.2 Services offered in academic libraries<br>2.3 The most performed duties in academic libraries<br>2.4 Academic library service rating | • Library structure<br>• Resources available |
| **Theme 3:** Factors influencing roles of subject librarians | 3.1 Impact of qualifications<br>3.2 Impact on organisational structure of the library<br>3.3 Impact of emerging technologies<br>3.4 Impact of information needs and information seeking behaviours<br>3.5 Impact on university's organisational structure<br>3.6 Impact of other factors | • Educational background<br>• Structures<br>• Technology influence |
| **Theme 4:** Challenges faced by subject librarians in their new roles | 4.1 Logistical challenges<br>4.2 New systems and new trends<br>4.3 New programmes and ICT support<br>4.4 Liaison-related challenges<br>4.5 Subject-specific or knowledge-related challenges | • Systems availability<br>• Network connection<br>• Outdated software and hardware<br>• Information resources |

| Themes | Categories | Sub-categories |
|---|---|---|
| **Theme 5:** Current job requirements of subject librarians | 5.1 Competencies required<br>5.2 Skills required<br>5.3 Enhancement of both skills and competencies | • Staff capabilities<br>• Staff composite |
| **Theme 6:** Recommendations to improve subject librarianship | 6.1 Further training<br>6.2 Initiatives or interventions<br>6.3 Solutions<br>6.4 Any other recommendations | • Contingency plans<br>• Back-up system |

4.3.1 Theme 1: Traditional, current and emerging roles of subject librarians

The world of information in which subject librarians find themselves, and the education and training received by these subject librarians, are all part of the vast changes taking place in academic libraries (Darc & de Jager, 2012). This objective sought to identify the traditional roles that are performed by subject librarians. The following questions were asked in relation to this objective:

- What roles do subject librarians perform in an academic library?
- Do you think that traditional roles of subject librarians have had a bearing on the current roles?
- How has your role changed in the last 10 years?
- What predictions can you make for the future (20 years from now) as far as the role of subject librarians is concerned?

The key findings are presented in the following section, which is basically a reflection of the participants' authentic responses to the above questions.

*4.3.1.1 Roles subject librarians perform in academic libraries*

Participants were asked to explain their roles in their respective academic libraries which may be in the form of liaison, marketing and research support. The majority of participants from both institutions listed the following as the common key role that subject librarians perform in an academic library: 6 participants from Wits and 15 participants from Unisa indicated training/ information literacy/user education, 4 participants from Wits and 10 participants from Unisa indicated research support, 3 participants from Wits and 8 participants from Unisa indicated building relationship, 3 participants each from both Wits and Unisa indicated providing search service, 2 participants only from Unisa indicated involvement in the new course development, 3 participants from Wits and 8 participants from Unisa indicated faculty liaison/ contact, and 3 participants from Wits and 5 participants from Unisa indicated collection development. The statements below are reflective of the views expressed by subject librarians in this regard:

A participant from Wits emphasized that "*So, because obviously we subscribe to quite a lot of resources, and we want our clients to use those, so we market them and part of the marketing is also linked I think to the training you know 'cause by training the academic staff and students in those resources and databases and so on, we make them aware of what is available*".

A participant from Unisa expressed that *"But also, then making this training material available on the platforms because all of them can't always come for the training".*

Another subject librarian from Wits reported that the role they play is basically based on the entire job description with the information that is targeted at different groups, different content and different delivery of the information literacy from first year to fourth year and postgraduate and academics at different level.

*4.3.1.2 Traditional roles of subject librarians' bearing on the current roles*

Participants were asked if they thought the traditional roles have had a bearing on their current roles. If that is the case, they were asked to provide the reasons for that. The majority of participants agreed that the traditional roles of subject librarians have had a bearing on the current roles. Those who agreed, expressed themselves as follows:

A participant from Unisa indicated that *"Yes, I think so because although our role has gradually like changed as things develop and new technologies become available, there is traditional roles like the training, and the marketing the liaison you know has always been there."*

A participant from Unisa emphasized that *"Yes, I think the one flows out of the other so you need that traditional knowledge and you can't throw the traditional away but it is changing."*

*"Definitely, I think I mean if you are an older librarian you come from schools where things were different, but if you have changed then I mean you can't stay in a traditional role,"* this was expressed by a participant from Wits.

Other subject librarians from Wits expressed that traditional role have changed completely and have the public library background, which is totally different from an academic background. This has a bearing from a traditional librarian where it was only books and physical paper journals. They struggle with the technical aspects. They are now doing things they never thought they will be doing.

*4.3.1.3 Changes in the last 10 years in relation to the role of subject librarians*

In this question, participants were asked to explain how their roles have changed in the last 10 years. Despite the majority of participants agreeing to the changes they have experienced over the last 10 years; few other participants mentioned that:

A participant from Unisa indicated that *"Yes, there are I mean there are changes because we've highlighted certain roles because of the changing of the institutions as well, ya and the merging that is what I think what it has changed it."*

A participant from Wits mentioned that *"The last 10 years alternate, the library has lasted its essential nature and many people by-pass the library students and staff, so the job has shrunk a lot."*

The researcher asked a follow-up question to find out if they were still performing the same tasks as previously. The responses made about the roles remaining more or less consistent in what they used to do. The following were the responses:

A participant from Unisa indicated that *"I would say the roles stay more or less consistent in what we did, what really changed was technology. The tools that we used to remember when I started here in the mid-80s, we used paper indexes and we had to do matching with cards. So, it was very time consuming and slow."*

A participant from Unisa responded saying *"It was the old subject librarian being now a personal librarian, its more or less the same.*

### 4.3.1.4 Possible future roles of subject librarians in next 20 years

Participants were asked to predict the role that subject librarians will play in the next 20 years. There were different views on this question. Subject librarians perceived major changes in librarianship. The following is what subject librarians from both institutions have predicted:

- They perceived the future as being embedded librarians, working outside the library in partnership with academic departments, closer to the clients as roaming librarians providing service 24/7. Subject librarians will become facilitators of information, will have to acquire new skill set, online communication since the human component is a necessity and there will be no physical contact necessary.

- Subject librarians' role will still be important, it won't perish but will remain relevant and contribute immensely to the profession and the traditional role will remain because some people depend on a personal touch, the face-to-face interaction and the paper or print will still be applicable.

- Having the smart campuses, smart libraries coming, the role of subject librarians have to be that of the smart librarians offering massive changes in the services providing a shift to re-create, re-make and re-imagining certain positions, re-purpose the future, have innovative e-learning centres with open access and with libraries no longer the gateway / portal, it will just be an eye desk specifically for asking questions.

- The 4<sup>th</sup> Industrial Revolution is with us and therefore, the machine will do the work, the robots will take over but should be careful that moving with trends may leave others behind and it will be a whole lot of massification.

- There will be change in publishing, should expect rich and powerful publishing companies as people will be engaged in research and there will be change in classrooms, lectures and the content.

- A lot of ICT usage which will need adaptation to technologies and computers as there will be unbelievable technology with online services.  Work will be done from home; connection will be on e-platforms and involves the research data management

- Library users will be far more techno savvy, will be dealing with sophisticated users some challenged with technology and some will be independent searchers.

- There will be less space, less face-to-face interaction, will have climate change, cloud computing and less or no shelves.

Some views of the subject librarians were expressed thus:

A participant from Wits indicated that *"We are going to have to let the machine do the work, the so-called 4IR now is with us now. This subject librarian continue to say: so basically the paper based system will be gone, I mean books will still be on the shelves because probably we don't have enough storage to take them into, but they will gather dust and still be on the shelves most of the time everything will be online right! "*

A participant from Unisa indicated that *"You would think that in an environment like ourselves you would now be only dealing electronically with people, and you know using all these super tools that we have but it is as if people still depend on that personal touch or personal face to face, discussions and meetings with you or visits."*

Another participant from Unisa expressed that *"I think one way or another they might or we might end up you know like working from home if you think of the technologies that we have."*

One subject librarian from Wits predicted that change in terms of studying, reading, the type of material or format used, that may not change but perceived subject librarians actually going back to paper than sticking to technology in the long term. Another subject librarian from Unisa imagined the subject librarians to either going to 'disappear' or have unbelievable technology, which will happen long after the participant is no longer around in the 20 years' time and the thinking is that it may be the end of the world.

4.3.2 Theme 2: Duties and functions of subject librarians in academic libraries

Subject librarians in general provide reference services at the eye desk or at a central desk to their respective clients within the university. They act as change agent and mainly works closely with their subject departmental faculties (Harris, 2016). They are also expected to have practiced their

subject areas depending on the faculty they serve. This section seeks to find out the duties and functions of subject librarians in academic libraries and whether as subject librarians, they perform the same duties and functions in these two institutions of higher learning, the one being a contact institution and the other being a distance education institution. The following questions were asked in this objective:

- What are the duties that you as a subject librarian perform in your academic library?
- What services do subject librarians offer in academic libraries?
- Which of those duties do subject librarians mostly perform and why?
- How would you rate the services offered by subject librarians in your library?

*4.3.2.1 Duties performed in the academic library*

The researcher enquired about the actual duties and responsibilities performed by subject librarians in an academic library. Participants were asked during the interviews to list the duties that they perform in an academic library.

TABLE 4.3: SUBJECT LIBRARIANS' DUTIES

| Duties | No. of respondents | |
|---|---|---|
| | **Wits** | **Unisa** |
| Establish / build relationships, faculty liaison/direct contact or link person, with academics, researchers and students & vendors | 3 | 8 |
| Guidance towards research topics / fact finding, reference support, plagiarism, ethical writing, perform/conduct searches, information access, how to do a search strategy | 3 | 3 |
| Research support, Orcid profile/research gate - NRF ratings – e-visibility, Bibliometric reports, Impact factors/ citation analysis/h-index, Open Access & Institutional Repository, Predatory journals, publishing | 4 | 10 |
| Information literacy / User education / training, Use of reference management tools | 6 | 15 |
| Acquisition of items (ordering) / Collection development and preservation, updated list of new books | 3 | 5 |
| Communication and interpretation, market library services, community engagement programs | 2 | 3 |
| Physical environment / building maintenance, equipment (IT) | 3 | |
| Staff development / management, administration | 4 | |
| Provision of information, Reference enquiries, Subject related queries | 1 | 3 |
| e-Learning tools, Turnitin, Literature review/searches | 1 | 10 |

| | |
|---|---|
| Alert services on SDI | 6 |
| Trouble shooting | 1 |
| Attend Research Committee/ College meetings/ departmental meetings, inaugurals | 4 |
| Locating material physically from the shelves and online, ILL/ book requests | 3 |
| New course development / module overview | 2 |

Table 4.3 above reflects the listed duties by participants. A detailed discussion on these responses is provided in the chapter.

*4.3.2.2 Services offered by subject librarians in academic libraries*

Participants were asked about the services they offer to the students, academic staff and the entire clientele that they serve in their academic libraries. Most of them expressed the view that this question overlaps and interlinked with the previous one on their duties. The question was indeed posed to the participants as a way of obtaining additional information that was not provided in the previous question. The majority of the participants indicated the following as common services that subject librarians offer in academic libraries:

- Training/ information literacy,
- Research support,
- Market service by creating awareness and alert services,
- General assistance in finding information, and
- Conducting searches

Some of the services they offer were expressed as follows:

A participant from Wits indicated that *"…we meet and divide and see for the rest of the undergraduate and also the supervisors, the academics who are supervisors for the postgrad, each of them they give me a slot where I do an hour, a one hour presentation in terms of just guiding the students how to and where is what in relation to anything that has to do with information resources of the library".*

A participant from Unisa mentioned that they *"Help them on how to avoid plagiarism by using the softwares which are approved by Unisa such as Turnitin,"*

A participant from Wits expressed that *"So, the focus in my opinion has shifted from actually doing searches for our clients to training them and empowering them to do their own searching and find their own literature which I think is great so they, we actually doing a skills transfer".*

*4.3.2.3 Most performed duties by subject librarians in academic libraries*

Subject librarians were asked to elaborate on the duties that they mostly perform from their complete duties and to explain the reasons why they think those duties are mostly performed. The duties that subject librarians mostly perform were expressed by participants as follows:

- Training / information literacy, for clients to be independent, self-reliant and become self-sufficient to improve on the poor academic performance, and to avoid dropping out especially in the first year.

- Relationship building, to strengthen the personal contact with the lecturers by visiting departments, liaise with them in order to keep up to date with the trends and also alert or update academics as well, to also increase the e-visibility and enable them to create the Orcid IDs, set up their RSS feeds and most importantly recommend the library services to students.

- Research support is another duty that subject librarians perform most by working closely with the research office and giving support to students and researchers to enable them to know how to evaluate and select relevant journals for publishing. Participants indicated that this is also to keep academics up to date with their research projects.

Some participants expressed their views as follows:

A participant from Wits expressed saying *"I think what you doing every day is fulfilling your social function in being there, and in being the person who can provide the same per person, you fulfil that role and you have to live up to that standard of being the person who will know".*

Another participant from Wits indicated that *"I think it will depend with the relationship the person has with the department or the school that you serve".*

A participant from Unisa indicated that *"I must say sometimes it changes a little bit. You could have a period where you have a big focus on searches where students and staff need assistance with obtaining material, you find in that cycle of the research of the students where it's now proposal time". So, is not always just the one for me is a little bit you know."*

*4.3.2.4 Self-rating of the services that subject librarians offer in academic libraries*

Subject librarians were asked to rate the services they offer in general in their libraries and provide reasons for their rating.

The overall percentage given from both institutions ranges from 75% to 90% with the general view providing a very good service. The participants' reasons for rating the services they offer in their libraries vary from being highly rated by academics, students (in particular first year students from the program offered) and staff in general to being valued by reports received from the Senate Library Committee meetings, faculty committee and from the library representatives in some instances. Some comments highlight the subject librarians' remarkable service from the daily

comments received and from peer review conducted by all the Deans. One participant from Unisa indicated the fact that some positive and qualitative responses are guided by the kind of qualitative questions asked in addition to the reports received from students. Some participants from both institutions expressed the fact that although subject librarians offer an excellent service with limited complains, the 10% or the remainder of the percentage is due to ICT related challenges and room for improvement.

The following are some of the views expressed by participants:

A participant from Wits indicated that *"Ok, they give some comments and then out of that we can see that ok we are running short on this and then we can have an improvement plan when we do the offering for the following year, whatever"*.

A Wits participant indicated that *"Our role has diminished but I have a whole file full of thank you emails, and praise emails and appreciation emails"*.

Another participant from Wits indicated that *"Uh and its difficult in the way that we are, and all of this is influenced by staffing, short staff is a major I think problem with probably all libraries appointments, there is not money to immediately appoint"*.

A participant from Unisa expressed that *"…but I still think there is a lot of students out there that we are not getting to, and there in those two areas I think information literacy and then specifically contact and training and advising guidance, making it easy for them to access us, I think we are a bit behind, ya"*.

### 4.3.3 Factors shaping/ influencing subject librarian roles in academic libraries

This section sought to find out what could be the main factors that have shaped or influenced the subject librarians' roles. Given the circumstances nowadays, the following questions were asked in relation to this objective:

- To what extent does your qualification shape your role as subject librarian?
- Do you think the nature of your library (for example, its organizational structure) influences how you perform your duties in the library?
- What impact does emerging technology have on your role as subject librarian?
- Which of the ICTs have had a major influence on shaping your role as a subject librarian?
- How often do you use ICTs to carry out your role of subject librarian?
- To what extent, in your view, have the changes in information needs of users shaped the role of subject librarians?
- Which information needs and information seeking behaviours, in your opinion have shaped your role the most?
- Does the parent organisation's (i.e. university) needs have a bearing in shaping your role as a subject librarian? How?

- What are other factors that have shaped the job of subject librarians?

*4.3.3.1 Impact of qualifications on the role of subject librarians*

Participants were asked if their qualifications have an impact in shaping their role as subject librarians. The majority of participants indicated that qualifications have played a significant role, it really helped in laying the foundation, and taught them about the ethics of being a librarian in terms of thinking and applying such ethics from the manual traditional role to online systems. They expressed that it taught them how to tackle things and when the role changes over the years, they understood how to find information, search, analyse and be prepared. They also expressed that as subject librarians, they obtain intimate knowledge of the field and discovery of some gaps within their service. Others felt strongly that a higher qualification is imperative as it prepares one to conceptualise, think on the spot, be able to train and communicate effectively and be on the cutting edge of technology. Some subject librarians indicated that this profession allows one to be flexible, it contributes to the research output and that personality plays a big role as it geared one towards the service. However, there were about 3(three) participants who felt that what shaped their job was gained through knowledge, experience and the in-house training and by developing themselves, volunteering and the impact of technology that plays a big role, which is totally unrelated to qualifications.

Some participants expressed as follows:

A participant from Wits indicated that *"Uh well hugely, my whole library Diploma fit into my job. Cataloguing and Indexing and Classification, all assist one in your understanding of field of knowledge and your retrieval. The courses on reference work, user studies, all fit into what we do, so it was critical".*

A participant from Unisa indicated that *"I would say minimum Masters, and you know like setting up now you know part of our IPP target for our institution, the whole researcher profile thing. Is very difficult for a librarian to set up profiles if you don't have your own profile and you don't have your own publications and you don't have an h-index. How do you help uh a researcher to improve his h-index and his visibility if you don't have one yourself and you can see the impact of what you doing in your own when you research, when you publishing".*

Views of the three other participants were as follows:

A participant from Wits indicated that *"I don't think my qualification has shaped anything! I went to University I did my stuff, what shaped my role at what I do it really is what I tackled when I started to work, develop yourself, go to training, go out put your hand up and volunteer and you know, thus how you learn things".*

A Unisa participant indicated that *"I would say my own qualifications or whatever never shaped anything that happened in this library. I think the most important thing that shaped our job was the impact of technology and the attempt to keep up with that. No, I think the impact is absolutely minimal because uh*

*no I don't believe any Masters or Doctoral qualification that we had brought anything or made any different to our role, no. I think most of the skills and things that we do is totally unrelated to qualifications".*

Another participant from Unisa indicated that *"So, uh the qualification is actually you know I think the love of the job is basically and how good you are with what you doing I think that's the key. No, what it does is that I have to have a better understanding of the research – what can I call it you know, the University's direction as far as the research output. So, the qualification actually uh help us to understand what the University's strategy is but doesn't determine how we do our job".*

*4.3.3.2 Influence of organisational structure on subject librarians' duties*

The subject librarians were asked whether they thought the nature of their library and its organisational structure may have an influence in the way they performed their duties. The majority of participants agreed that the structure does influence the way they perform their duties as subject librarians. They indicated that the fact that every instruction comes from the organisational structure, all the plans are aligned and based on that. Most of the participants also stated that given the size of their institutions, the time taken to make and implement decisions, determines the complexity of things. They indicated that the changes made on the structure influences and filters to the various levels.

However, some participants felt that even though the library structure influences their performances, it is to a minimal extent, both negatively and positively, and this is caused by other factors such as the system or programmes implemented and not necessarily the structure. There were few who indicated that it was their skills that influenced performance, and their experiences and colleagues who influenced directives on the job, and that it is all about the clients and not the structure. The following is how some of the participants expressed their views:

A participant from Unisa indicated that *"Yes, we were engineered here uh towards the end of the 90s. It took about uh we were finish by 2003, we implemented in 2006/7. Ok and so our model that we struggle to define for three years went out of the window immediately".*

Another Unisa participant indicated that *"Uhm, I don't heh doubt if there is any impact of the structure per se, the organizational structure on how I perform my duties. What I see influencing my performance is more about my skills and my colleagues' skills, the structural arrangement, I don't see any".*

A participant from Wits indicated that *"The organizational structure, the reporting structure, I don't really think so. I don't really think so because I see structure, uh who I am to report to or the way it is structured fulfills my duties its more I think more my qualification, and my experience uh that influences my directive of what I'm doing, not really the structure as such".*

Another Wits participant indicated that *"Well, it always does uh you uh the happiest people are the people who have most control over their lines. And in many big organizations we don't have that control. So, uh*

*yes, as the all the, I don't have budget for example; so, it limits my operations, uh so uh it absolutely limits what one can do".*

*4.3.3.3 Impact of emerging technologies on subject librarians' roles*

Participants were asked about the impact that the emerging technology might have on their roles as subject librarians. The majority of participants indicated that technology has a significant impact that serves as a pillar of libraries moving forward. Subject librarians agreed that the future is about e-learning, it is meant for good, making the processes easier, faster and improves efficiencies. It is regarded as the enabler that gives more potential abilities and helps subject librarians to constantly investigate new technologies and receive trainings, used videos, attended webinars for self-development and reached out to remote students and share documents and information online.

The situation has improved from paper-based to computerisation and automation. Participants indicated that technology could be embraced, but as subject librarians they needed to keep learning new things to keep abreast; but people should have interest and be dedicated in order to equip themselves accordingly. Technology has a major impact that affect their roles and brings anxiety and excitement at the same time. It has a massive impact and makes communication easier, but they indicated that it could be a challenge if the person they are trying to assist does not have access to such technologies. There are those who embrace technology, but a large population were not yet there.

There were two of the participants who indicated that technology eliminated their jobs since very little solid information could be found on the web and the real value material were found from the traditional library books. The other participant expressed that technology brought a huge challenge and a huge learning curve, especially to the 'old school' librarians. Other participants have expressed as follows:

A participant from Wits expressed that *"Uhm, it's a huge challenge I mean its very good in terms of making information available easily, its just for me uh is a huge learning curve. So, I constantly you know scrambling you know, I get there but I get frustrated because I feel like stop trying to fix something that is not broken and the youngsters of today can't understand that they think there is an improvement. It improves things greatly, it makes things a lot easier uh but the other side of the coin is set as a challenge because you got to keep up all the time, its frustrating and its tiring".*

A participant from Wits indicated that *"Well, as I have said uh technologies are all eliminating my job, so I think. In my research I began with the Internet and I'm not a historian by trade and I found numerous hits and yet very little solid information. I found only one article of real uh value and later on from the traditional librarianship, only then that I find the real meeting materials that I needed. In fact, the principle vehicle for books for knowledge and insights remains books, is not on the web".*

A participant from Unisa expressed that *"Well, we've got to all change in, from where we were to the new way of doing, and the thing is I think our situation is difficult because we are firstly very big organization*

*or institution and secondly, we have always this thing of uh students and staff that are going with technology and embracing the technology and then we have this very large population students that are not there yet ...".*

(i) *ICTs types with major influence on subject librarians' roles*

Subject librarians were asked to explain from the ICTs that they used, to find out which of those might have a major influence on shaping their roles. The majority used MS Teams, Libguides and databases. Few others indicated that they used anything that deals with computers, the ICT as a whole, the new technologies or online platforms available.

Other participants indicated various ICTs and methods used that had a major influence on shaping their role as subject librarians to be things like reference management tools, e-learning platform such as SAKAI and the use of Camtasia, Zotero and the library package SIERRA, the D-SPACE, the wired space placed in a digital space and preservation, the social networks like Facebook, Skype, teleconferencing Scopias, Microsoft Swiss, Microsoft Office 365, Zoom, emails in some instances, ordering system and online basic book and journal material. One participant indicated that for many years, the Big Blue button were suggested but were not supported.

The following are some of the views expressed by participants:

A participant from Unisa indicated that *"We still don't have the tool that works so easily. We tried do many of this and it's just too cumbersome and too difficult for students uh and it can't be done at a moment's notice so that is what I would, that's one of the things that I would expect if we don't burn down. That is something that would safe us as we have to, most of our students are not here ya, something else".*

A participant from Wits indicated that *"I also use another one called Zoom. So, Zoom in case you experience you know problems with Microsoft Teams, then you can go via Zoom and uh ya".*

A participant from Unisa indicated that *"Ok uh I would say things like the Microsoft Teams has had quite a big role uh ya, the uh all the different sort of you know Web 2.0 and then Web 3.0, all of those technologies, the libguide has had a very big impact on how we do our work".*

A participant from Wits indicated that *"Well, the computer took away the reference work, but we made ourselves useful by specializing in aspects of what the computer does. So, it will be in my case uh formatting and uh composing in Microsoft Word, and it will be Zotero, it will be the library's package SIERRA, uh all the things that we uh work with".*

(ii) *Regularity of subject librarians' use of ICT in their duties*

Participants were asked to indicate how often the ICTs were used to carry out their duties. All participants indicated that they used ICTs on a daily basis, every day, all the time, every single day, every single hour, 8 to 10 hours a day, the whole day, every minute and that it is part of their life to carry out their duties as subject librarians. They indicated that it is an everyday thing, their work is technologically driven, whatever the clients needed from the library homepage, they have

to use the system the moment they started working, and that ICT became the mediation of their work. One participant indicated that interaction with clients could be done in a traditional way, but they used ICTs when providing information and training them. The following are some of the views expressed by participants:

A participant from Unisa expressed that *"Every single day, every single hour, 8 hours 10 hours a day. So, if we do not have the ICTs is gonna make working un impossible because there is very little that we do manually, everything is based on information and communication technology. So, we are using ICTs 24/7".*

Another participant from Unisa indicated that *"About the whole day, I mean technology is your that's your life. I can't do without it I mean if the technology is down, you can't even look for the book on the shelves because there is no card catalogue anymore, there is no backup whatsoever".*

A participant from Wits expressed that *"Oh, it's been part of my life actually, is part of my life now librarianship, if we may call it library is about technology. Technology so we must always uh update ourselves in terms of technology".*

A participant from Wits indicated that *"Every day, and uh with the new uh projects that are coming up in this library, it is even going to be more because we getting a lot of technologies into our spaces, that space is going to be very technology driven and uh so will other projects that are upcoming uh they will be very heavily technology driven, so it is an everyday thing".*

*(iii) Impact of changes in information users' needs of users on subject librarians' roles*
Participants were asked to indicate how they view the extent in which changes in information needs of their users shaped their roles. Participant all agreed that the needs have definitely changed their roles. Some of them indicated that the needs were now different and influenced by the kind of students they served. The younger the students, the more independent they were and they thought they knew everything and were more technologically savvy. Most students were not aware of the requirements and the standards of academic publishing. Subject librarians indicated that the role has changed a lot with more enlightened younger generation of users and researchers coming into the space.

Participants also explained that although the needs remained the same, the delivery of information has changed because of the technological enhancement. Subject librarians also agreed that users' information needs have shaped their role in so many ways; that they now had to contribute to the curriculum development, get involved in teaching, do quality searching as opposed to Google search, do networking and proper research to enable positive response to the users' needs. The participants expressed that their traditional roles have diminished as a result of technological advancement that dictates their work patterns. Subject librarians had moved from being traditional to being information specialists and innovators (Hart & Kleinveldt, 2011; Schroeder & Hollister, 2014).

The information needs of users has changed due to scholarly publishing landscape, information is now available on open access publishing. Some of the participants indicated that contemporary have to download the app instead of using printed material since the client's information needs are no longer rigid. Subject librarians explained that they had to constantly keep pace with technological changes such as having online survey and accessing e-text books. Participants indicated they encountered different people with similar problems that required subject librarians to apply different methods and approaches because people have different skills and understanding. Some felt that the role has changed because users' need can be met virtually, access to information is electronic particularly for distance education institutions. Participants expressed that subject librarian played the role of supporting the academic enterprise and that of fulfilling the element of school setting.

Some participants expressed their views as follows:

A participant from Unisa indicated that *"Yes. I see the information needs of the client had a very significant uh impact on my role because if I put it like the traditional client was only coming with request, and then we offer what he requested and then he exit the system with the product in hand. So, now uh the information needs of clients are no longer rigid is a broad uh"*.

Another participant from Unisa indicated that *"Ya, no no the needs of the users, remember the needs are now different and I think they are influenced by the kind of students we have. So, the needs are still the same, but the delivery of the information has changed because of technology enhancement"*.

A participant from Wits indicated that *"Uhm, the online space they don't want to go to the shelves and like a photocopy of a journal article. All of this are new aspects that are thrown into our sessions with students you know in our day to day talk to students. Uh, so, I think that is uh, they come with that need and we offer that, fulfil that"*.

Another participant from Wits expressed that *"I think it's the, the change in the scholarly publication landscape has changed the information needs of the users, like for example, they need to have uh information on open access publishing and that obviously has changed my role in supporting just as an example"*.

A participant from Wits indicated that *"We have moved from being traditional subject librarians, we are information specialists, we are innovators, and the student of today is techno savvy, they get excited by technology. So, we must always keep pace with the technological changes. There is also Facebook, there's also Twitter, we have to be active even our surveys are now online, we have to do surveys"*.

*4.3.3.4 Impact of information-seeking behaviours and needs on academic librarians' roles*

Participants were asked to elaborate on those information needs and seeking behaviours with the most impact on their roles. Participants indicated that training clients on how to search and become independent seekers of information, where to find and how to evaluate the resources had shaped their role because it is easy to find the correct information. The information needs depended on

the requests about specific topics. Participants found that the most information needs that shaped the role of subject librarians were in both levels; from the undergraduate students need because they are new, came knowing absolutely little and had never used the library page before and needed information for their assignments and electronic reserves to get through their first exams; for the postgraduate students that are expected to be independent are still taught through orientation on how to access and use the resources and they developed, and from there get empowered and became independent confident regular library users.

Participants explained that there is still a need to advise clients on open access publishing, guide them on the correct journal to publish which was not the main area of needs of users 20 years back but now it had become a big thing. Clients are to be advised on the updated information and tracking of citations, they are given the core of what they need but package the material and the information like in a libguide for easy access.

Another participant expressed that support services subject librarians believed that their job is to support the client. They should be proactive and not reactive to attempt any new development that came their way and lessons learnt from conferences. Another participant from Wits indicated that the role has been shaped mostly by e-text books that were rented out to students for a certain period and this is what the participant said about the student: *"when you don't have a taxi fare to come to the University to borrow a book, but you are now able to go to the system and access an electronic textbook while at home".* Another participant from Wits indicated that the technological development and the whole academic ethos and behaviour and the driving force of academic coalition, the nature of scholarly work, are the information needs that had shaped the role the most. More views were expressed by participants in this regard are as follows:

A participant from Wits expressed that *"It's difficult I think is the, I definitely think is the need to advise on publication, open access publishing, the correct journal there to publish. I think that wasn't a main area of needs for information users 20 years but whereas now it's becoming bigger, ok".*

Another participant from Wits indicated that *"Uhm, I would say the undergraduate student's needs. Uhm, they came knowing absolutely nothing and is quite nice to see them blossoming and understanding you know, put them through the orientation and you teach them how to use the resources and you see them developing from there. The same with postgrads actually because they also come and uh knowing nothing from other Universities and you see them uh and they also suddenly the life goes on their faces, wow now I understand".*

A participant from Unisa expressed that *"I think training even if they have access to this 24/7 libguide, we still find that they still need to be guided on how to navigate uh the systems. And even with e-books you can direct them to a specific uh e-book platform but then you still need to sort of make them aware of certain things, so training I think has shaped most of the things".*

Another participant from Unisa indicated that *"Searching behaviours of academics and students have become very lazy these days, I find that they are not worried about quality they are worried about what they can use, what is quick to find. So, we have to explain our searching techniques. I find that my searching behaviour have been, is justified".*

*4.3.3.5 Impact of organisation's needs (i.e. university) on subject librarians' roles*

Subject librarians were asked to explain whether the parent organisation's needs have a bearing in shaping their roles. The majority of the participants agreed that the parent organisation had a bearing in shaping their roles as subject librarians. They indicated that the library's operational plans are aligned with the University's strategic plans, give directions and it depended on the institution in terms of providing resources, offering training facilities, downloading articles from relevant databases, providing good working environment to the subject librarians' functions and providing or subsidizing the library with finances. They explained that the focal areas and trends filtered down to subject librarians that supports the University's research output and the library could not operate in isolation. The parent organisation responds to the current trends to make changes. Participants felt that it reaches out to the masses and subject librarians were then kept abreast, investigated different online platforms considering the University's main aim. Some participants mentioned that they sometimes get frustrated with the slow network, the ICT that is most of the time a challenge that affects the job performance and service to the clients. The parent organization just implemented without assessing the impact that may cause on the jobs.

Other participants felt that the parent organisations do not have a bearing and do not seem to support the research component since databases were not bought or renewed. Subject librarians strived to change, lacked behind considering the students background and another participant mentioned:

A participant from Unisa expressed that *"I don't see whatever the parental organization as a bigger body is doing is hampering what I'm doing as a subject librarian instead I feel challenged by the strategic goals that the institution focuses on."*

Another participant from Wits mentioned that the absence of a School or Department of Library and Information Science weakens the library, especially with technology and coping with new trends since this is what academics were supposed to be researching on. Other participants have said the following:

A participant from Unisa indicated that *"And uh that is why I was saying that we trying to use different platforms such as uh our sites using telegram, uh using Facebook, uh using Microsoft Teams and allowing students to collaborate with us and meet with us on Teams so that we could do group sessions and also offering one on one sessions via Teams".*

A participant from Wits indicated that *"Ideally, I'm not going to go into politics yes, because we are able to attend workshops and conferences. I would say little of shaping my role, for instance as a subject librarian, I will be so frustrated when the network is slow. At one point in time I was so concern by the fact that students would go outside the University and sit on the pavement where there was free Wifi that was faster than the University one, but the University had since upgraded their Wifi now the speed has improved".*

A participant from Wits indicated that *"Once again the big thing there is massification. So, uh what the politics and the reasonings behind all that is not really for me to say but uh that certainly has degraded the job, degraded the function".*

### 4.3.3.6 Other factors shaping subject librarians' roles in academic institutions

Participants were asked to add or expand on any factors that have shaped the job that they perform as subject librarians, if any. The majority of the participants indicated that the external factors assisted in shaping the roles of subject librarians. The entire higher education environment, the DHET in South Africa and within an institution had an impact in shaping the subject librarians' roles. The DHET gave directives, and the University strategy was informed by that, and then cascaded to its directorate levels. The DHET's support of journals and the publishing industry, funding for studying to have orcid ID and the whole open access source had influenced how subject librarians do their work.

Other participants explained that the ACRL published trends needed to be integrated into the subject librarians' KPAs which would shape, change and addresses the latest or current developments to assist the disadvantaged students. They indicated that students in remote areas, not technologically savvy, were seen to be left behind and not on the same wavelength with others. Subject librarians felt that there should be a balance in the use of these complicated or rather sophisticated ICTs to accommodate such students in different levels. All these factors were believed to shape the subject librarians' work. Another participant indicated that the whole transformation colonisation and Africanisation is a factor as nowadays students had become different and more fluent in using resources, although there is the negativity of students expect instant gratification. To this effect, the participant from Unisa stated:

*"Unless we have computers that are offering it and then we take the human side of it and then they gonna get that instant gratification and I think that is what we have to be aware of as subject librarians that computers can actually do our jobs…"*

The following views were expressed further by participants:

A participant from Wits expressed that *"I would say uh in our country the sensitivity about the past, sensitivities about race, have inhabited people from doing historical work. Now we are getting more and more requests for textbooks from former years for uh syllabus from former years. So, I would say in our*

*country without such a sensitive past, more people would be doing that sort of work which brings us into play more and more".*

A participant from Wits indicated that *"I think how the library is structured and how the library conducts its function. We also meet with other library units, like information resources, like our computer services unit, uh also with our finance and HR departments. So, all this units are interdependent, so we wouldn't be able to be productive without the support of other fellow subject librarians".*

A participant from Unisa indicated that *"So, I think what we as subject librarians need to do is to look at those trends and make sure that in whatever we are doing some of those things you know are integrated in our KPAs because it will shape and change and address you know like the latest or current developments that will assist you know like a poor student out there, because this issue of technology and whatever, it was one of the trends some years back its only hitting us like now 2/3 years later and of which by then we should have you know like tackled it".*

A participant from Unisa expressed that *"The one thing that I mean changes our environment totally is the fact that we are a distance institution. It is a totally different environment from a residential environment where people are here if they are uhm on the campus, they can see you anytime. There is no just no obstacle in terms of time and distance like we experience with our current students. Uhm, and I think that's what makes this harder because you can train and you can work and then you think about the total student population and think, but we only reach a small percentage of our students, what about the rest".*

4.3.4 Challenges faced by subject librarians in executing their roles

In this new era, subject librarians find themselves facing new ways of doing things (Turner et al., 2013). This section sought to find out the challenges that subject librarians encounter or face in their new roles. The following questions were asked in respect of this objective:

- What kind of logistical challenges do you experience when serving your clients as a subject librarian?
- In your experience, with regard to learning new systems, dealing with difficult clients, following new trends, what sort of challenges do subject librarians encounter?
- What liaison-related challenges do you experience as a subject librarian?
- What subject specific knowledge-related challenges do you experience while discharging your role as a subject librarian?

*4.3.4.1 Logistical challenges*

Participants were asked to share their logistical challenges experienced when serving their clients, and different views were expressed in this regard. The majority of the participants indicated the ICT support, the network problem or connectivity due to the dependencies such as Eskom, departments in terms of the infrastructure, to be the major logistical challenges that affect how they served their clients. Participants further indicated that at some point, things are loaded on the system and changed without prior notification or announcement. They commented that training different students who are not computer-literate serves as a challenge. Others indicated that

insufficient or understaffed is set as a barrier especially in providing good research support and information literacy. Participants explained that limited subscription to databases led to clients using alternative sources such as ILL since the book budget is very low. Another participant indicated that publishing in suspicious journals not checked against predatory, fake news, authentic information, posed serious challenges. Others indicated that books that are to be dispatched to clients rely on the post office but had imploded and students had to wait for long to receive their books, and couriers were equally a challenge as not everyone could be reached due to budget constraints.

Another participant explained that there was a challenge of not reaching out to every student, especially those in remote places. The same applies to creating a balance between serving off-campus or external clients verses the internal or walk-in clients. Another participant mentioned the disturbances caused by working in an open space where colleagues are sitting around and phones ringing while conducting one-on-one training with the client. Some participants indicated the inconvenience caused by using one main venue for training as the only physical infrastructure and resources that is not able to accommodate different training sessions happening at the same time. Another participant indicated that dealing with donations, given the shelf space that is diminishing and the processing of those donations that involved technical department to process the books and having backlogs with the focus being on the new items, it becomes a logistical challenge to just follow the policy in that regard. Another challenge is that some faculties are still more paper-based as compared to those that have strongly moved to electronic.

Participants expressed their views as follows:

A participant from Wits indicated that *"So, and you have a library policy to deal with that says e-strategy go strongly e- right! Now this policy and the practice presents a problem for subject librarians in the sense. Ok we are running out of shelf space, so as much as we are trying to go E and buy new books, those new books have to go to the shelves. So, donations are going to take up much more space, I mean space as well so it is a logistical nightmare"*.

A participant from Wits expressed that *"Well currently, we are understaffed and actually that compromises the service delivery big time because right now I can tell you I'm running three jobs being one person"*.

Another participant from Wits indicated that *"I think if you ultimately want to give a good research support and information literacy, more staff is needed…you can do so much more but we are not staffed so I think insufficient staffing that sets uh a barrier"*.

A participant from Wits expressed that *"The main challenge, ok the two I can think of one is uh that the institution does not subscribe to all the databases…uh the other logistical supports ok, also perhaps the book budget which is not changed since you were here. Uhm, another I don't know this is logistical, but I get one of my services is to check for lecturers whether a journal is a proper journal or whether is predatory or fake journal, whether is authentic, whether is worthwhile.  That crookedness and corruption in the*

*academic world has resulted in uh that being part of our job, and it has caused us some problems because uh we have revealed to some lecturers that they publishing in dodgy journals and then uh they have been angry with us and being defensive understandably so and that has caused trouble…"*

A participant from Unisa indicated that *"Logistical challenges is we have walk-in clients, you have to do this one on one training in an open space with all the other colleagues sitting around, that's not nice. Sometimes people's phone go off, so that's one".*
A participant from Unisa indicated that *"But I think the one thing that I find a challenge is that we are sometimes out of the office for training for an extended period and then you have walk-in people that uh need your help, that to me is something that I wonder you know how to handle it!".*

Another participant from Unisa indicated that *"I think the first as a distance learning we've got different uh student profile. The first challenge is when you have to serve someone that is not computer literate, it's a serious challenge…"*

A participant from Unisa indicated that *"The students who are not prepared to be trained, student or client who are not prepared to be trained, you plan a training, you invite them and then they don't respond".*

Another participant from Unisa indicated that *"Or another logistical problem its whereby somebody will have a topic that doesn't have you know like literature and the expectation is that you know like provide me with information".*

A participant from Unisa expressed that *"Logistical challenges it will be booking of venues, uh requesting facilities. So, you need to prepare your own water for clients when you do the trainings, you need to request for the overhead projector, you need to plug all those things on your own and there is no ICT backup which is residing in the library, so all those becomes a nightmare…"*

*4.3.4.2 Learning new systems, dealing with difficult clients and following new trends*
Participants were asked about the experience they encounter with regard to learning new systems, dealing with difficult clients and in following new trends. The participants were also asked to state any other challenges that they faced while executing their duties as subject librarians.

*(i) New trends and learning new systems*
Participants indicated that time constraints was a factor, as there was no time to investigate, explore or experiment and learn new things. They found that attention is divided between the services and the responsibilities in addition to some of the subject librarians who manages staff where more time is taken dealing with HR issues. To some subject librarians, participants indicated they were the only professional staff within that particular school. In one institution, a participant indicated that the library is not decentralised and therefore, more time is taken performing unproductive work.

Some participants explained that it is not easy, given the ICT challenges to follow new trends that are mostly learned from the in-job training. Lessons learned needed to be applied or put in practice as soon as possible to avoid forgetting so as to be kept up to date. The one participant felt that not

having the Department of Library and Information Science within the institution that specifically addresses the librarianship career was a challenge, since not enough support is given to learn new things related to the library. Training different levels of students was reported to be a challenge since they are not on the same level; others are at basic and intermediate while others are at an advanced level. Some students get frustrated and a subject librarian as a trainer also get equally frustrated because others felt that the pace is slow while others find the pace moving fast. The online training was indicated as a challenge especially when technology is not functioning well. Another participant felt that a lot of suggestions is not being initiated.

There used to be an innovation hub in the library where new things were identified and shared externally as well. No efforts are made to obtain and bring new things into the library. Subject librarians felt that while technologies are constantly changing and get replaced, so should the subject librarian to be kept up to date the whole time. This becomes a challenge to older librarians. Subject librarians have to constantly anticipate or predict the future, research about new emerging Apps and trends to enable them to be a step ahead of clients. In that regard, another participant averred:

A participant from Wits stated that "*Ok learning new systems one gets to a point of exhaustion. I am at the end of my career now, a point where you no longer want to learn new systems now, you tired of it".*

More views expressed by participants were as follows:

A participant from Unisa indicated that *"I think every subject librarian has the same problem in the fact that you don't have the time to investigate the new resources out there or the new ICTs that are out there. Uh things are dumped on you so that you, like MS Teams, nobody taught us MS Teams. We have to teach ourselves MS Teams you know."*

A participant from Wits indicated that *"The first challenge that I have as a subject librarian is time because of the load of work. We have projects, whiles you are busy with the project, you are given another project! So, it takes most of our time and as a subject librarian you find that now you also manage staff. It takes most of the day, there are so much HR issues that take up your time."*

Another participant from Wits stated that *"Uh I would say my challenge is I don't have enough hours in a day, because we are decentralized, we don't have someone who will arrange to fix the lights. So, these little things that is typical uh things that waste time in this organizational structure of us, uh it takes time."*

A participant from Unisa indicated that *"Uh yes, a significant portion of our uh users, uh researchers or our students have a phobia for uh technology. Is a resistance I would say roughly 1 out of 5 needs uh special attention because whatever you do, they are left behind. So, it's important that we identify those people and work with them in a different way, slower or do it for them. So, I think the older generation they definitely have a problem uh with technology".*

Another participant from Unisa stated that *"Ya, ok new trends, new systems, a lot of self-training uh, there is not where somebody that train you or assist a personal librarian. But a lot of self-study, a lot of self-enrichment, and the challenges I see as a challenge that is my personal, everything that I learn even if I*

*have to go extra mile, is for me uh something that I can do, something that I master, so I think it's the way that you look at the challenges".*

*(ii) Dealing with difficult clients*

Participants felt that this is an everyday challenge that needs to be addressed professionally and in a diplomatic manner. They also find that some of the stakeholders do not always understand the role of subject librarians. Other participants indicated that serving 'business people' with secretaries in their own companies, poses a challenge because they expect the subject librarians to be their secretaries or personal assistants and should do work for them. Another challenge is seen to be the age of the postgraduate students being older and have problems with technology. Another participant mentioned that dealing with high-profile people and with clients from different environments poses a problem in terms of development where others are in high broadband areas and the others still using 2G network which is not even supported by the institution.

Another participant indicated that the name given to them as personal librarian as opposed to be called subject librarian poses a problem as people expect them to be their personal assistants. This adds to criticism from researchers or academics who mention that librarians are not subject knowledgeable. The fact that a school is made up of many departments with many disciplines, raises many expectations towards subject librarians. Another challenge is that of the proliferation of different things and variant in machines that need many logins which lead to disempowerment. To that effect, another participant stated:

A participant from Wits stated that "*And then as for difficult clients, by nature I'm not the ideal person for them, I have a lot of expertise on it because I have handled many and I've researched it. And under their behaviour, so I'm not the best with that and that it must be the most unpleasant part of the job".*

More views expressed by participants:

A participant from Unisa expressed that *"They are difficult why, because we invite them to come for training, Mendeley training, you invite them to come for any training, but they are not prepared to come to the library or they are not prepared to sit in their offices so that I can connect them online. They are always not there when we come for training but guess what, immediately after the time, the schedule time for training, I will get a request that can you please help me with Mendeley".*

A participant from Unisa indicated that *"...they are the minimal, they're very little. Uhm, unthankful clients we have so many of them (laughing) you have to do it because that's your role that's what you're paid for it. Uh but I think our biggest problem comes with there being called personal librarian and you are there to sort out their interlibrary loan, their finances, all the other stuff that you are not doing. But because you are the name and I think that's our biggest because ya! "*

A participant from Unisa expressed that *"Hmm, (sighing) subject librarians encounter quite a number of problems. We come across uh difficult clients uh we deal with high profile people who most of them they think they know it all. And also dealing with clients in different environments in terms of development. All*

*of a sudden, I'm dealing with somebody in high broadband area where our online training will just be smooth. The next one hour I'm calling a student who is residing in deep rural areas where there are still using maybe a 2G network, so that training won't work".*

Another participant from Unisa indicated that *"Uhm, there is always difficult clients you know uh I think any subject librarian has their own you know. So, it is ya that is a challenge because you got to keep your cool and you know be sort of diplomatic in dealing with the difficult clients. And sometimes the difficult clients they just uhm, you know they not as difficult as they appear to be."*

A participant from Wits indicated that *"And another challenge with difficult, I mean even from uh postgraduate students, it's exciting to work with them but the challenge is the age. And others are very busy, others are Ministers, uh Government Ministers, others are CEO and where they are they have PAs, so they expect you to be their PA (laughing), that's a challenge, so you must know, you must have emotional intelligence, and you must know how to say no professionally to them, ya (laughing)."*

One participant from Unisa expressed the following view about clients:
*"I must confess I don't have difficult clients – so ya, I'm not exposed to difficult clients*

### 4.3.4.3 Training/workshops, new programmes and ICT support, among others

Participants were asked about other challenges they encounter when playing their role as subject librarians. Participants indicated that ICT is the main challenge especially when conducting training remotely or off campus. They experienced challenges with access where students are unable to download the programme, databases not opening, cannot open a PDF file and the internet is either not working or very slow. Off campus training becomes a nightmare with most of the subject librarians depend on the internet, where half of the institutional information is limited (Corrall, 2018). Others explained that the on-site training they also experience technical glitches that impact on people coming from far and the delay caused by ICT to attend to the problem affect the time allocated for that particular training. Due to the majority of students being remote, subject librarians depended on ICT without which there is no service. Not having enough ICT support becomes a major problem and causes delay in responding to queries or emails.

The majority of participants indicated that there are no facilities, such as small rooms for group trainings. There are not enough electronic classrooms to conduct group trainings, and in some instances, there is no electronic classroom at all. The hands-on training and one on one training were done using the individual staff computers; in some instances, with a very high success rate and others felt that one on one training is not conducive, is time consuming and allowed interference by other people. At some point, subject librarians have to share training rooms with academics, and that needs to be booked, especially for huge numbers of undergraduate students. Inadequate buy-in from stakeholders and having to compete with the University calendar in terms of bookings, impact negatively on the subject librarians' work. Subject librarians experience lack

of cooperation from the course coordinators in bringing students to the library training. They have indicated that they have a challenge in working directly with academics in this regard.

However, other participants indicated that the ICT personnel is always on call and they receive the necessary support needed. Another participant indicated that the labour action had an impact on training and workshops conducted by external service providers and has to be cancelled many times. Some participants expressed their views as follows:

A participant from Unisa indicated that "*It boils back to the ICT, ICT is very crucial in our role and if ICT is not working it means Personal librarians are dead, we are dead as a service. So, we depend on ICT why, because most of our students are remote*".

A participant from Unisa expressed that "*Uh I think the problem is especially with the online training is uh not being able to get uh ICT support uh on the go. Like when you started the training session right, and there's a student busy writing to you that he can't join the session. Its quite challenging maybe in this uh and even when you on campus. I think the number of ICT support technicians that we have there should be uh dedicated, more dedicated staff from the ICT office who are embedded in the library. So, uh we can trouble shoot that more uh efficiently*".

Another Unisa participant indicated that "*Other departments not coming on board and you need their assistance, you need their support to perform your role. ICT, research department uh some academics not buying in to what you have to do. Yes, we have to do training, we have to do our workshops, we have to compete with the University's calendar and that's a challenge. I mean if we've booked and the University has something else, we have to re-book and the ELC is very fully booked…*"

A participant from Unisa stated that "*Students that are off the campus can't always access the things we send to them for instance, I mean a very specific example is the reference manager tools like RefWorks and Mendeley. Sometimes people can't download the programme that they require…*".

A participant from Wits indicated that "*Uh venues are not always conducive to let's do a hands-on you know you have a class in time, it's never the same uh I think in the library the hands-on is the best, but we just don't have the facility to do that, ya!*"

Another Wits participant expressed that "*I think my other challenge is being in charge of the Branch, is that aspect, the management aspect is a big challenge because lack of communication is very frustrating. I will give you an example; last year ICT reinvent everything and they never told us! So, their lack of planning on their side impacted on us, we have to put our work on hold.*

### 4.3.4.4 Liaison-related challenges experienced by subject librarians

Participants were asked about challenges they experienced in liaising with clients. The majority of the participants indicated lack of communication from academics to be a major factor. The unavailability of stakeholders, academics not responding to emails exacerbated their workload and led the subject librarians to engage more in liaising. For adults, most of them are techno-phobic, which creates a communication challenge. The unavailability of academics rendered them incapable of adhering to the due dates for book purchases and renewal of subscriptions. Most

subject librarians expressed their frustrations that it is difficult to fit into the very busy academic schedule because of their workload. They felt that most of the time they are not entrusted as subject librarians to deliver the service and they are being undermined even by students because of just being ordinary librarians.

Another challenge indicated by some participants was that of people working in silos. There has been a fragmentation that has undermined the connectedness between subject librarians and academics, which has led to their research papers being dropped off. Another participant indicated the use of formal institutional email, especially to students, to be disadvantageous to those who may not claim the account, causing communication to be ineffective. Another participant indicated that not having ICT backup to assist in training, being off campus where one is interdependent is difficult getting access or getting hold of people from the main campus. The overlapping of the departmental meetings with subject librarians' training schedule, also caused library operational malfunction. Few other participants cited a challenge with the use of language by veterans who needed translations and that was inconsistent with the library jargon used. In that regard, some participants expressed the following views:

A participant from Wits expressed that *"Ok, our liaison is very good over the years, uh after the you know lecturers are always hard to contact, they have flexible hours, very they highly mobile. So, in the old days I would phone the entire school if we had a book display here and they could come and select. So, uh there has been a fragmentation that's happened, the lecturers are working alone or in little groups and little networks. So, the fragmentation has undermined uh our connectedness with them and the dropping off of their research papers."*

Another Wits participant indicated that *"As much as we have uh library reps that represent, they are from the academics they represent libraries, sometimes they are very busy to support us. Academics are always not available; you are not sure whether is because of their load of work or is because they don't take the library seriously until there is a serious information need or until something impacts on them negatively. When we have to purchase books for them, they are supposed to get reading lists because we have a due date for submitting our book orders as branch libraries. My goodness, you will find that reading lists are not coming forth!"*

A participant from Wits stated that *"Time is a big factor; you want to liaise with people about their needs, but they just don't have enough time for you."*

A participant from Wits indicated that *"Just lack of communication, people work in silos. And uh something that drives me crazy is getting the book list from them. You will think it will be such a simple thing but everybody will decide what prescribed books they going to set for the year."*

A participant from Unisa stated that *"Uh I think is non availability for certain key role players for an example; ICT whereby you need that backup, and then you have one person who will be busy assisting someone else out there and you are desperate you need help. I think what we encountered you know like recently its uh you know being uh what should I say you know like uh, remember like departments they have*

*departmental meetings neh, uh you find that you know like uh two days later that ok there was a departmental meeting but you were not booked and yet there are things that you want to share with them, ya!"*

A participant from Unisa indicated that *"But uhm you know the bigger departments uhm it can be difficult to reach each individual academic staff member you know uhm plus you know as I said they are so busy as well to uh ya, to get to then or for then to come to us is sometimes not so easy."*

Another Unisa participant indicated that *"Ok, if I'm looking at academics, we kind of fine there because we've got the offices upstairs, we in academic meetings where they give us time to speak to them, we can easily communicate with our academics. To me really our students are not reading and some of the problem is that they consider themselves superior and the fact that they are business people and some of them are CEOs they running companies and here you just a librarian and now you telling them what to do, some of them do not take very kindly to that."*

A participant from Unisa indicated that *"Definitely the fact that we are trying to fit into a very busy academic schedule, uhm sometimes is difficult to just get a meeting with the department, I'm not talking the liaison with academics. I know they are very busy and they supervise a lot of students, publish a lot, do not overwhelm them and send them all kinds of things and you know so, I'm aware of that. But that getting into their department is sometimes difficult."*

Two other participants indicated they did not have any liaison-related challenges as follows:

A participant from Unisa indicated that "*Yes uhm, none really. I don't uh look we talking about uh communication with our clients and with uh staff. I am blessed because I work in this College, they are different type of client to others. So, the many years that I've been here I never had incident where uh unpleasant experience with the user, never."*

A participant from Wits expressed that *"No, I don't think I have any challenges there! I think we are close enough with faculty, we uh submit reports to senate library, we have all our library representatives, they are very active they like the library, we have regular meetings, we uh communicate regularly, uh so, I don't think there is a challenge really..."*

### 4.3.4.5 Subject-specific or knowledge-related challenges

Participants were asked about challenges experienced on subject-specific or knowledge-related while discharging their roles. Most participants indicated that the lack of the necessary background, knowledge, training skills and theory behind of a specific subject, is very difficult and could be a big challenge in terms of exposure and guidance on the subject. In this regard, one participant stated:

A participant from Wits indicated that "*Not being a professional in the professional field, not being a subject professional in the subject field that I was serving in, is often a problem".*

Others indicated that challenges related to lack of qualifications for a certain subject and not understanding the technical language used. This was expressed as follows:

A participant from Wits stated that *"It's a challenge I mean we are not Engineers they don't speak English properly; they speak other technical language. But obviously over with experience and over so many years, you kind of get uh a feel for the different uh the interrelated disciplines in a subject like Engineering."*

Another Wits participant indicated that *"Ok, I'm not an Accountant, I'm not an Economist and I've had to learn, and I've had to ask questions, and go and read about that and try and understand it."*

A participant from Wits stated that *"That you don't, you are an Architecture librarian, or you are a Planning librarian, but if you don't have that professional knowledge is something that you can acquire as much as you can but is still a bit out of depth with what is, what really is uh happening in the field that you are serving. And so, you can only provide up to a specific level and not further than that, uh so that is a challenge."*

A participant from Unisa indicated that *"Ok, uh I have definitely I do have challenges. But uh I also had Russian and for two years I tried to learn the Russian language, but I don't I'm not really a quick learner in languages. So, that was a huge challenge because I can't uh speak Russian to the Russian students. Uhm, and the same now I'm with uh I've got linguistic, so there we sit with uh Portuguese, we still teaching Portuguese, we teach Chinese, I can't even I can't do it, that's a real challenge."*

Other participants explained that changes in their subject areas and allocations to brand-new in a highly specialised subjects could be a challenge and could lead to improper searches. Another participant indicated that being in the interdisciplinary field, having to keep the momentum, keeping up to date, keep knowing what is happening in the information sector that keeps changing so quickly and makes things practically impossible to keep up to date. Another participant explained that there were problems with limited data, information and resources. However, five participants indicated no experience of any subject-specific knowledge problems, and mentioned:

A participant from Unisa expressed that *"Uh I don't have any subject uh specific knowledge related problems. Uh I'm always doing my research on topics as they come. Uh I think uh you don't have to be a Lawyer or an Advocate to be a good uh Personal librarian or Subject librarian. Uh you pick up along the way uh you can ya, you gain knowledge along the way. Is a matter of using the principles…uh so I don't experience any challenges in terms of that."*

The following are more views expressed by participants who have never experienced any subject or knowledge related challenges:

A participant from Unisa expressed that *"But I think we can work a little bit on our side but uhm, is not a challenge for me in terms of this shall I say the subject or the contents of the subject that I can think of now, uh we are sufficiently resourced."*

A participant from Unisa indicated that *"But for me because I've got this job now for many years, I had as a major, the other is my home language, so I'm very comfortable with what I've got, with what I'm doing."*

A participant from Unisa indicated that *"I think I'm well vest with law I've never experienced any subject uh you know related problems…as long as you know where to find what, then is easy."*

Another Unisa participant stated that *"If I have challenges, I ask around. So, is not a train smash because some of us we not expert in the subject that we are being allocated for! You just grow into the subject you tend to learn as you go alone."*

4.3.5 Current job requirements of subject librarians

Working in different institutions; that of open and distance learning and that of open and contact learning may also differ with regard to job requirements. This section sought to find out the current job required by subject librarians in these two institutions of learning. The following questions were asked:

- What are the competencies that you think subject librarians currently require to effectively discharge their duties?

- What are the skills required to enable subject librarians to perform their job?

- In your opinion, what are the competencies and skills do you require to enhance your role as a subject librarian?

*4.3.5.1 Currently required competencies for effective subject librarian services*

In this objective, participants were asked about their abilities and knowledge required for subject librarians to effectively discharge their duties. The majority of the participants expressed the ability to communicate effectively, and that the ability to listen and understand was important. The majority of subject librarians indicated strongly about being knowledgeable of the subject field or discipline involved, the platforms to support research, the general knowledge about everything around research itself, of publishing to also support subject librarians and the upcoming publishers to be the competencies required for them to effectively discharge their duties.

Participants indicated that subject librarians should have the knowledge of the technology, understands the product and be able to use every tool compatible to their advantage. Some of the participants indicated that the ability to handle people, customer focus – people skills, client focus, the ability to always remain patient and have interest in the people that you serve, friendly, very diplomatic and emotional intelligence, know what to say at what time and how, is very important. Other participants also indicated that critical thinking is required, be able to interrogate the search request, have good searching techniques in conducting literature searches and be able to interpret some of the things to the users and manage information very well and disseminate information selectively in order to move with trends.

Another participant indicated that the ability to read and understand policy is very crucial in discharging duties effectively. Other participants indicated that in order for subject librarians to effectively discharge their duties, they should at least have attempted to write an academic article, be analytic, able to write reports, be flexible, acknowledge their weakness and know how to use their strength, acknowledge when they need assistance and have the service ethics of a librarian. Another participant acknowledged the difficulty of not being 'a people's person' and poor

administrative acumen. These skills were viewed as important to make one's voice heard in management suggestions.

To this effect, participants expressed their views as follows:

A participant from Unisa expressed that "*So, to me a competency is definitely flexibility. Uh competencies is also to acknowledge when you need assistance, you can't know everything…another ability you need to have is to me is know how to use your strengths and be aware of your weaknesses.*"

Another participant from Unisa indicated that "*You must have the ability to be patient to be able to train others and to be trained as well. You must be competent uhm in interrogating uh a search request and uh you must be competent in using emerging technologies.*"

A participant from Unisa indicated that "*So, uh critical thinking obviously and then… a very good searching techniques to try and get the most relevant information. And then uh a very high level of uh ICT knowledge to be able to navigate these things, these databases that are available to us.*"

A participant from Wits indicated that "*I think they should have a general Degree in the field of the uh community they serve. I think they should have at least attempted to write an academic article so that they have sympathy with what uh researchers go through. Uh, and they should have the service ethics of the librarian.*"

A participant from Unisa stated that "*I'm not a people's person, you have to be a good listener, you have to be analytical, you have to uh you have to be able to write reports, uh you have to be able to make your voice heard in management suggestions because we sit on the College board, we sit on various Committee meetings.*"

*4.3.5.2 Skills required for subject librarians to perform their roles*

Participants were asked about the skills that are required for them to perform their job as subject librarians. The majority of participants indicated the following as the most skills required to enable subject librarians to perform their duties:

- Communication skills
- Training skills
- Computer literacy / technological or ICT skills

These were followed by other participants indicating the teaching and presentation skills, people skills, listening skills and searching skills. Some few participants indicated writing skills, interviewing skills, interpersonal and conflict resolution skills, time and management skills, project management skills, information skills, archiving skills, subject knowledge skills, customer service skills, reference skills, marketing skills, intercultural and language skills to also be required by subject librarians to do their job. More views expressed by participants were as follows:

A participant from Wits expressed that "*Ok, the skill needed firstly your qualifications I can put it as a skill in this regard because you, I think you need an Honours Degree and then the other skills you need to know*

*how to manage your time. And then you need to know how to be a team player because you don't work alone sometimes you need to consult."*

A participant from Wits indicated that *"Well, they should have uh knowledge of their sources, the resources of the University, they should have uh strong knowledge of referencing and citation. They should have uh both the rules and methods and the software, or at least one software, know uh how to do a literature review, now something about uhm the element start of the thesis uh the keyword."*

A Wits participant indicated that *"Ok, you need to be able to offer training, so you need to be able to stand in front of group of people and training skills. Customer service skills, uh you need to know how to communicate effectively with your users."*

Another participant from Wits stated that *"Subject knowledge obviously, some teaching qualifications uh and technological qualifications. Uh so, I mean I have learned everything as I go along. When I came here as I said everything was manual and I had to learn uh and apply, which I did and I've grown enormously but will be much much easier if I could have redone my qualification…"*

A participant from Wits indicated that *"Ok, its management skills which include administration, project management because now and again we deal with different kinds of projects operations, uhm beyond what we were taught at school."*

A participant from Unisa stated that *"You have to be adaptable, you have to be computer literate and also uh you will have to have people skills, you will have to know to sum up a person very quickly especially with training, where are they, which level you have to go in."*

A participant from Unisa indicated that *"Its once again uhm, working with people, interacting with your ICT, uh communication skills, interpersonal skills, uhm conflict resolution is there uh people are under pressure and then they want something yesterday and you know that kind of thing."*

Another participant from Unisa expressed that *"So yes, skills technological skills… uh but the other thing is uh where is attitude, attitude and ethics is uh I think very important which brings to the job. Ya, but then there is another uh requirement I think and that is uh sense of responsibility and uh sense of duty to help people. If you find that as a problem, then you've got huge problem."*

A participant from Unisa stated that *"I think those skills are very very important. You must be able to write, you must be able to communicate in the form of an email. You must be professional in the way you execute uh your emails. Uh you must be able to execute the way you train even telephonically."*

*4.3.5.3 Competencies and skills required to enhance subject librarians' roles*

In this section, the participants were asked for their opinions regarding the competencies and skills to enhance their roles as subject librarians. The majority of participants from both institutions indicated the most competencies and skills required to enhance their role as follows:

- Communication skills
- Presentation skills
- ICT or technological skills
- Research support skills and

- People management skills

Few others from both Wits and Unisa indicated information searching skills, listening skills, planning and interpersonal skills to also be required to enhance subject librarians' role.

4.3.6 Recommendations to improve subject librarianship at academic libraries

This section sought to find out improvements and suggestions that could be recommended for subject librarianship. Accordingly, participants were asked to recommend subject librarianship improvements. The following questions were asked in relation to this objective:

- What further training is required for subject librarians to align with new developments?
- What other initiatives or interventions should be put in place to enhance your work as a subject librarian?
- What else would you like to share about the role that you play as a subject librarian?
- What solutions would you offer to overcome the challenges you identified in Section D above?

*4.3.6.1 Further training for compatibility of current roles with new technological developments*

In order to align their role with new developments, subject librarians were asked whether there were any further training required. The participants had various suggestions, and the common denominators were: training on research data management, being aware of modern trends in the market, the publishing trends, open science or open access, digitisation and preservation, bibliometrics, institutional repositories, as well as 'train the trainer' courses since subject librarians are heavily involved in training and self-development to acquire the technological skills (Trembach, Blodgett & Floersch, 2019; Wand, 2011). Trainings on the Apps related to Library and Information Science, on the Microsoft packages to know them very well and on coding was also recommended. Subject librarians should enhance their research skills with the broad-based skills using software, become research librarian, advise people on the writing skills and they also need to be able to write well, liaise with people and market their services.

Other participants indicated that they should receive refresher trainings offered by service providers on various citation tools, customer service, presentation skills, research data management and on reference management skills. Few other participants indicated that technical expertise or having basics on the role of a system librarian is required and understanding the research process better would greatly enhance the subject librarians' position. Another participant suggested that more online subject specific workshops on Libguides of databases should be offered and more time should be allocated to enable subject librarians to explore new avenues to enhance their skills.

Other participants indicated that subject librarians should attend lectures, book launches, reading in their field, attempt to write something for learning experiences and should be a true and happy librarian who is not ashamed of being a librarian. Another participant suggested that library schools need to re-work their curriculum or teaching offerings to align with the changing world. More research should be conducted on technology-inclined curriculum. Another participant indicated that subject librarians have to skill themselves because there is no in-service training except when one registers for an academic qualification. Otherwise, there is no further education for current librarians. Participants' views were expressed as follows:

A participant from Unisa expressed that "*Uh I think benchmarking is very very important, because there is more contact Universities than uh distance uh Universities. But now that most Universities are hybrid, I think we shouldn't work in silos. Uh that comes to my second point is collaboration uh with other Universities uh libraries and other personal librarians or subject librarians.*"

A participant from Unisa indicated that *"Well that shift, uhm I think you must be aware of trends, is all driven by the publishers really. Then you have to acquire the skills, the technological skills to make a contribution."*

Another Unisa participant stated that "*It's sort of like I think is individually, you have to keep yourself up breast with what's going around you so that you don't stay behind and you know you must know the new trends. So, you have to skill yourself because we don't have uh in-service training unless you go and register for an M or a PhD and pursue sort of like an academic uh qualification. There is no uh further education for current librarians I mean in all sectors not only in academic libraries…*"

A participant from Unisa indicated that *"…part of the institution and now is going to impact on our role is the thing of research data management, so we would need training on that plus further training I think on various uhm you know citation tools like the SciVal and the uh Incites and uh you know Web of Science, Scopus, all those tools."*

A participant from Wits stated that *"…I had a sense that uhm I graduated as a librarian, I'm now work as a librarian but there is somewhere where my library school didn't prepare me well for right, ya! But there are certain things that you should increase teachings on, we need to rework our curriculum offerings at library schools because the world out there is different from what you taught us then."*

Another participant from Wits indicated that *"One should attempt to do work in the field. You shouldn't be like somebody who is actually ashamed of being a librarian and wanted to be an academic. One must be a true librarian, happy in your work. Uh so, I do believe uh librarians should attend lectures and they should attend book launches, they should do a bit of reading in their field, in the field of a client and they should attempt to write something."*

A participant from Wits stated that *"Ok, yes training is needed, lot of trainings…there is lot of things to be trained on, about the Apps that is related to Library and Information Science, you need to know the computer very well. And then you need also to know I spoke about coding, is needed as we going further with our career, ya because this is the language of the computers that will be using and then you need to also know the like the role of system librarian is needed as a basic for us, ya!"*

A participant from Wits indicated that *"Uh in research, the future is bibliometrics, we really need that to understand… data management is the future is very important understanding how the importance of*

*harvesting and preserving data. Uhm, digitization is the future, uhm understanding around institutional repositories, anything that involves open access or open science, is the future is very important."*

*4.3.6.2 Other initiatives/ interventions to enhance subject librarians' work*

Participants were asked about other initiatives or interventions that could be put in place to enhance their work as subject librarians. They expressed different views, and few of them indicated that more time is needed to explore new technologies in order to add value to the job. Others felt that support to attend workshops, conferences related to subject librarians' role outside the institutions, opportunities to study further in order to update their skills and knowledge is needed. Some of the participants indicated that budget is essential in all these to accommodate the new innovations and technologies before they could be outdated. Other participants explained that the institutional ICT need to keep pace with all the technological developments. Subject librarians require the technological gadgets and all ICT related things such as the latest laptops, projectors, electronic pens to uplift their client services. They require good facilities to enable information literacy presentations to run smoothly and have a good connection system for student access.

Other participants felt that subject librarians should improve on communication in the way they write, speak over the phone and the way they train. Participants also explained that institutions should develop improvement plans, scrutinise comments received from clients, and management should action the results from the reports and evaluate the services. Subject librarians believed that more professional staff members and enough human resources are needed to enable effective service.

Two participants believed that there is no further education for the current librarians in all library sectors, and not only academic library. Another participant indicated that not much intervention is required because everything is generated within the subject librarians' group meetings and support is given to attend subject conferences and other related courses and seminars. The particular participant mentioned:

A participant from Unisa indicated that "… *but we have uh monthly meetings and there things are developed. But uh as far as our job is concern my impression is that everything is generated within the group during meetings, so I rare these meetings because you go there and you just know you gonna pick up work."*

Other participant explained that the institution should have a clear mandate and identity of who they really are, whether distance or residential, as this impact on the job of a subject librarian. To this effect, the participants mentioned:

A participant from Wits indicated that *"We need, I need uh the library to support us with funds for in case if you are registering for short courses that will enhance you and then also to study more,… and then also to send more staff to conferences that speaks to our as subject librarians."*

A Wits participant expressed that *"Uh human resources that we have that's getting thinner and thinner financially. Uh I guess more support community of practice type of uh arrangement with not only within you know your own institution but also outside."*

A participant from Wits stated that *"Good facilities, uh they redoing this whole library now making it easier for the librarian to interact with the resources, the primary resources. And to redesign the space uh is something that is very important for the librarian uh because if you can't have access to some of the resources, how can you retrieve it to your staff."*

A participant from Unisa indicated that *"…I'm not sure if physical outreach programs are possible but I think one should try at least say in a year to visit two or three regional offices or areas outside of this you know very tight Pretoria circle, and see if we can't get to more students. Maybe if we catch them the first round with a face to face, you can get them onto the online training."*

A participant from Unisa expressed that *"We need technological initiatives lot of them, starting with laptops. We need to draw we need to design; you see we go to the extent of designing something so that it can be attractive to the eyes of the or to the minds of the clients."*

A participant from Unisa stated that *"There is a lot of uh work that needed to be done with copyright issues. Uhm, it is a specialize task to go and find out whether uh the article do you, can you just put it on the institutional repository. Uh also with oh the open educational resources."*

A participant from Unisa indicated that *"Evaluation, I think personally uhm is the evaluation of our services and have yes, not just to evaluate but uhm to have improvement plans."*

Another participant from Unisa expressed that *"Hmm, ya I think we take a lot for granted and I would like to see uh more development in terms of uh skills like the way people communicate, uh because we do observe on certain levels, the way some of our colleagues write, uh the way some of us speak over the telephone, uh the way some of us train."*

*4.3.6.3 Other improvement suggestions for subject librarians' roles*

Participants were asked to share more about the role they play as subject librarians. The majority of the participants strongly expressed operating in isolation from the rest of the library as a concern. They felt that subject librarians should be at the forefront of change in the library, adapt, work together, brainstorm and have more open transparent relationship with other departments since they deal with specific kinds of clients. Participants further explained that all sections of the library should work collectively on challenges they all face, introduce new initiatives together, and suggest solutions on how service can be improved for the benefit of the same client that they serve. Other participants believed that there is no effective communication, no cooperation and interaction and that creates a gap between subject librarians and some of the other departments

within the library. This applies to the regions as well as they do not align to the same language and offer the same service as subject librarians.

Subject librarians believe that as librarians, they need to portray the role of librarianship the way it really is, by becoming prominent in the academic systems and making themselves visible for what they can offer to alleviate the total misconceptions that people had. They should take initiatives, engaged in doing new things such as register on short courses like project management, continue learning in order to take up new challenges and keep up to date and enable subject librarians to effectively manage, lead, partake and make contributions in the work that they do (Closet-Crane, 2011). Some of the participants indicated that generally, they are happy with the work and received huge satisfaction from assisting people and that this is a very fulfilling role that needs all the support. However, they equally expressed their frustrations when technology gets in the way with old and undated equipment, and it becomes challenging at times because of work overload.

Other participants indicated that subject librarians are fulfilling a critical role as libraries are the heart of the University, and subject librarians own that space of being 'intermediaries' in a particular faculty or college and clients depended on them for information provision. Subject librarians engage and work with academics, draw up new modules and take part in their higher degrees, workshops and colloquia. Others believe that they play a critical role in terms of research support, they strive towards service excellence, go extra miles in a professional way, communicate effectively and work systematically with other departments within the library. Others indicated that as a subject librarian, one needs to be client-centred, should enjoy work and not just do it to complete the statistics. Another participant expressed that the role would be better if salaries were better and had better money to cater for extra things and on the other hand another participant expressed the privilege that subject librarians have with well-paid salaries.

Participants expressed their views as follows in that regard:

A participant from Unisa expressed that *"Well, I have no doubt what I want to say I think it's a privilege to work here. It's a fantastic place to work here, we have never had problems with pay or something like that. I think we are the best paid librarians in Africa or the Southern hemisphere or what."*

A participant from Wits indicated that *"You know I'm generally happy, it's part of the frustrations I like what I do I feel that I play an important role and I get huge satisfaction from having people coming to me asking me to help them and being able to help them. And I get very frustrated when technology gets in my way because I haven't been able to keep up enough. But other than that, I like my job and I just wish that we had better salaries and better money for the extras and better equipment."*

A participant from Unisa expressed that *"I enjoyed my work very much it's been a very fulfilled role. It was sometimes really just too much but then it stabilizes then you've got it again to go on. But the people I've been working with in the library even in the departments I had wonderful people."*

A participant from Unisa stated that *"Hmm, the subject librarians play a critical role, uh we strive towards service excellence… what I would like to see is a more open transparent relationship from other departments within the library who are also servicing clients and uh for us to come together in the future and brainstorm the challenges that we experience as a whole. At the moment I feel we all work in isolation from each other."*

A participant from Unisa indicated that *"..what we do to come up with to draw the new courses, or the new modules, let me say new modules because in our environment we use the modules. We are involved with lecturers those who are starting new modules, we get involved there we also through advices and we are also taking part in the Higher Degrees, in the Masters and Doctoral humm students hmm workshops and seminars and colloquiums where they present their research work."*

Another Unisa participant stated that *"So, uh and sometime I think that management wants stuff done to make it tick and is not for the client. So, we must be more client centred and not statistics just stats. But you must also enjoy your work I mean if you are appointed as a subject librarian, you can't liaise, you don't like people, don't want to work with people all day, every day, you must realize that as soon as possible otherwise you not going to enjoy your job."*

A participant from Wits indicated that *"But I was never taught project management you know, and here I am in a work environment and now things are changing, there are projects that you have to manage, there are projects that you have to lead, that you have to be part of you know. So, if you don't know a little more deeper about what a project is and you know what tends to happen in a project, you will be lost when you have to work with other professionals outside of librarians."*

A participant from Unisa indicated that *"For me I think subject librarians should be at the forefront of change in the libraries. I think we should be aware about what's going on. I think we should be adapting but I don't think we should be doing in isolation. We should be bringing all the different librarians, types of librarians, whatever you wanna call it in with us, and we need to be able to see as a group what our roles need to be in this changing environment …because I think we forget that we are serving the same clients in the long run."*

A participant from Wits stated that *"Uh I found that people have, people out in seats have a totally uh misconception of who and what a librarian is. Whereas, uh I think we are the only, us can portray the role of librarianship, the role of a librarian, the way it really is by becoming more prominent uh in our academic systems and providing and making ourselves heard and seen for what we can offer."*

Another Wits participant indicated that *"I think it's an important role whereby you are, you know libraries are the heart of the University and as the heart of the University you are in that own space whereby the Professors, the academics, the students they are looking at us as the provider of information."*

*4.3.6.4 Suggested solutions to overcome the identified challenges*

Participants were asked to suggest or share solutions that they could offer to overcome the challenges identified in the above section. The common solutions given by participants for each of the following challenges were as follows:

**(a) Lack of training venues or inadequate space with PCs to accommodate bigger groups for training**

Participants recommended the use of small audio or seminar rooms to alleviate clashes in the same training room. They indicated that the relationship with the faculty to understand the importance of trainings should be improved so that more support can be given to assist with bigger venues for group training. There is no privacy in offering one on one training and to solve this problem, renovations should happen in order to have cubicles for the dimensional private space. Participants intimated:

A participant from Wits indicated that "*I think if there is a better report between the library and the users! If I think that can be uh improved, the relationship with the Faculty and then we can get more support from there like for an example accommodating bigger groups, if they can assist with getting bigger venues and understanding how important this is.*"

A participant from Unisa stated that "*Ya, ohk uh remember we were supposed to uh have a renovation, and we were told that we may have you know like sort of cubicles as PLs, you will have a little sort of a dimensional sort of private space meant for one-on-one training.*

**(b) ICT challenges**

Participants suggested more funding to enable the ICT upgrades and for more developmental skills. There should be more dedicated ICT personnel in the library and not depend heavily on the institutional support only. Following are some of the views expressed by participants:

A participant from Unisa indicated that "*Uh ICT challenges I think we must work uhm more closely with ICT ...uh one of the suggestions that I have is that we should have more dedicated ICT support staff for the library.*"

A participant from Unisa stated that "*Uh I think with ICT, we need to have an ICT in the library and not depend on ICT outside.*"

Another Unisa participant indicated that "*I think we have to be uh, there are more we have to sit on more meetings and not just management so that we can have input of what is happening. That points on ICT I mean we actually want to be there to tell them what are our problems.*"

A participant from Unisa indicated that "*Uhm, the challenges of uh logistics, the institution has to come more into understanding that we have a job that we need to offer, and they should provide all the necessary equipment and the warm bodies at the ICT level in order to assist us.*"

**(c) Lack of communication**

Participants indicated that there should be improvement on timeframe and minutes of the outcome of meetings should be provided to update others. They also mentioned that people need to be told something several times even if it is said ten times for people to understand. Some of the

specialised areas of work need to be clarified and communicated for people to know. To this effect, participants expressed their views as follows:

A participant from Unisa indicated that *"So, things are not implemented we need shorter timeframe to plan and to implement and to get there. Ya, interactions with our stakeholder are crucial, the way we interact the timeframes that we indicate to do stuff must be adhered to. Uh, and on the admin side, minutes not coming you might not be able to attend meeting. When do you hear what was discussed, what you should do and that's communication in the library, could enhance everybody's work, better communication."*

A participant from Wits stated that *"Training, training, that's it and communication. You know talking to people about what you doing even if they don't understand anything. If you tell him the tenth time its gonna get them different understanding of what you are doing."*

## (d) Budget / funding constraints

Participants indicated that more budget should be allocated to enable subject librarians to perform their job well. They stated that to avoid limited resources, there should be enough budget to buy those resources to enable training to take place. They further indicated that lack of support such as copyright bill that is still sitting in parliament not yet signed, and this impacts on the profession not being recognised and taken seriously. Support from top management is required to enable subject librarians to perform their job well. Participants expressed this view as follows:

A participant from Wits indicated that "*The challenges you know they come through budget and support. So, my advice is for more budget to be allocated. So, its high time as librarians we are taken seriously you know our career is not that much recognized from. We are now talking of the copyright bill whereby is sitting at the Parliament and then is not signed. We also need support from our top manager uh so the strategical management to support us as subject librarians so that we can perform well in our workspace.*"

A participant from Unisa indicated that *"Budget and training, budget, money because if there is no budget, we cannot buy those things there won't be training. So, that is budget and training that's it!"* \

## (e) Lack of conducive physical infrastructure

Participants indicated that there should be more support from management to have proper maintenance and electronic appliances to avoid problems with difficult clients. Some participants expressed their views as follows:

A participant from Unisa stated that *"Yes, I think there is a lot of physical infrastructure needs to be upgraded you know. Uh, I mean currently the building is ok but uh ya, we need a lot of things need to be you know maintenance, proper maintenance done, and all the electrical things and the lifts and you know, uh that is ya that is safe that there is no hazard in the working environment."*

A participant from Unisa indicated that *"But then the challenge there is that if I book it and then is fully booked and my client wants to come so you know there is no private space, that's another thing. Have a solution by using the small audio…"*

## (f) Lack of collective meetings to avoid meeting in silos

Participants indicated that there was animosity, which could be avoided with meetings of all stakeholders, including management and representatives from the colleges or departments. Participants expressed the view thus:

A participant from Unisa indicated that *"I honestly think we have resorted to silos again. I think there is so much animosity between silos. Until we start realizing this is what we need to do to get this library further, this is how we supposed to be assisting the client, working together. "*

A participant from Unisa stated that *"...I feel that sometimes we have meetings in silos and we only speaking in library uh with library colleagues and stakeholders and management, but we do not have representatives from the Colleges.*

## (g) Collaboration / teamwork

Participants indicated lack of teamwork amongst professionals. To address this, there should be more collaboration within the library; should be group of people dedicated to particular faculties/ colleges' departments to attend to pertinent issues and not wait for one person. They suggested that management should re-look and find solutions for subject librarians working with branch librarians and avoid resentment on both sides. Participants expressed their views as follows:

A participant from Unisa indicated that *"Uh, other solutions is I think, there needs to be more collaboration within the library. I really think that is probably the key thing at this particular moment going forward, is collaboration you know getting us a lot because to be honest with you I don't know what the Collection Developer does, I don't know what you are doing uhm, I don't know you know what I mean."*

A participant from Unisa indicated that *"I think working together for an example, we can be able to call the head of that department and say these are the things that if they are addressed, they will make our lives a little bit easier, that is not happening neh. So, there is no accountability there. Those are the things you know like when addressed as divisions, be part of your meeting, and then they become part of our meetings, in that way we will be able to address not all of them but some, but we are in silos."*

A participant from Unisa stated that *"But I feel a group of people dedicated, like the team approach that the team librarians or the team groups that we have a couple of years ago, but not just once a month sharing information for a group to work together as honestly a team supporting each other. And what I uh perceive as a big need if I'm on leave, there is nobody to do my work. Why if we are a group, I'm not there but there are other people in the group that know the job, they can do, they can at least it doesn't stand for a week the request until I come back."*

## (h) Lack of cooperation from academics

Participants indicated that academics lack cooperation, and that there should be more engagement in the subscription renewals. To solve this problem, champions should be identified from the faculty and mainly those who use certain databases and liaise with them and involve the students who actually use the databases. Some views expressed by participants were:

A participant from Wits indicated that *"Ok, in terms of having challenges uh with academics when it comes to their cooperation when it's time for renewals, subscription renewals, is to identify champions from the faculty and liaise with those champions. For an example, uh you will look for an academic or lecturer who*

*is using a certain database and forward the trial to that particular lecturer. Also involve the actual students who are using those databases, to also uh receive a link to that trial, that can be a solution."*

**(i) Lack of subject background**

Participants indicated that to solve this problem, vendors should be organised to train students and have weekly databases and invite all postgraduates to join. Faculties to consider integrating information literacy programmes within the curriculum. Participants stated:

A participant from Wits indicated that *"The solution uh in terms of support is to organize uh trainers from the vendors to come and train the students, thus a solution. You invite them to organize maybe a database week, then you invite all of them within that week to come and train the students."*

A participant from Wits stated that *"In an ideal situation our information literacy programs should be integrated within the curriculum, then will have a slot.*

**(j) Short staffing and vacant positions**

Participants indicated that in order to solve this problem, the new structure employment is underway and need to upgrade the existing staff and add new professionals. Vacant positions should be filled and avoid acting positions opened for long to enable smooth communication and sharing of challenges with the relevant directorate or managers. Participants expressed their views as follows:

A participant from Wits stated that "*Hmm, ok uhm the short staffing yes, we are employing more. We are actually with new structure I have highlighted that we need two more professionals. So, in that whether we are upgrading the existing or we are adding new professionals I don't know…"*

A participant from Unisa indicated that *"I think we need, this thing of people acting for a long time I think it also create problems, so we first let's get our (giggling) permanent Directors and you know then maybe taking it from there."*

**(k) New responsibilities added in job description**

Participants indicated that by re-designing the spaces, re-writing job descriptions, finding potential areas that were not there before, creating new spaces and finding new technologies and sharing experience of using them could assist in solving the added responsibilities. Subject librarians should be open to new potential and apply social media which plays an important role in librarianship. Participants expressed their views as follows:

A participant from Wits indicated that "*Redesigning the spaces, uh re-writing job descriptions maybe uh identifying neglected areas in the new digital environment or uh not neglected areas but finding potential areas also that nobody even have thought about it. In other words, find come up with new ideas in creating new spaces but also finding new technologies and making uh sharing experience of using new technologies like for instance, who would thought that the social media could play a role in librarianship."*

A participant from Wits stated that *"So, be open to new potential, new technologies, new tools, how you can use it and sharing it with other people."*

**(l) Lack of shelf space to accommodate donated books and unavailability of books on the shelves**

Participants indicated that the policy on donations should be updated and be applied consistently. There was a suggestion to move more to electronic. To solve the unavailability of books that are supposed to be on the shelves, there should be meetings with relevant people, work together, operate in openness to address the issue and be accountable. Participants stated:

A participant from Wits indicated that "*If there is policy and there's the guidelines and there's this practice until it is over tuned and another new one is introduced or it is scrapped or whatever, it must be applied consistently. Otherwise, uh these particular challenges will keep popping up and an example of the donations is one you know.*"

A participant from Wits stated that "*Uhm, we have a challenge of the shelf space diminishing, we are trying to address that. How do we balance that and until we say in terms of policy, let's not accept donations anymore!*"

A participant from Unisa indicated that "*Solutions to the challenges, the issue of shelves, neh! So, I would say you know like if we operating in openness and then when they have their meetings down there and we have our meetings you know like as personal librarians, we can be able to call the head of that department and say these are the things that if they are addressed, they will make our lives a little bit easier, that is not happening neh! So, there is no accountability there.*"

**(m) Not reaching intended clients and not serving them satisfactorily**

Participants indicated that the student composite cannot all be reached. To solve this, it was suggested to increase the online training to ensure students are aware of the library and making use of it. In order to serve clients to the satisfactory, more proper and intensive workshop or training session should be organized to ensure that everybody is of the same understanding. Some views expressed by participants were:

A participant from Unisa indicated that "*But I sometimes wonder if a more proper intensive workshop or training session wouldn't ensure that everybody is on the same thing. Uhm, I worry sometimes about students that walk into the library and they don't get help here don't get help there and eventually they abundant it and leave the library without help.*"

A participant from Unisa stated that "*But ya, the other solution for the concern of not reaching so many students I have already mentioned and that's increase the online training by 100% to ensure that you get more students aware of the library, using the library, getting comfortable with the library, ya!*"

**(n) Massification as a micro issue with dishonesty on a micro level**

Participants indicated that student protests were caused by frustrations of the higher education system's failure to render them employable. Some views were expressed as follows:

A participant from Wits indicated that "*The problems are the micro nature in the country like us, which is in kind. Uh the massification is a micro issue. Uh in our side of history, we have to be sensitive to masses.*"

A participant from Wits stated that *"Universities are elite in nature and uh you know I can't be judgmental but at some point, the authorities should wake up and say hang on, how can we be preparing people for uh jobs that don't exist! Uh this frustration also I've heard underlay the riots that we had. Students knew they face, many students know they are not gonna get the job, they feel they have been cheated by the system. They have been teased and made to pay a lot of money and then there's nothing at the end of it. So, that dishonesty on a micro level should really come to an end,"*

## 4.4 SUMMARY OF THE CHAPTER

The outcome of the study in this chapter were presented in the form of the qualitative interview-based statements of the participants. The findings showed that as much as the research topic is about subject librarians, it has been found that librarians in the two sampled institutions share common responsibilities of a subject librarian but have different job titles. The roles that subject librarians perform in academic libraries showed similarities and that ICT has a major impact on the performance of their duties. Although that may be the case, the results showed a balance between the traditional and the current roles.

The duties performed by subject librarians in an academic library showed variations, especially towards the clientele they serve. In one institution, at Wits they cater for all types of clients whereas at Unisa, the focus is mainly on a certain group of clients. The management and administration roles are performed in one institution, which is not the case at the other institution. Regarding factors that have shaped or influenced the roles of subject librarians, the results showed that qualifications are significant and have laid the foundation. Changes on the organisational structure influences how subject librarians perform their duties. There was unanimity on the emerging technology and its major positive impact as the future viable option. The results further showed that although technology can be embraced, subject librarians often are frustrated with the slow pace of the network as it affects their job performance and service to the clients.

The results further showed that challenges faced by subject librarians in their new roles include amongst others, logistical challenges in serving clients, especially in remote places. Other challenges included time as a factor; access to resources; a total dependency on ICT; the liaison-related where lack of communication is experienced; lack of subject background and research knowledge; and not being entrusted to deliver librarianship services.

The findings also showed that the skills and competencies required included, but not limited to communication skills, training skills, computer literacy or technological or ICT skills, presentation skills, research support skills, people management skills, listening skills can enhance their role. Furthermore, the findings showed various suggestions on the recommendation to improve subject

librarianship in that training, research skills enhancement, more time needed, online subject specific workshops, opportunities to study further and budget are all very essential. On the other hand, some subject librarians opined that communication needs to be improved and management needs to develop improvement plans. The results showed that subject librarians should be at the forefront of change in the library, work collectively with all sections of the library on challenges faced, and bring together any suggested solutions to improve on the service. The results showed that generally, subject librarians are content and find their role fulfilling.

As indicated in the chapter's introduction, focus was entirely on the presentation of the collected data, while the more detailed discussion of the self-same data ensues in the next chapter.

# CHAPTER FIVE
# DISCUSSION OF FINDINGS

## 5.1 INTRODUCTION

The previous chapter presented the findings of the study as the collectively accrued statements of the 25 participant librarians in response to the researcher's interview-based questions. The current chapter, on the other hand, presents the discussion of the findings to the study. As opposed to the previous chapter's participant-focused presentation of the findings, the current chapter further depicts a particular researcher-centric in terms of which the 'authorial voice' of the researcher is pivotal to the meaning-making of the participants understanding of the central phenomenon of their roles and duties in the technological era (Fetterman, 2010; Göran, 2011). The purpose of the study was to determine the current and emerging roles of subject librarians in academic institutions in South Africa, with specific reference to the University of the Witwatersrand and the University of South Africa libraries.

The main findings in this chapter are discussed in terms of the following headings, and as commensurate with their thematic representation in Table 4.1:

- Traditional, current and emerging roles of subject librarians;
- Duties and functions of subject librarians in academic libraries;
- Factors that have shaped or influenced the roles of subject librarians;
- Challenges the subject librarians face in their new roles;
- Current job requirements of subject librarians; and
- Recommendations to improve subject librarianship

## 5.2 TRADITIONAL, CURRENT AND EMERGING ROLES OF SUBJECT LIBRARIANS

The traditional, current and emerging roles of subject librarians are discussed in this section in relation to the roles that subject librarians perform in an academic library; whether the traditional roles have had a bearing on their current roles; librarianship changes in the last 10 years; and the any possible predictions for the future of librarianship in the next 20 years.

### 5.2.1 Roles subject librarians perform in academic libraries

Librarians have the essential skills and experience required to guide users through their information needs and requirements (Baker & Evans, 2011; Karasic, 2016). Their traditional skills are still in demand and are still being used. In order to align their erstwhile roles and responsibilities with current expectations, librarians need to reposition themselves within a changing technological environment. The findings of the current study revealed that in both institutions (Unisa and Wits

University), there are a number of roles and duties that subject librarians perform and fulfil in compliance with their job descriptions. These include, but not limited to training/ information literacy/ user education, research support, building relationship, providing search services, involvement in new course development, faculty liaison/ contact, and collection development. In this regard, many of the librarianship roles (e.g. preservation of information, access to, and provision of data, instruction) have not necessarily changed in recent years (Chong 2001; Wu, 2008; Mwaniki, 2018). What is viewed as having dramatically changed is how libraries fulfil the new roles in a new era, as compared to the past. The most frequent changes in the librarian roles relate to aspects such as: intensification in teaching of information literacy; library skills and liaison role with faculty; as well as more involvement in ICT, e-learning and virtual learning environments to facilitate users' learning and adapting to the changing learning habits and expectations of a new generation of students (Young & Kelly, 2018; Simmonds & Corrall, 2011).

5.2.2 Traditional roles of subject librarians' with a bearing on current roles

In terms of the question on whether traditional librarianship roles have had a bearing on their current roles, the findings revealed that the traditional roles do have a bearing on the current roles. Despite technology's influence, the traditional knowledge is still required. Gerlich (2009) and Wexelbaum (2016) submit that the state-of-the-art reference services must include a hybrid of traditional and electronic services to complement the responsibilities of librarians. In libraries such as the MSU (mid-size university), dual methods of communication are offered with reference staff; live chat and email reference, but users still value the human point of contact when seeking information in the library. Rodwell (2001) and Madhusudhan & Lamba (2021) pointed out that the problems of finding relevant information even within specific subject areas or disciplines requires specific subject information skills. However, virtual clients still seek reference librarian's expertise (Watkins & Kuglitsch, 2015).

The findings (see Table 4.1) also showed that background and age have a bearing in that a traditional librarian struggles to cope with the technical and technological aspects of performing their work. However, rapid change cannot be ignored, despite that it has not been an aspect that the librarianship profession has generally had to deal with (Rubin, 2000; Shafique, 2007; Weaver, 2019). The findings by Mabry (2001) and Hostetler (2020) indicated that over the years, libraries and librarians have struggled to adapt to the many changes in their functioning. The central issue faced by librarians fundamentally relates to control of access to information and information technology between the system and the user. Callister (2008), Harris (2016) and Darch and de Jager (2012) contend that the technical and conceptional foundations of reference librarianship

must change in order to survive the information age by adopting the "access engineering" model according to which information seekers are treated more as consumers, with technology serving as an information to users on demand. The more users become sophisticated, the more they become also more demanding in their expectations of the library's reference services (Chanetsa & Ngulube, 2016; Chong, 2001).

5.2.3 Changes in the last 10 years in relation to the role of subject librarians

Traditionally, subject expertise was supposedly based on actual subject knowledge that may have been formally acquired, or at least with extensive experience of a particular field (Darch & de Jager, 2012; Rodwell, 2001:50; Madhusudhan & Lamba (2021). Based on the current study's findings, changes experienced by subject librarians in the last 10 years were found to be linked to the institutional reorganisation (merging) of universities, which has caused the library to lose its essential nature. As much as technology has brought changes, this study found the role of the subject librarian to be more or less the same. Shafique (2007) and Yaming (2021) avers that the role of a librarian has remained relatively constant for more than 100 years. However, the impact of technology on information competency in higher education has become an extant and irrefutable issue. The academic users, faculty and students are becoming more dependent on the information they need for their learning, teaching and research, necessitating that the librarian's role in the information age should be multi-dimensional (Darch & de Jager, 2012; Young & Kelly, 2018).

From the beginning of formal libraries with recognised professional librarians, the primary role of the librarian was to serve as an intermediary between stored information and people who can use that information (Callister, 2008; Mabry, 2001; Waller, 2011). Only in the 20th century did major changes in libraries appear, with advances in the technology field looming large. Mabry (2001) submits that as published information increased over the last several decades of the 20th century, librarians continued to improve various schemes for organising information, especially when computers became a major part of library service.

The current study's findings revealed that subject librarians found themselves dealing not only with new information sources, but new equipment as well. According to authors such as Covert-Vail and Collard (2012), Harris (2016), Hart and Kleinveldt (2011), reference librarians found themselves increasingly overwhelmed in adapting to new hardware and software with inadequate training or previous experience in that regard. Librarians need to constantly keep updating their skills and knowledge as "specialists in generalities", while also mastering the complex searching capabilities multiple other specialists. Therefore, the work of reference librarians could be successfully carried out with their adoption of the following attributes: (1) optimistic about the

future, (2) open to alternatives, (3) good at turning innovative ideas into practical solutions, (4) adventurous with multiple interests, (5) people who take action and make things happen, (6) full of commitment to what they are doing and (7) being non conformists (Hart & Kleinveldt, 2011; Mabry, 2001; Machi & McEvoy, 2012).

5.2.4 The future role of subject librarians

It was forecast a few years ago that the role of libraries would be reduced due to the effects of electronic communications in a paperless society (Bailey, 2005; Hazen, 2000). In fact, Dakshinomurti and Satpathy (2009) stated that in some cases, the librarian's location in a library is often set apart from the office areas of the library users. However, libraries and their reference services have not completely disappeared, nor become wholly paperless. Instead, traditional library materials and electronic resources will continue to coexist, with librarians assuming different names, such as reference librarians, information specialists, information scientists or cybrarians, and libraries and reference services experiencing a combination of different degrees of virtualisation (Feldman, 2006; Karasic, 2016).

In this study, the findings predicted different views and perceived major changes in librarianship. In this regard, the future librarians would be embedded, working outside the library building in partnership with academic departments; working as roaming librarians closer to the clients providing service 24/7. This is however not the case at Unisa library, the subject librarians' location is open and set at the proximity of their collection. At Wits libraries, subject librarians are also placed in each building that serves their subject areas of disciplines.

The findings further revealed that subject librarians will become facilitators of information and still be relevant, since human capital will still be required. Librarianship is a service-oriented and noble profession that deals with dissemination of knowledge (Gaston, 2001; Seal, 2015). As such, librarianship is an exalted profession which enhances and broadens vision, increases the spheres of knowledge and the depth of friendship amongst human beings. The findings also revealed that machines will take over the librarian's job and care should be observed while moving with trends as this might leave others behind. It is predicted that a lot of work will be conducted online from home and using connection on the platform, and there will be more sophisticated, techno savvy library users. The face-to-face interaction will be reduced with less space and no shelves in the library.

The findings revealed further that subject librarianship is undergoing radical changes due to the emergence of the digital era, but experience has proved that the traditional ways will not fade away

but rather form part of the current roles as subject librarians move with change (Schroeder & Hollister, 2014; Turner et al., 2013). The role may have changed as the library world have completely become wired and users are able to access the world of information through the internet without the librarian's interventions. (Penniman 1992; Yaming, 2021) stated that librarians are a curious enigma and have a long history of dealing with change but in a schizophrenic way. They are seen to cling to the past but yet are the heaviest users of technologies. What is predicted is seen to be happening already where technology is at its high mode of operation without which, one is lacking behind and not much can be done. Chanetsa and Ngulube (2016:160) highlighted that the profession would still be important by the year 2025 due to the continual growth in information technologies, the publishing industry and many other sources.

## 5.3 DUTIES AND FUNCTIONS OF SUBJECT LIBRARIANS IN ACADEMIC LIBRARIES

This section aims to discuss the duties and functions of subject librarians in academic libraries, particularly at Wits University and Unisa, the services offered in the libraries, duties that subject librarians perform most, and how their services would be rated in the library.

### 5.3.1 List of duties subject librarians perform in academic libraries

Findings revealed that duties performed by subject librarians at these two institutions have certain common elements but differ operationally. In that regard, information literacy/ user education/ training were found to be the most highly performed duties by subject librarians in both the institutions, and was confirmed by 21 of the 25 participants (librarians) in the current study. Meanwhile, 14 of the 25 participants indicated that their most highly performed functions included: research support, creating the ORCID profile/ ResearchGate, the NRF ratings, e-visibility, bibliometric reports, and impact factors/ citation analyses/ h-index.

Another 11 subject librarians from both institutions indicated that establishing/ building relationships (which has an equal indication with e-learning tools) constituted the foremost duty they perform in their respective academic libraries. This was followed by 8 (eight) librarians who indicated that the acquisition of items was a duty they performed, while 6 (six) librarians indicated that their library duties entailed guidance towards research topics/ fact findings. The SDI alert services was cited by 6 (six) librarians from one institution (UNISA) as one of the duties that they perform in their library. Furthermore, 5 (five) librarians indicated that their duties included communication and interpretation, while 4 (four) librarians from one institution (WITS) cited staff development/ management and administration in their 'inventory' of duties. The other 4 (four) librarians from both institutions indicated the provision of information, and 3 (three) from one institution (UNISA) indicated locating material from the shelves as other duties they performed.

Meanwhile, 2 (two) librarians indicated new course development, and one librarian from Unisa reported that trouble shooting was another duty performed.

Bisko et.al. (2019) and Ray and Macy (2014) allude that various personal librarian programmes have been developed across American public colleges and university campuses as outreach initiatives to student groups for purposes of marketing the library as more inviting and accessible. To this effect, Gaston (2001) identified five librarian responsibilities as a useful means to review of specialist subject librarianship in America to be: faculty liaison, collection management, reference cataloguing and classification, and compiling bibliographies. These were similar to the subject librarian responsibilities in the UK 's academic institution libraries (Clark et al., 2018; Gaston, 2001).

It could then be concluded that although most subject librarian duties are similar in some instances, others are only responsible for a particular target of clients; whereas other duties are managerial and administrative tasks of the Branch. With changing technologies and new media, the librarians' function of serving a diverse user base will grow, resulting in the need to find, change and utilise new efficient means to fulfil such responsibilities (Blummer & Kenton, 2017; Seal, 2015).

5.3.2 Services offered by subject librarians in academic libraries

Participants were requested to indicate the services they offered in academic libraries. The findings revealed that the majority of subject librarians proffered that the services overlapped with the duties they performed. However, they indicated that training/ information literacy, research support, marketing of library services and creating alerts, general assistance in finding information in the library and conducting the actual searches were the services subject librarians offer in their respective academic libraries. According to Tinuoye et al. (2016), the core duty of a librarian is to render adequate and effective services to clientele, irrespective of the size or type of the library, which was also confirmed in this study's findings, considering the varying clientele of the two academic libraries in this study.

5.3.3 Duties that subject librarians perform the most in academic libraries

Participants were asked about the duties that they performed most from those that they had listed. This question was posed against the background of the definition that a subject librarian was a librarian with specialised knowledge of, and responsibility for particular subjects or disciplines (Harris, 2016; Turner et al., 2013). Such responsibilities may include work on acquisition, stock editing and services to users. It is clear that the above definition is inadequate, given the current participative and learner-centric environment and its emphasis on the liaison functions and

teaching responsibilities that subject librarians perform (Mwaniki, 2018; Schroeder & Hollister, 2014).

The findings in this study revealed that the duties most performed by subject librarians were: training/ information literacy, building relationship and research support. Traditionally, the librarian's primary focus included the delivery of external information in the form of books, serials, technical reports. However, all that has changed for the betterment of technology (Baker & Evans, 2011; Litsey et al., 2018). From the findings, it is further evident that it is not always the case that the same duties are mostly performed. Depending on the cycle of research queries from clients, and changes that happens, the focus keeps changing. As such, Katsirikou and Skiados (2010), McCaffrey and Breen (2016) and Ojennus and Watts (2017) emphasise that the increasing interdisciplinarity, complexity and dynamism of research-based knowledge and information require the complementarity of services and methods by academic librarians regardless of their job description, academic rank or status.

5.3.4 Self-rating of the services that subject librarians offer in academic libraries

Librarians need to constantly stress the social, communal nature of their organisations, that quality needs to come to the forefront even in this technological age (Callister 2008; Silka & Rumery, 2013). To improve on the services offered by subject librarians in their libraries, participants were asked to rate their services. According to Bisko et.al. (2019), such self-rating is helpful in determining the nature of the required service-related changes. Furthermore, such rating is commensurate with the future subject librarian as closely involved in researching better ways of providing information to users, which includes making computer systems more friendly, creating more sophisticated databases, testing new technologies, and experimenting with different information approaches without loss of the personal contact (Ntoka, 2017; Schroeder & Hollister, 2014).

Bisko et.al (2019:60) added that email content analysis, sentiment comments from surveys and general comments, statements made by faculty and campus administrations are all possible qualitative assessment methods to evaluate subject librarian programmes or rather services they offer in this regard. Rating of services offered will allow the library to share the impact and value of the subject librarian's role within the library management and outside the library to faculty/ college and divisions as well as to students. The findings revealed will also assist in determining whether services offered by subject librarians are useful and worthwhile. Bisko et.al (2019) further stated that keeping track of *what* students asked and *when*, will make it easier to determine the most frequently asked questions, which can in turn assist to develop and provide resources,

services, or workshops to help students when needed. Overall, participants responses in relation to self-rating in this study show that subject librarians were generally offering satisfactory services ranging from 75% to 90%.

## 5.4 FACTORS SHAPING/ INFLUENCING SUBJECT LIBRARIANS' ROLES IN ACADEMIC LIBRARIES

This section discusses the findings regarding factors that have shaped or influenced the roles of subject librarians. These multi-factorial influences include variables such as: the impact of qualifications; the organisational structure of parent institution; nature of the library's influence on duties performed by subject librarians; the impact of emerging technology in its various categories; the regularity or frequency of ICT use; the impact of changes in information users' needs and information seeking behaviours; as well as other factors that might have shaped the job and roles of subject librarians. According to Otiango (2016), Simmonds and Corrall (2011) and Trembach et al. (2019), some traditional librarianship functions are still prominent parts of the subject librarians' role, despite the changing nature of the tasks over the years.

### 5.4.1 Impact of qualifications on the role of subject librarians

Participants were asked about the effects of qualifications on the subject librarians' performance of their duties. In its primordial sense, the term "library" meant a physical place for collection of written materials surrounded by walls (Loestcher & Koechlin, 2014; Soraja & Minhaj, 2015). However, the librarianship profession in the 21st century requires specialists in generalities, with libraries employing individuals equipped to meet challenges of future decades. In this regard, the findings revealed that qualifications do play a considerable role in respect of the training and preparatory groundwork of the required moral principles of librarianship (Bailey, 2005; Baker & Evans, 2011; McCaffrey & Breen, 2016). Furthermore, Chanetsa and Ngulube (2016), Soraja and Minhaj (2015), and Watkins and Kuglitsch (2015) concur that Library and Information Science qualifications are both important and useful as they form a basis of theoretical knowledge and principles of librarianship.

The majority of participants in this study showed that qualifications definitely played an instrumental role in their job. The findings also revealed that this profession is uniquely adaptable and has immensely contributed to the production and development of research. A few respondents reported that their job was shaped by self-development, offering themselves and earning expertise and skills through trainings.

5.4.2 The influence of organisational structure on subject librarians' duties

The findings revealed that the nature of the library as the organisational structure has an influence in the way subject librarians perform their duties. As such, the performance of subject librarians was viewed as inextricable from its parent organisational structure, a view also asserted by Paniagua and Simpson (2018) and Tinuoye et al. (2016). However, such inextricability was also viewed as negatively influencing their level of performance, considering the time taken to make decisions and implementing them.

However, some (few) participants averred that it was through their acquired knowledge, experience and teamwork that they performed well on the job, and not necessarily the organisation's structure. Such a perspective seems to concur with the views expressed by Lo and Chiu (2105) and Nakhoda and Tajik (2017), that the adaptability of the subject specialist librarian in a changing ICT-inspired environment renders the profession to function as the dynamo in any organisation regardless of its size and type. Therefore, since information services are mostly organised around the subject specialist than along functional lines, subject librarians are not a disappearing 'species', but possess subject knowledge to better fulfil their responsibilities and to perform a crucial role of the academic team, contributing significantly to add value to the higher education learning environment (Litsey & Mauldin, 2018; McCaffrey & Breen, 2016).

5.4.3 Impact of the emerging technologies on the role of subject librarians

Schroeder and Hollister (2014) and Ramzan and Singh (2010) assert that the increasing role of technology in libraries has a significant impact on the roles of librarians. New technologies are dramatically increasing the accessibility of information, and librarians are adapting to the evolving needs of users that emerge from the adoption of these new technologies. This study found that technology has a significant impact to an extent that nothing substantial could be done without technology's intervention. An analysis of the results indicates that technology needs to be embraced as it makes the processes easier, faster and improves efficiency. The findings also revealed that technology is an enabler with the potential for subject librarians to reach remotely located students. In such cases, libraries have moved to more sophisticated media and levels of services through, for example, video streaming services for remote users and distance learners in homes, offices, halls, and classrooms. This could help the library to reach more people at the exact point of need if users could initiate a specific multimedia-based library service when needed. (Ntoka, 2017; Ray & Macey, 2014). The findings also revealed that technology can be a disadvantaged to those users or students whose socioeconomic circumstances make it difficult for them to own the required information means, which then shows the flip side of the 'digital divide'

or the 'information rich/ literate' and the 'information poor/ illiterate' (Baker & Evans, 2011; Shumaker, 2012. Meanwhile, Simmonds and Corrall (2013) state that most students are techno savvy but lack IT skills to take advantage of the technology-induced opportunities. A few respondents, however, indicated that technology has eliminated their jobs and has brought a huge challenge to the elderly people (referred colloquially as 'the born before technology generation'). Ramzan and Singh (2010) mention further that librarians' role in IT related decision-making was linked to factors such as their level of familiarity with the new system, rank of the librarian in the organisational hierarchy, as well as their general positioning of technology influences.

### 5.4.3.1 Types of ICTs that have had a major influence on shaping subject librarians' roles

The study found that libraries cannot possibly provide support for all new technologies. Technology is multifaceted in nature, and does not allow one establishment to manage all services of information technology. Subject librarians need to realize that new technologies bring unique demands and admonitions (Ray & Macy, 2014; Walker, 2009). This implies that not all problems can be resolved with each new development of information systems.

Despite the indispensability of information and communication technologies, the findings in this study revealed that there is no single specific ICT that had a major influence on shaping subject librarians' roles. The majority of participants in the study use MS Teams, Libguides and databases. However, the few types of ICTs that were mentioned included, but not limited to reference management tools, e-learning platforms, library packages, the wired space, preservation social networks, Microsoft packages and even emails in some instances. Since librarians, especially the faculty librarians, are involved in the teaching and learning of the relevant faculties or departments, the limited application of sophisticated technologies could pose some challenges, especially in the current student-focused curriculum developments (Dolan & Schumacher, 1997; Loestcher & Koechlin, 2014).

### 5.4.3.2 Regularity of subject librarians' ICT usage to carry out their roles

In the current era, subject librarians as key stakeholders of software enhancements, are transforming themselves from providers of traditional materials and services to experts in digital information formats (Feldmann, 2006; Sharp, 2006; Trembach et al., 2019). This is mostly demonstrated in academic libraries, where they are now found to be offering high-tech devices for video and audio streaming that are heavily marketed towards both educational and corporate outlets.

The participants in the current study all indicated that they were using technology daily in executing their duties. This study found that even though client interaction could be conducted traditionally, information provision and training still needed the use of ICTs. Otiango (2016) and Trans (2018) assert that the proliferation of information technology into academic and research libraries compels that librarians should comprehensively embrace ICT to accelerate their daily activities and reduce operational costs.

## 5.4.4 The extent to which changes in information needs of users have shaped the subject librarians' roles

An institution's teaching mission is further enhanced by the contributions of the particular institution's bibliographic instruction and basic information literacy of the student body (Covert-Vail & Collard, 2012; Gregory, 2005). The findings revealed that the changes in the information needs of users have definitely shaped the role of subject librarians. All participants agreed that the users' needs are now different, and were influenced by the kind of user populations they serve. In a more demanding technological environment, the majority of the younger generation are independent heavily reliant on technology. A few other respondents indicated that the users' needs may remain the same, but could change based on how information is delivered. The findings also revealed that the users' information needs have changed their role in a positive way, where they find themselves involved in teaching and contributing to the curriculum development, do quality searching, networking, and researching extensively.

The study also showed that subject librarians' traditional roles have diminished, and the application of technology has taken a huge role. To that effect, users' needs are met virtually and access to information is online, particularly for distance education institutions. In both contact and distance education institutions, the use of technology extremely becomes an important part of their coordination efforts (Blummer & Kenton, 2017; McAbee & Graham, 2005). It can only be summed up that information needs of users today had changed due to the scholarly publishing landscape where information is available electronically and on open access publishing. The diversification and modernisation of academic librarianship has led to some claiming that a new type of academic librarian is needed, such as hybrid or blended librarian (Jaguszewski & Williams, 2013).

### 5.4.4.1 The information needs and information-seeking behaviours that have mostly shaped the academic librarians' roles

The findings revealed two levels of the information needs and information seeking behaviours that mostly shaped the role of subject librarians' services to undergraduate students or first-time

university students with little or limited knowledge about the use of libraries; as well as postgraduate students who are expected to be independent but still require orientation on the use of resources. Client training on information searches and evaluation was also indicated as the most frequent information need and information seeking behaviour that shaped subject librarians' roles the most. The e-text books were found to be the most effective and less costly information seeking behaviours that have shaped subject librarians' role as it offers easy and convenient access to users at the comfort of their homes, as elucidated by Qualiaroli (2017) and Rodwell (2001).

The study also revealed that subject librarians regarded their main role as providing academic support services in the university, their main job is to support the client academically, which should in fact be the role of the academic teachers. However, the information needs that mostly shaped the role of subject librarians the most were viewed as a factor of technological development, the academic ethos and behaviour, the driving force of academic coalition, as well as the nature of scholarly work (Corrall, 2018; Newman et al., 2001). The emerging changes in reference services in the digital environment, in particular the sophisticated end-user access has sharpened the role of subject librarians tremendously. Baker and Evans (2011:121) indicated that today's technology-driven world offers greater potential for libraries to develop new and innovative information services due to much information available online or electronically.

5.4.5 The extent to which the parent organisation's needs have had a bearing in shaping the role of subject librarians

The library is first and foremost a service whose primary mission is to support the learning, teaching and research activity of its parent institution in the form of access to information resources provision (Harris, 2016; Pinfield 2001). The study participants indicated that their respective libraries' operational plans were aligned to their universities' strategic plans that give directives in providing resources, offering training facilities, enabling them to download articles, providing a good working environment and financing the library. In so doing, the focal areas and trends filters down to enabling subject librarians to support the university's research output (Machi & McEvoy, 2012). This applies also to librarians working behind closed doors, who are not client-facing but have user-focused goals as well such as cataloguers.

The findings also revealed that sometimes, the university's protocols may delay the subject librarian's performance and services to the clients due to the interruptions and slowness of the system. A few respondents indicated that they do not see any support from the organization regarding the research component where electronic resources are either not bought or renewed. The study found further that it becomes very difficult to also operate within an institution that does

not have a Library and Information Services Department. This affects the library's progress, especially with regard to coping with new technological trends. Jubb (2016) reports that most university libraries sought to enhance their research support by rethinking the roles of their collection-based services, changing the roles of subject librarians, and developing new services for researchers.

5.4.6 Other factors that have shaped the roles of subject librarians in academic institutions

This section examined other factors that have shaped the subject librarians' roles and duties. Accordingly, the findings revealed that such factors were institutional and also included external factors such as the entire environment of higher education and training in South Africa. The DHET process of supporting journals and the publishing industry, of funding for researchers to create the Orcid ID and Open Access source, had influenced how subject librarians do their work. Such an environment is reminiscent of the assertion by Baker and Evans (2011), that today's world is defined by huge inequalities and exclusions, such as the incisive divide between the 'information rich' and the 'information poor'.

While remotely located users can often access the library's bibliographic and data files, they may not possess the necessary computer equipment, expertise and other technological paraphernalia to identify and retrieve information in an effective and efficient manner (Corrall, 2018; Kamila, 2013). While subject librarians may not necessarily resolve the problem of the user's lack of appropriate computer equipment, they can maintain the necessary equipment within the library and offer advice on appropriate reference strategies for using electronic resources. Similarly, the findings in this study confirm the disadvantaged situation of the technologically deficient students in remote areas who lack the technological savvy, and that such students should be accommodated at all levels to alleviate lack of access to vital information.

5.5 CHALLENGES SUBJECT LIBRARIANS FACE IN EXECUTING THEIR ROLES

The participants (subject librarians at the two academic institutions) mentioned ICT support and its network related connectivity as a logistical challenge, especially that institutions depend on external infrastructure such as ESKOM and the South African Post Office to dispatch books, and students wait for long to receive these books and other relevant learning materials. The findings revealed further that training computer illiterate students was a challenge. Participants found themselves understaffed or having insufficient staff and this puts them under a lot of pressure in providing good research support and in conducting information literacy. The low budget limits clients to access the full text information. Gerlich (2009) and Jaguszewski and Williams (2013) lament lack of adequate funds to purchase essential resources as another contributory factor to the

time, energies, and cost of a subject specialist selector. Another challenge cited by the participants related to the users' lack of awareness of the publishing field, resulting in researchers publishing in predatory journals and their fake and un-authenticated information.

5.5.1 Learning new systems, dealing with difficult clients and following new trends

It is worthwhile for committed subject librarians to be proactive in their respective service environments in order to mediate the inevitable technological dilemmas, such as problems with network down and system crashes (Raju, Raju & Johnson, 2016). A team of librarians working in tandem with academic departments and library administrators enhances the effective functioning of new technology assisted information services; as well as exposure to pedagogically compliant tools, research methods, and increasingly changing policies that facilitate and inform teaching, research and learning in the subject librarians' assigned disciplines (Jaguszewski & Williams, 2013; Raju et al., 2016).

*5.5.1.1 New trends and learning new systems*

Participants were asked to indicate the type and nature of challenges encountered when learning new technological systems, and concomitant new trends. The findings revealed that subject librarians could hardly have enough time to overcome all their assigned duties. At Wits, for instance, attention is divided between the services and managing the staff, collection development, training, overseeing the maintenance of the building and the overall administration of the Branch; in addition to serving all clients, including undergraduates, postgraduates, teaching and research staff. At Unisa, the subject librarians' services focus mainly a particular target group of clients (postgraduates, researchers, postdoctoral fellows and staff). The other challenge found in the study was that the library is not decentralised, and has only one professional staff in the entire school or department. This finding coheres with the assertion that subject librarians in new technologically driven era should be able to apply lessons learned in order to overcome the scope of their work (Moniz, 2014). Bisko et.al. (2019) affirm that gaps in library interaction and knowledge have to be identified because some students had minimal exposure to the library. In this study, it was found that other students are more advanced when it comes to training at different levels, which poses a challenge and frustrations given the pace and the malfunctioning of technology.

The study found that training offered posed a challenge to different students who are not on the same level, which frustrates both the subject librarians as trainers and students as trainees since there is no balance with the pace of training. This applies to the online training as well, where technology may not function well. At the Unisa Library, the study found that there used to be an

innovation hub week where new ideas were identified and shared with people from outside the institution.

*5.5.1.2 Dealing with difficult clients*

The current study found that the subject librarians encountered challenges in respect of dealing with difficult clients, a challenge they resolved professionally. There were also situations of dealing with high-profile people, whose expectations and understanding are at variance with the work of a subject librarian. The study also established that older postgraduate student are the ones mainly undergoing difficulties. Another challenge concerned clients from different broadband environments. Other clients are found to be at high broadband areas whereas others are still at an infant stage of technology.

At Unisa, the study found that the names or designations allocated to subject librarians as personal librarians, created problems and unwarranted attitudes since they were associated with 'personal assistant'. The perspective by Pinfield (2001) takes a different approach to the role of subject librarian, in respect of South African universities. Subject specialists prefer "users" because it provides an obvious point of contract between the library and the wider institution.

At Wits, the study found that subject librarians are named differently according to the type of Branch they administer. Each Branch library has its own subject librarian name. Although the current study is about subject librarians, it was found that the name is not applied in both institutions, but varies from Personal librarian at Unisa, to Branch librarian, Principal librarian, Senior librarian, or Faculty Manager, at Wits. The findings also revealed that the fact that a particular school comprised of many departments with many disciplines, raises high expectations towards subject librarians. They are expected to have the knowledge of all the subjects within their schools or departments.

5.5.2 Training workshops, the new programmes, ICT support

The findings revealed that in terms of training or workshops, there still remains challenge in the form of the new programmes that subject librarians should apply and learn, the ICT support that they should receive, as well as ICT access challenges. The problem exists whether on-campus or off-campus and this impact heavily on the training offered. The technical glitches encountered by subject librarians when playing their role affects time allocation in their schedules. This study found that at Unisa as a distance education institution, the ICT-related delays affect the flow of services and at times disrupt the entire workshop or training, causing students to return from far places without any training provided. Subject librarians depend heavily on ICT support and

without which, they cannot discharge their job effectively (Baruchson-Arbib & Bronstein, 2002; Ramzan & Singh, 2010). New technologies are dramatically increasing the accessibility of information causing librarians to adapt to these evolving needs of users emerging from these new technologies.

The findings also revealed that in both the institutions, there are very limited training facilities, especially for group trainings where Branches do not have training rooms and causes subject librarians to share training rooms with academics; which is not always possible given that the university calendar comes as the first priority with bigger student groups. The one-on-one trainings are also affected due to the time-consuming environment created by sharing of facilities. The librarians as trainers then use individual staff computers to conduct training and are distracted frequently by noise, phone calls, movements, and many other disturbances.

This study found that there is lack of cooperation in bringing students to attend library training from the academics or course coordinators. However, in some instances, it was found that some subject librarians received the necessary cooperation and support from the ICT personnel that enables them to fulfil their role. Evidently, ICT remains a challenge at both institutions for on-site and remotely conducted trainings, especially if systems are not working, network connection fails, and database retrieval is blocked. On the other hand, the participation of librarians in local and regional trainings or seminars is helpful for enhancing the quality of user education, team building exercises, trust building activities, and peer coaching programmes (Pennington, 2012).

5.5.3 Liaison-related challenges experienced by subject librarians

The study found that subject librarians experienced and liaison-related challenges, making it difficult to engage with academics on library-related activities, which reflects negatively on the service delivery of subject librarians to students. Chanetsa and Ngulube (2016) state that misperceptions about the librarianship profession have resulted in some faculty members and students not taking librarians seriously, resulting in their treatment as some secretarial or administrative staff whose job is merely to shelve books. Working in silos and the fragmentation that has undermined the connectedness between subject librarians and academics has impacted negatively on the academic progress, causing low research output (Omekwu & Eteng, 2006; Pennington, 2012). The study also found that language barriers often caused problems between the veterans subject librarians to effectively discharge their services to these groups.

5.5.4 Subject-specific/ knowledge-related challenges

The origins of subject specialist librarians dates back to the 1900s with their primary role of collection development (Shumaker, 2012). On the other hand, the American Library Association's Glossary of Library and Information Science (2001:1) defines a subject specialist librarian as "a library staff member with superior knowledge of a subject or discipline, with responsibilities for the selection and evaluation of the library's materials in the subject area". In the US, they are often called bibliographers, and as research librarians in some continental European countries, with the explicit duty of carry out bibliographical research in their subject areas (Gaston, 2001). Therefore, subject librarians are regarded as specialists in their fields, able to identify, analyse and organise the library and information needs of both existing and potential clients in a special way (Bisko et al., 2019; Definitions.net., 2012). In this regard, the subject knowledge background, the training skills and theory behind a specific subject serves as a critical part of subject librarians' role.

The findings revealed that subject-specific qualifications remain the key to enable subject librarians to effectively discharge their roles, and that it is paramount for subject librarians to have in-depth knowledge about their subject fields. However, whether a reference librarian needs a good background to provide a quality service or can rely upon generic professional skills, that remains an old debate (Rodwell, 2001). The current study also revealed that it becomes a challenge to work with limited data and resources on a subject. The study by Chanetsa and Ngulube (2016) affirmed subject librarians as knowledgeable in the whole information area even though they perform several duties and experienced challenges. Their jobs were found to be satisfactory, which revitalizes the future of the profession. The current study also found that the fact that subject librarians function within a highly specialised and interdisciplinary field, poses a challenge and may disadvantage them from effectively conducting proper search-related functions.

Dakshinamurti and Satpathy (2009) and Rodwell (2001) and Houtman (2021) argue that subject librarians need to provide user instruction, which should in fact be the academic's role. He further criticizes librarians with subject specialist knowledge, that they may be providing excellent services within a fairly small segment of the total library organisation, but they will not be acquainted with all aspects of library work. To that effect, they may not be promoted to posts that demand an overall knowledge of library administration. This may not necessarily be harmful to the objectives of the library they serve, but may create a problem in career progression. Meanwhile, Rodwell (2001) and Seal (2015) contend that a mixture of subject knowledge and knowledge of the client community is more obligatory for a librarian to intercede between information resources and the clients, than subject-specific knowledge.

5.6 CURRENT JOB REQUIREMENTS OF SUBJECT LIBRARIANS

This section examines the current job requirements of subject librarians at the two institutions of higher learning, an open and distance learning (Unisa) and a contact learning institution (Wits University). In this study, participants are referred to as subject librarians working in different sectors within their higher education institutions.

5.6.1 Currently required competencies for subject librarians' effective discharge of their duties

The findings revealed that the key elements that enabled subject librarians to effectively discharge their duties included: the ability to communicate effectively, have disciplinary knowledge, the insight or general knowledge about the research and publishing environments. The ability to handle people, knowledge of the technology, interest in the job and the clients, and all basic elements of humanity, such as patience, friendliness, being diplomatic, and emotionally intelligent, are all very crucial and enable subject librarians to be competent in doing their job (Loestcher & Koechlin, 2014; Shen, 2006). In other words, subject librarians should have a strong empathy and good knowledge of the clients' particular needs that also serves as the required competencies.

This study also found that critical thinking, searching skills and managing and disseminating information effectively play a major role in the job requirements of subject librarians in order to understand the applications and implications of policies. It was also revealed that subject librarians should acknowledging their weaknesses and their strengths, and should have written an academic article, be analytical, flexible and have the ability to write reports; also considering that Library and Information Services is a multidisciplinary field interacting with many disciplines that need proper use of research methods (Katsirikou & Skiadas, 2010; Silka & Rumery, 2013).

5.6.2 Skills required for subject librarians to perform their roles

This question had to be clarified since the majority of participants were confusing "skills" with "competencies". Chanetsa and Ngulube (2016) indicated that subject librarians, by the nature of their work and like other academic librarians, have undergone numerous changes in the profession in response to the technological advances and the changing information environment, instigating them to update their skills. As such, the direct benefits of reference and information services technologies in higher education may include stronger partnerships with academic units, developments of more finely tuned communication and teamwork skills, new capabilities to teach critical thinking and informed judgment, new ways of conveying the attitude about life-long learning being part of the knowledge workplace, improved student productivity and library involvement in curriculum development (McKay, 2019; Otiango, 2016; Raju & Raju, 2016).

Amongst the extensive skills and knowledge required in current reference practices, especially for the future roles envisaged for librarians, are an understanding of specific client needs and information sources which constitute the traditional strengths of subject specialists (Moniz, 2014; Young & Kelly, 2018; Wexelbaum, 2016). From the findings, it is evident that communication skills are the most required to enable subject librarians to perform their job effectively include training skills, computer literacy or technological/ ICT skills, teaching and presentation skills, people skills, listening and searching skills, writing skills, interviewing skill and conflict resolution skills are all required to enable subject librarians to do their job.

### 5.6.3 Competencies and skills required to enhance subject librarians' roles

The study found that the competencies and skills required to enhance subject librarians' roles and functions were: communication, presentation skills, ICT or technological skills, research support skills, people management skills, information searching skills, listening skills, planning and interpersonal skills. The study found that to a large extent, the participants were much vested in virtually all these skills and competencies.

### 5.7 RECOMMENDATIONS TO IMPROVE SUBJECT LIBRARIANSHIP AT ACADEMIC LIBRARIES

Librarianship has undergone tremendous changes, redefining roles on campus and in the larger world (Darch & de Jager, 2012; Heinrichs & Jeen-Su. 2009). Various creative activities that build networks between departments should be available to enable contribution to the functioning of academic institutions. This section discusses the subject librarians' suggested improvement methods and options.

### 5.7.1 Further training required for subject librarians to align with new developments

The findings revealed the following as various suggestions that would make subject librarians to align with new developments: training on research data management, awareness of modern trends in the market, the publishing trends, open science or open access, digitization, and preservation, bibliometrics, institutional repositories, training courses for self-development, well vested in Microsoft packages and coding, and also sharpen their writing skills. As university libraries enhance their research support, they developed new services for researchers that include advice on scholarly communications and open access, bibliometric services, research data management and library-led publishing services (Jubb, 2016; Simmonds & Corrall, 2011). Subject librarians should become hybrid librarians with skills beyond traditional librarianship in order to cope with the effect of technology, which enhances the capacity to be blended, with increased interpretation of the

scholastic knowhows and instructional design, teaching, IT, more liaison with faculty and collaboration with technologies (Moniz, 2014; Silka & Rumery, 2013).

Subject librarians are expected to be at the forefront of the new developments, move with trends, acquire more knowledge, have the broad-based skills especially of using software and become research librarians to advise people on the research skills and be able to market their services and liaise well with people. The findings revealed that more refresher trainings needed to be offered. Literature highlighted that the technological changes necessitated the creation of partnership and coalitions. Libraries are found to be partnering with vendors to enable the sharing of technological costs and material and other available resources outlined in the partnership agreements. Licensing is found to be inevitably becoming more of a larger part of intellectual property and legal issues relating to information technology. Librarians are then more proficient and faced with challenges to fit these legal and licensing negotiations into the process of acquisitions and collection development. This study showed that time is still a factor as subject librarians need more time to explore new things to enhance their skills. They should attend various academic activities, read, and consider writing articles and be a proud librarian. The study also found that the curriculum at Library and Information Services (LIS) schools need to be re-worked to align with the changing world (Closet-Crane, 2011; Corrall, 2018).

5.7.2 Other initiatives or interventions to enhance subject librarians' work
The findings revealed that time is still a factor that makes subject librarians not able to explore on new technologies that would add value to their job. Librarians require some time to navigate the web, be able to identify and assess a variety of enormous valuable resources and have time to browse the new online resources, new databases, search engines and new releases of older products.

This study found that subject librarians needed more support regarding attendance of subject-related workshops and conferences, as well as opportunities to study further and enhance their relevance. The fears of obsolescence could be compounded by factors such as budgets that do not keep pace with inflation and become more skewed towards automation at the expense of traditional library materials (Harris, 2016; Mabry, 2001). The latest technological gadgets such as laptops, projectors, electronic pens will enable subject librarians to draw, design and present good information literacy lessons and have a good connection system for student access.

Communication was identified as another intervention or initiative that could enhance the subject librarians' work, in order to improve their writing and oral skills, as well as the way they relate to

clients and conducting their trainings. Closet-Crane (2011) and Mabry (2001) and indicated that staff must be trained on how to use all resources available in the library and should be active in helping to develop new products.

The findings further revealed that the library should have an improvement plan that will assist in evaluating the services based on the client's comments. However, few participants felt that there was no further education needed for the current librarians since it was believed that they were capable of generating innovative ideas from their group support and attendance of subject related courses, seminars and conferences. A few more respondents explained that the institutions should clearly specify their organisational identity (whether distance or residential) in order to avoid the unnecessary opacity of the subject librarians' roles. Literature showed that what was frequently deemed as distance education technology, was in fact soon to be witnessed as indispensable for residential members of the university community (Guri-Rosenblit, 1999; Hart & Kleinveldt, 2011).

5.7.3 Other suggestions on the role played by a subject librarian

Participants were asked to indicate what would be the solutions for overcoming the challenges as outlined in the previous section above. The common challenges were grouped together, and suggested solutions were shared. Amongst others, subject librarians expressed that working in silos from the rest of the library is a challenge. Collaboration and partnership are critical at every level for setting clear roles and responsibilities to leverage expertise by developing and expanding new services, liaison and library roles more generally (Jaguszewski & Williams, 2013). Subject librarians should be at the forefront of change and portray the role of librarianship in its true sense, and all these should be done with the client in mind. The study found that a gap is created between subject librarians and some of the other departments within the library, due to lack of effective communication, cooperation and interaction. At Unisa, the study found that the same applies to the regional branches where services offered differ from those of the main campus and created discord. Poor communication within the library as a whole renders it difficult, if not impossible to maintain a high level of service and support to the clientele.

The findings revealed that there is a total misconception of librarians, especially if they themselves are not visible in the services they offer. In this regard, librarians should demonstrate leadership, manage effectively, and contribute to the best of their ability in their work. The study also suggested that subject librarians should take initiatives, continue learning and register for new courses related to their field of work in order to enable them to take up new challenges and keep themselves updated. However, some participants expressed their excitement and satisfaction in the work that they do and felt fulfilled, but equally expressed their frustrations when technology fails.

The study found that subject librarians play a critical role since libraries are regarded as the heart of the university in which they own that space in their particular faculty or college where clients depend on them for information provision. The study found that at Wits, subject librarians expressed their dissatisfaction regarding salaries, which indicates that the work they do would be done better provided they were rewarded accordingly with better salaries. At Unisa, subject librarians expressed the privilege that they have with well-paid salaries.

5.7.4 Suggested solutions to overcome the identified challenges

The following measures were provided by participants as solutions to overcome the challenges identified.

***Lack of training venues or not enough space with PCs to accommodate bigger groups:*** they recommended that the relationship with the faculty or college should be improved for more support. Privacy is also a challenge, and this could be overcome with the renovations that are underway for extra private spaces would be created.

For ***ICT challenges:*** participants indicated that to overcome this challenge, funding should be made available for ICT upgrades and employment of more dedicated ICT personnel in the library and not rely on institutional support.

***Lack of communication:*** it was expressed as a means to improve on timeframes and sharing outcomes of the minutes to update others. It was also emphasised that communication should be practiced several times, even if it meant that one issue has to be told many times, and that specialised areas need to be clarified for people to understand.

***Budget/funding constraints:*** the findings revealed that inadequate budget is allocated for subject librarian duties and functions, which affects training adversely. The study also found that the librarianship profession is not recognised and taken seriously due to lack of support pending approval of the Copyright Bill by Parliament. This impacts negatively on the profession.

***Lack of conducive physical infrastructure:*** it was expressed strongly by participants that the conditions of the buildings they worked in, were in a state of improper maintenance, which leads to dissatisfied clients.

***Lack of collective meetings to avoid meeting in silos:*** the study found that there was great animosity caused by people working in silos. To overcome this, collective meetings with all the stakeholders was suggested.

***Collaboration/ teamwork:*** it was found in the study that there was no teamwork amongst all librarians working in the library, regardless of their sections. To overcome this, all professionals need to collaborate, attend to issues in a team approach in order to become increasingly inter-dependent on working with others on campus.

***Lack of cooperation from academics:*** it was found that subject librarians experienced difficulties from academics in the renewal of subscriptions, where cooperation is lacking. To overcome this, faculties should identify champions and also involve students who are interested and who also use the databases.

***Lack of subject background:*** it was found that this problem could be solved by organising vendors to train postgraduate students, and for faculties to consider embedding information literacy within the curriculum.

***Short staffing and vacant positions****: it was found to be affect the smooth communication and sharing of challenges encountered amongst subject librarians, which makes it difficult if people act in positions for a longer period. To overcome this problem, the reimagining of libraries and the new structures underway need to upgrade the existing staff and add more professionals.

***New responsibilities added in job description:*** could be overcome by re-designing the spaces, reviewing of job descriptions, creating new spaces and applying new technologies and in that way subject librarians should have open minds to welcome and use social media that plays a crucial role within the sector. Smart phones are regarded as the cutting-edge technology that enables libraries to provide a variety of efficient and timely services to users (Mansouri & Asl, 2019).

***Lack of shelf space to accommodate donated books and unavailability of books on the shelves:*** it was also found to be a challenge in this era of technology and to overcome this, participants suggested to consider moving to electronic and for books not available on the shelves, meetings should be held with relevant stakeholders in order to address the issues and be accountable.

***Not reaching intended clients and not serving them to the satisfactory:*** it was found to be a problem, according to which the student body cannot be reached. The online training needs to be enhanced, and intensive workshops organised to solve this problem.

***Massification and dishonesty as a micro issue at a micro level:*** it was identified as one of the challenges that leads to student protest and frustrations due to the state of their unemployability at the end of their studies. It was suggested that the higher education system should be examined to avoid such reoccurrence.

5.8 SUMMARY OF THE CHAPTER

This chapter basically presented an elaborated perspective of the findings as detailed in Chapter Four. However, the current chapter (Chapter Five) contextualised these findings by means of cross-referenced literature perspectives. Central to the discussions in this chapter were the main themes generated in the findings, namely: traditional, current and emerging librarianship roles; duties and functions of subject librarians; factors influencing the roles of subject librarians; challenges experienced by subject librarians; current librarian job requirements; as well as recommendations by the participants pertaining to all of these above-mentioned issues.

The analysis of the results indicates that librarianship is a multidisciplinary field in which information is provided from multiple perspectives in order to resolve complex problems from all possible dimensions (Karasic, 2016). With regard to subject librarians' roles, the study found that, while it was necessary for subject librarians to change into new ways of performing their duties, both the traditional library materials and electronic resources will continue to be required. In this regard, libraries and reference services will experience a blended (hybrid) degree of virtual provision. In this study, literature revealed that in the past there were concerns of library functions being replaced by word processors operated by managers. However, in this current study, it was found that development of many more specialists in libraries will occur where reference staff will become intermediaries between the library and users in order to meet advanced information needs in many diverse fields. Therefore, the roles of subject librarians remained critical and relatively constant at the two academic libraries. They only needed to reposition themselves within this changed environment.

With regard to factors shaping the roles of subject librarians, the study revealed that qualifications, rather than organisational factors, have laid the groundwork which gave the subject librarians the ethical standards of librarianship. Self-expansion and competencies acquired from trainings were also influential factors that shaped their roles. However, the organisation (University) was still viewed as pre-eminent because the library cannot function according to its own policies that are not commensurate with the mission of the parent university.

Several challenges were identified in the study and suggested solutions (recommendations) were also offered. These included: the logistical challenges of having to depend on other external forces, the technological or ICT challenges with network predicaments, the challenge of dealing with different clientele from different environments, the technical glitches affecting the smooth running of the subject librarian's work, the liaison related challenges of communication that infringes badly on their service delivery and the subject knowledge related challenges that they found themselves to deal with in various interdisciplinary schools and departments. However, the core roles of the librarians were found to have remained the same and what could be done was to be receptive of filling them in different ways and in seeking related roles that logically link with the traditional roles.

The summary of the findings, conclusions and recommendations of the study are presented in the next chapter (Chapter Six).

# CHAPTER SIX

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 6.1 INTRODUCTION

This chapter presents a summary of the findings and the conclusions of the study, as well as the recommendations based on these findings. It is important to note that the conclusions and the recommendations themselves are not peripheral to the findings, discord between the conclusions, findings and recommendations could present a state of discordant or illogical research processes and findings (Vithal & Jansen, 2010; Yorgure, 2018). The study investigated the current and emerging roles of subject librarians in academic institutions in South Africa by comparing the University of the Witwatersrand's and the University of South Africa's libraries with the following objectives:

- To analyse the traditional, current and emerging roles of subject librarians;
- To describe the duties and functions of subject librarians in academic libraries;
- To assess the internal and external factors that have shaped or influenced the roles of subject librarians;
- To establish the kind of challenges the subject librarians face in their new roles;
- To describe the current job requirements of subject librarians; and
- To recommend improvement measures for subject librarians and subject librarianship.

The summary of the findings, conclusions and recommendations are consonant with the thematic focus reflected in each of the above-mentioned research objectives.

### 6.2 SUMMARY OF THE FINDINGS

The findings of the research are summarised below under each of the following sub-headings:
- Traditional, current and emerging roles of subject librarians;
- Duties and functions of subject librarians in academic libraries;
- Factors that have shaped or influenced the roles of subject librarians in academic libraries;
- Challenges the subject librarians face in executing their roles;
- Current job requirements of subject librarians; and
- Recommendations to improve subject librarianship at academic libraries.

### 6.2.1 Traditional, current and emerging roles of subject librarians

The study found that roles subject librarians perform in academic libraries in the form of liaison, marketing and research support are common in nature. The majority of the participants indicated the following key roles performed by subject librarians in academic libraries: training/ information

literacy/ user education, research support, building relationships, providing search service, new course development involvement, faculty liaison/ contact and collection development. A few other participants indicated training offered by subject librarians is based on their job description and is targeted to all different levels of clients tailormade to cater for different content and delivery of information literacy.

The study found that the traditional roles of subject librarians have had a bearing on the current roles, where participants indicated that traditionally, subject librarians had to deal with only books, physical paper journals and now things have changed for the betterment of technology. Subject librarians were found to be struggling with the technical aspects, as they had to deal with a new environment of moving from manual to online services. The study also found that traditional knowledge is still needed, and cannot be ignored despite the on-going changes.

The study revealed that in the last 10 years, the roles of subject librarians have remained almost consistent. The tools that they used, such as paper indexes with matching cards, were no longer applied due to the changes in technology and the institutional mergers. Subject librarians expressed different views regarding their future roles in the next 20 years. The study concurred that subject librarians will become embedded librarians, partnering with other stakeholders, and facilitating information in an online mode with no physical contact. In this regard, subject librarians have to acquire new skills to remain relevant in this changing environment. However, subject librarians will still serve a great purpose in the fourth industrial revolution where machines seem to have taken over the work, but subject librarians would not be obsolete and will remain relevant since the human component and personal touch, the face-to-face interaction will not fade away (Turner et al., 2013; Walker, 2009).

The library of the future has been perceived as an eye desk, and no longer the gateway or portal with subject librarians being the smart librarians offering massive changes in the provision of services by re-creating, remaking, re-imagining, and repurposing certain positions and have innovative e-learning centres with open access services. Subject librarians predicted that there will be huge changes in publishing, where people will engage heavily in research that will impact on the content of classrooms and lectures. Furthermore, people will start working from home with services and connection on the electronic platforms, using very powerful technologies that involve research data management (Choy & Goh, 2016; Trans, 2018). The study found that library users will be far more techno savvy and subject librarians will be dealing with sophisticated end-users with different levels of technological information literacy.

6.2.2 Duties and functions of subject librarians in academic libraries

The study found that subject librarians at the two institutions of higher learning under review/ investigation perform a particular common element of duties and functions which differs in the way they operate. Of the 25 respondents, 21 indicated that the most highly performed duties were: information literacy/ training and user education; 14 librarians indicated research support, Orchid ID profile or ResearchGate that helps academics with the NRF ratings, and to be electronically visible, the bibliometric reports, the impact factors demonstrating their citation analyses and the *h-index* as the most highly performed duties. Meanwhile, 11 librarians indicated building/ establishing relationships and e-learning tools as other duties they perform in their academic library. About 6 (six) respondents indicated the guidance in research topics or fact findings, the SDI alert services, and 5 (five) librarians indicated communication and interpretation while 4 (four) librarians from Wits indicated staff development/ management and administration as one of the duties performed. Also. 4 (four) other librarians indicated information provision, 3 (three) librarians from Unisa indicated locating materials from the shelves, and 2 (two) other librarians from Unisa indicated new course development, while 1 (one) indicated trouble shooting as another duty performed.

The study found that the common services offered by subject librarians in academic libraries were as follows: training/ information literacy, research support, marketing the library services and alerts, general assistance and doing searches. However, the participants found the duties and services that they perform to be overlapping. The most highly performed duties by subject librarians were: training/ information literacy where clients are trained to be independent searchers and self-reliant, relationship building for subject librarians to strengthen the personal contact with academics and research support to enable researchers to evaluate information found and be able to select relevant journals for publishing. The study also found that duties subject librarians perform mostly, are not always the same since the focus keeps changing.

The study found that the general overall rating of the services offered by subject librarians is very good and ranged between 75% and 90%, with the remaining 10% of the good service due to the ICT related challenges and leaves room for improvement.

6.2.3 Factors that have shaped or influenced the roles of subject librarians in academic libraries

The study found that qualifications have a significant impact in shaping the role that subject librarians play. The Library and Information Science profession itself is found to be indispensable in nature and formed the basis of theoretical knowledge and principles of librarianship (ref). However, it was also revealed that although higher qualifications formed the authoritative enabler

to the job, other participants felt that what shaped their role as subject librarians was gained through self-development, volunteerism to the job and expertise earned and the skill trainings, the technological impact and not entirely from their qualifications.

The findings further revealed that the organisational structure has an influence on how subject librarians performed their duties and cannot detach these duties performed from those of the organisational structure in that organisational decisions cascade and influence the implementation of micro organisational functions. A few other respondents indicated that it is their expertise in the job and team approach, knowledge acquired, that have influenced their performance, and not necessarily the organisational structure.

The study found that while subject librarians adapt to the evolving needs of users from the emergence of the new technologies, there is a considerable increase of technology in libraries that impacts on the subject librarians' roles, since technology is an enabler in libraries without which nothing much can be done to reach the intended clients (Chong, 2001). Contrastingly, the study also found that technology could be a challenge as much as it could bring relief to the work and could be a disadvantage to the vulnerable. Nonetheless, subject librarians need to continue to embrace technology by equipping themselves, because the future today is technology and irreversible. A few respondents felt that technology was problematic, especially to the senior librarians who felt their jobs were threatened.

Technology is multifaceted in nature and allows a variety of services to be managed broadly. In this regard, the study found that no single type of ICTs can resolve all technology-related problems. The majority of participants were using MS Teams, Libguides and databases and including other tools such as reference management tools, e-learning platforms, library packages, the wired space, preservation social networks, Microsoft packages and emails.

Notwithstanding some of the technological shortcomings (e.g. being offline), subject librarians are found to be relying on the use of technology daily to execute their duties. The study also found out that interaction with clients is possible by applying the traditional ways, but the provision of information is only possible with the use of ICTs. It has also been established that the users' needs are different, influenced by the kind of user population, and this has definitely changed their information needs and have shaped the role of subject librarians. Significant change was experienced from the younger generation who are independent and heavy utilisers of technology (Closet-Crane, 2011; Herman & Butler, 2019).

Subject librarians are involved in teaching and contributing to the curriculum development, doing quality searching, networking, and doing research extensively, which proved the positive way that information needs of users have changed their roles. On the other hand, the study also revealed that the subject librarians' traditional roles have diminished, and users' needs are met virtually.

The study found that the most information needs and information seeking behaviours that have shaped the academic librarians' roles were, among others, the first time entering University students, with no or limited knowledge of the use of libraries, postgraduate students that still require orientation on the use of resources, training on how to not only find information but the right information and know how to evaluate that information, the e-text books that gives easy and convenient access to users and the technological development and the whole academic ethos and behaviour and the driving force of academic coalition together with the nature of scholarly work and the emerging changes in reference services brought by the digital environment.

The findings also established a correlation between the parent organisational structure and the role of subject librarians in respect of strategic plans dictating alignment with the library's operational plans, providing resources, offering training facilities, enabling the downloads of articles, providing conducive working environments, and funding the library. However, few other respondents did not see any organisational support since the research components are either outdated or no new ones are purchased. The study found that sometimes, the whole service performance of subject librarians is delayed due to the University's protocols and the network interruptions. The study also found that operating in the institution with no Library and Information Science department, affects the progress of the library in terms of ICTs and the new trends.

It was found that other factors with a bearing on the roles of subject librarians in academic institutions were external factors such as the entire Higher Education environment, the Department of Higher Education and Training (DHET) in South Africa and within institutions to support the publishing industry, as well as funding for researchers. It was also revealed that it is disadvantageous to remote students that they may be lagging behind and are technologically challenged to access vital information.

6.2.4 Challenges the subject librarians face in executing their roles
The major logistical challenges faced by subject librarians when executing their roles included: the ICT support and its network related connectivity where institutions dependent on other external departments for the infrastructure, training students who are not computer literate, insufficient staff to carry out the work, lack of funds to purchase resources that limits access to full text information,

and lack of awareness regarding the publishing industry that leads to work published in the predatory journals.

Concerning new trends and learning new systems, the study found that time is a major factor that prevents subject librarians to browse new online resources to uplift their skills, given the scope of their work and to some, attention is divided as the focus is not only to services but also to the HR issues since they are responsible for the overall Branch administration as well. An un-decentralized library puts a lot of strain on the already under-staffed professionals who are found to be handling the entire school or department. The study found that there is an imbalance in the offering of training to different levels due to other students having minimal exposure to technology in addition to the malfunctioning of the network.

The study found that dealing with difficult clients is one of the challenges that subject librarians encounter in their daily job and must resolve such in a more amicable and professional manner. Findings also revealed that subject librarians have to deal with high profile people whose expectations and understanding are different from the work they do and dealing with clients from different environments where development, level of broadband, their network connection are not the same. At the Unisa library, subject librarians as called personal librarians, which creates unexpected attitudinal issues from clients associating them with their personal assistants.

Other challenges mentioned were: training or workshops, the new programmes that subject librarians had to learn and apply, access, and the ICT support that they should receive. The technical glitches problems experienced affect the time allocated for the training and disrupt the entire workshop or training that causes students to return from far places without being trained. The findings revealed that training facilities at these two institutions are inadequate, leading to subject librarians having to share the training rooms for bigger groups with academics although first priority is given to the academics. The study found the one-on-one training equally not conducive, time consuming and a lot of disruptions coming from all sorts of surroundings. The study also revealed lack of cooperation to encourage students to attend library training from academics or course coordinators. However, the findings revealed that some participants were content with the support and cooperation received from the ICT personnel.

The study found that the major factor in the liaison-related challenges experienced by subject librarians related to communication, as demonstrated by the difficulty of engaging with academics on library-related activities which impact adversely on the service delivery and causing

unprofessional treatment by some faculty members and students towards subject librarians' work. It was also revealed that working in silos and the fragmentation that has undermined the connectedness between subject librarians and academics has impacted negatively on the academic progress and causing low research output. The language barrier, especially by the veterans was also found in the study as a challenge that caused animosity towards subject librarians and the effective discharge of their services.

For subject librarians to effectively discharge their roles, qualifications remain the key, with the subject knowledge background, the training skills and the theory behind a specific subject that serves as a critical part (Jaguszewski & Williams, 2013). The study found that for subject librarians dealing with various subjects in a highly specialised environment or in the interdisciplinary field and not understanding the technical language used, posed a challenge, and may disadvantage the effectiveness of conducting a proper search. The study also found that subject librarians experienced challenges working with limited data and limited resources on a particular subject. However, the study also found that other few participants are well versed in the subject and had never experienced any subject specific or knowledge related problems.

6.2.5 Current job requirements of subject librarians

The study found that the abilities and knowledge required of the subject librarians to effectively discharge their duties include among others, effective communication, knowledge of the discipline, insight knowledge about research component and publishing, ability to handle people, knowledge of the technology, interest in the job and clients ,and all basic elements of humanity such as patience, friendliness, diplomatic, and emotional intelligent. The study further found that subject librarians should have a strong empathy and good knowledge of client needs as one of the required competencies.

This study also revealed that the job requirements of subject librarians need critical thinking, searching skills and managing and dissemination of information, understanding of policies and its applications, they should acknowledge their strength and weaknesses, have at least written an academic article, be analytic, flexible and able to write reports and the ability to interact with different disciplines in the use of research methods. In this regard, the findings revealed that subject librarians had undergone numerous changes in the profession due to technological advancement that propelled them to update their skills. Other skills found in this study that enable subject librarians to perform their roles include: training skills, computer literacy or ICT skills, teaching and presentation skills, people skills, listening skills, searching skills, writing skills, interviewing and conflict resolution skills.

6.2.6 Recommendations to improve subject librarianship at academic libraries

The study found that for subject librarians to align with new developments, further training is required on research data management, modern trends awareness including publishing trends, open science or open access, digitization and preservation, bibliometrics, institutional repositories, self-development courses, knowledge of Microsoft packages, coding and writing skills to improve subject librarianship. However, time was found to still be a factor that prevents subject librarians to explore new things to enhance their skills. The findings also found the need for Library and Information Science schools re-work their curriculum to align with the changing world.

It was revealed that more support was needed for subject librarians to furthering their studies and attend workshops and conferences related to their subjects to enhance their work and remain relevant. The findings revealed that for subject librarians to provide good information literacy lessons, they should have all the necessary and latest ICT or technological gadgets, and also improve on their writing and oral communication skills when engaging with clients. Improvement plans should also be put in place to evaluate library services. However, a few respondents felt that no further education was required for the current librarians since subject librarians are in a better position to generate innovative ideas through group support and by attending subject related courses, seminars, and conferences. A few more respondents felt that institutions are not clearly defined to indicate whether they are distance or full time equivalent, which would obviate undue pressures on the subject librarians' work.

In terms of solutions to overcome the identified challenges, participants recommended that working in silos should be eliminated in order to harmonise effective communication, cooperation, and interaction amongst all librarians to maintain high level of service and support to clients. The study found that subject librarians at Wits were dissatisfied with salaries, while the Unisa subject librarians were not.

6.3 MAIN CONCLUSIONS OF THE STUDY

The study aimed at a comparative approach of the role of subject librarians in academic institutions in South Africa in the 21$^{st}$ century by involving the Unisa and Wits subject librarians. The study sought to answer the following questions to achieve its objectives:

a) What are the traditional, current and emerging roles of subject librarians?
b) What duties and functions do subject librarians perform in academic libraries?
c) What are the factors that have shaped or influenced the roles of subject librarians in academic libraries?

d) What sort of challenges do subject librarians encounter in executing their roles?

e) What are the job requirements of subject librarians?

## 6.3.1 Traditional, current and emerging roles of subject librarians

The study concluded that the traditional roles have had a bearing on the current roles and subject librarians' responsibilities included: a hybrid of traditional and electronic services, whereby traditional ways will not disappear but rather form part of the current roles in the changing environment and will still remain appropriate. The background and age of librarians do have a bearing in that a traditional librarian battles to cope with the rapid change of technology. However, the study also concludes that the role of a librarian in the information age has become a multidimensional and has remained relatively constant for many years. Major changes were predicted by subject librarians in librarianship, including that machines will take over the librarians' job, but the study concluded that the role of a subject librarian will be that of a smart librarian offering massive changes in the services, and human capital will still be required to facilitate information and a lot of work will be done online from home using connection on the e-platform due to the sophisticated users that are far more techno savvy library users where some are challenged by technology while others become independent searchers.

## 6.3.2 Duties and functions of subject librarians in academic libraries

The study concludes that duties performed by subject librarians in these two academic libraries have certain common elements although differs in the way they operate. The study concluded that although most duties and functions are similar in these two institutions of higher learning, they have a diverse target group of clients, and their responsibilities are not the same since others have more responsibilities than others. The study also concluded that most traditional duties performed by subject librarians have since changed focus for the betterment of technology and what is performed most in one institution may not necessarily be the same in the other; and that subject librarians do not perform same duties mostly all the time due to the increasing intricacy and dynamics of research in the contemporary era. The study concluded that overall, services offered by subject librarians are beneficial and worthwhile, giving them satisfaction and excitement, rated between 75% to 90% of good service with 10% remainder due to ICT related challenges that make room for improvement.

## 6.3.3 Factors that have shaped or influenced the roles of subject librarians in academic libraries

The study concluded that the Library and Information Science (LIS) qualifications is deemed to be useful, founded as the authoritative enabler that have put the groundwork and the theoretical

knowledge and the moral principles of librarianship. The size of the organisation and the time taken to make decisions was noted. The study concluded that technology serves as an enabler that has brought improvement from paper-based to automation and is the pillar of a library's progress even though access to technology may be a challenge to the have-nots or those that do not embrace it. The study also concluded that subject librarians' work depends mainly on ICTs, and anything linked to technology, to an extent that there is nothing substantial that could be undertaken without significant technological input. The online platforms had a major influence on shaping subject librarians' roles in academic libraries, and users' information needs are now different and are met virtually with access to information available online for distance education. Participants further perceive their traditional roles to be diminishing due to the application of these technologies.

Technology has become the mediation that drives the work of subject librarians much as the client interaction could be conducted traditionally (Jaguszewski & Williams, 2013; Mwaniki, 2018). However, most of the subject librarians embraced technology and agreed to keep abreast of the developments and acknowledged that students in remote areas who are not technologically savvy are lagging behind. Most of the subject librarians acknowledged that technology has brought unique pressures and reprimands and at the same time brought exhilaration even though it could not resolve all new developments of information systems. Accordingly, subject librarians indicated that no specific ICT has a major influence on shaping their roles. The study also notably concluded that it becomes difficult for libraries to operate within an institution that is without the LIS department with no support to enhance the research component.

6.3.4 Challenges the subject librarians face in executing their roles
The study concludes that subject librarians are faced with numerous challenges in executing their roles in academic libraries during this era of technology. Subject librarians suggested solutions to overcome the challenges identified and most of the challenges ranges from logistical, liaison to subject specific or knowledge related issues. Most of the challenges identified were also closely linked with this study concerning the changing roles of subject librarians relating to time that overcome assigned duties, the technological experiences and their competencies and skills they possessed.

6.3.5 Current job requirements of subject librarians
The study concluded that amongst the extensive competencies and skills required by the current practice of subject librarians, and for the future roles envisaged are: understanding of specific client needs and information sources, effective communication, knowledge of the discipline, as well as

general knowledge of the research and publishing component. The implication is that subject librarians should have a robust compassion and decent expertise of the client's particular needs. The nature of their work had undergone numerous changes in the profession linked to the technological advancements, prompting them to update their skills to remain apposite in this changing environment (Ntoka, 2017; Otiango, 2016; Peterson, 2013).

## 6.4 RECOMMENDATIONS BASED ON FINDINGS OF THE STUDY

Following are the recommendations based on the findings of the study:

- Subject librarians are the heart of the university and render the role of academic librarians in this information age multidimensional, critical, and relatively. It is recommended that they should be repositioned to meet the sophisticated changes in user needs.

- Services and the work of subject librarians are technologically driven. To avoid working in silos and disintegration, collective meetings with all stakeholders should be considered to avoid animosity, and more funds should be allocated and made available for the profession to be recognized, upgrade ICT and employ more dedicated ICT personnel, and encourage more young emerging librarians to pursue this profession.

- The LIS schools need to revisit, reimagine, and repurpose their curriculum to align with the current situation and the new trends and faculties should consider embedding information literacy into their curriculum and involve vendors for training to assist in overcoming the lack of subject background. They should improve on the relationship with the faculty/ school or department, have their spaces renovated to accommodate bigger groups for training and introduce champions from these faculties for cooperation.

- Subject librarians are expected to be at the forefront of the new developments, and for them to remain relevant, they should keep constant pace, acquire more knowledge, be curious and inquisitive and eager to learn new things and be part of the knowledge workplace to avoid the notion of machines taking complete control.

- New technologies brought in unique anxieties and subject librarians should realize that information technology has been incorporated into academic and research libraries for the betterment of the service and not as a threat to eliminate their work, but they should undergo training, attend courses, workshops and conferences that are related to their disciplines, upgrade their skills and qualifications to meet the challenges of the coming decades.

- Subject librarians should be more involved in researching better ways of providing information to users, be more assertive to bring quality to the forefront in this digital era to enable them to attend to the cycle of research queries that keeps changing the focus due to the expanding interdisciplinary, complex, and dynamic research environment.

- Subject librarians should be visible, involved in academic writing of articles, in publishing and ensure that users become more dependent on the provision of information and the services they offer to their learning, teaching and research needs.

- The ACRL should be integrated into the subject librarians' key performance areas to assist the disadvantage students in shaping, changing, and addressing the latest technology and ensure that there is a balance in the use of ICT to accommodate remote students and the low research output.

- The institutions should reimagine their libraries, redesign the spaces, review the subject librarians' job descriptions, apply new technologies to welcome new added responsibilities and implement new structures to upgrade the existing staff shortage and create employment opportunities for graduates to fill vacant positions.

- Libraries should migrate from manual to more electronic approaches to avoid running out of shelf space, and also accommodate book donations; online training should be enhanced, and intensive workshops should be organised to reach the intended clients.

## 6.5 RECOMMENDATIONS FOR FURTHER RESEARCH

The current study revealed that there is a need for further research. Similar studies should be conducted with different participating librarian categories from other institutions to determine both the reproducibility and authenticity of the current findings (Thomas, 2013; Vithal & Jansen, 2010). Such further research could be undertaken with a focus on the discrepancies found in different institutions in terms of addressing different titles given to librarians doing the same work. Due to the disruptions caused by the COVID-19 pandemic, the researcher initially planned to interview the directors and executive directors of these two institutions to gather their views in the overall roles performed by their subject librarians in academic libraries. Another recommended research could focus on how best subject librarians could balance services offered to all their intended clients, especially distance education clients in the use of the intricate and sophisticated ICTs in order to reach a broader community and not leave others behind.

## 6.6 CONCLUDING REMARKS

It is the well-considered view of the researcher that the current study was worth undertaking, considering the salience of subject librarians in the contemporary information-driven environment of higher education. By comparing the role of subject librarians at two organisationally disparate higher education institutions (Wits University and Unisa), the researcher also sought to explore those areas of commonality and divergence between these two institutions, each of which has its own mandate to its own predominant constituency of students. The Wits subject librarians have

more responsibilities, including that of managing the Branch and its administration, supervision of staff and the entire HR work, collection development, in addition to training, creating orchid IDs, Google Scholar citations and compilation of the bibliometric report for the faculty and their branches. Their target audiences and clientele are all University clients, including research, teaching and academic staff, undergraduates and postgraduate students, administrative staff and the entire University community. Contrastingly, subject librarians at Unisa focus mainly on postgraduate students, including research, teaching and academic staff, postdoctoral fellows and are responsible for training, assisting in collection development, creating orchid IDs, and Google scholar citations, including attendance of their departmental meetings and other activities. There were some irregularities discovered among the subject librarians, especially at Unisa, where their target group cover any student with a research component, whereas others strictly mentioned their focus being mainly on Masters, PhD students and staff.

It is on the basis of the above-cited views that this study is further viewed as a significant contribution to studies particularly aimed at the roles of subject librarians, rather on the generic categorisation of librarianship as a monolithic field with less disciplinary tenets than other fields of study. In this regard, this study, undertaken by a professional librarian, is further viewed as adding a 'voice' to the concerns of librarians in general, and subject librarians in particular. In that specific regard, the current study is then viewed as advocating for respect of the librarianship profession and its integrity as both indispensable and integral to the functioning of higher education institutions, and not just a mere appendage to the organisational structures and configuration of universities.

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**APPENDIX A: COVERING LETTER**

**Dear Participants**

My name is Mokgadi Rebecca Senyolo, a Masters student at Unisa.  I am conducting a study in partial fulfilment of the requirements for a Masters in Information Science Degree at the University of South Africa.  The topic of my research is **"The current and emerging roles of subject librarians in academic institutions: A comparative study of the University of the Witwatersrand and the University of South Africa"**.

I kindly request you to spare approximately 20 minutes of your time to answer the following questions.  Your response will be used for research purposes only and will be treated with strict confidentiality.

Although the study follows a comparative approach involving the University of South Africa and University of the Witwatersrand subject librarians, the results will benefit all academic libraries in the country and beyond.


Yours Sincerely
Mokgadi Rebecca Senyolo

**APPENDIX B: INTERVIEW SCHEDULE**

**SECTION A: Traditional, current and emerging roles of subject librarians**

1. What roles do subject librarians perform in an academic library?  The roles are in the form of liaison, marketing, research support, etc.
2. Do you think that traditional roles of subject librarians have had a bearing on the current roles?  If Yes, please explain.
3. How has your role changed in the last 10 years?
4. What predictions can you make for the future (say 20 years from now) as far as the role of subject librarians is concerned?

**SECTION B: Duties and functions of subject librarians in academic libraries**

5. What are the duties that you as a subject librarian perform in your academic library?  Please list as many as you can.
6. What services do subject librarians offer in academic libraries?  For students, academic staff, etc
7. Which of those duties do subject librarians mostly perform and why?
8. How would you rate the services offered by subject librarians in your library? Please explain?

**SECTION C: Factors that have shaped or influenced the roles of subject librarians**

9. To what extent does your qualification shape your role as subject librarian?
10. Do you think the nature of your library (for example, its organizational structure) influences how you perform your duties in the library?
11. What impact does emerging technology have on your role as subject librarian?  Which of the ICTs have had a major influence on shaping your role as a subject librarian?  How often do you use ICTs to carry out your role of subject librarian?
12. To what extent, in your view, have the changes in information needs of users shaped the role of subject librarians?  Which information needs and information seeking behaviours, in your opinion have shaped your role the most?
13. Does the parent organisation's (i.e. university) needs have a bearing in shaping your role as a subject librarian? How?
14. What are other factors that have shaped the job of subject librarians?

**SECTION D: Challenges the subject librarians face in their new roles**

15. What kind of logistical challenges do you experience when serving your clients as a subject librarian?
16. In your experience, with regard to learning new systems, dealing with difficult clients, following new trends, what sort of challenges do subject librarians encounter?
17. In terms of training / workshops, the new programmes, ICT support, what other challenges do you encounter when playing your role as a subject librarian?
18. What liaison-related challenges do you experience as a subject librarian?
19. What subject specific knowledge-related challenges do you experience while discharging your role as a subject librarian?

**SECTION E: Current job requirements of subject librarians**

20. What are the competencies that you think subject librarians currently require to effectively discharge their duties? Competencies are abilities and knowledge (e.g. ability to communicate effectively, ability to interpret search queries, knowledge of database systems, knowledge of the field / discipline, etc.

21. What are the skills required to enable subject librarians to perform their job? Think of information literacy, communication skills, etc.

22. In your opinion, what are the competencies and skills do you require to enhance your role as a subject librarian?

**SECTION F: Recommendations to improve subject librarianship**

23. What further training is required for subject librarians to align with new developments?

24. What other initiatives or interventions should be put in place to enhance your work as a subject librarian

25. What else would you like to share about the role that you play as a subject librarian?

26. What solutions would you offer to overcome the challenges you identified in Section D above?

Thank you for your support and cooperation.

# APPENDIX C: ETHICAL CLEARANCE CERTIFICATE FROM UNISA REVIEW COMMITTEE

**UNISA** | university of south africa

## DEPARTMENT OF INFORMATION SCIENCE ETHICS REVIEW COMMITTEE

20 September 2019

Dear Mrs Mokgadi Rebecca Senyolo

DIS Registration #: Rec-200919

References #: 2019-DIS-0034

Name: MR Senyolo

Student #: 90183371

**Decision:**

**Ethics Approval from 20 September 2019 to 20 September 2024**

Researcher(s): Mokgadi Rebecca Senyolo
senyomr@unisa.ac.za
083 740 8245

Supervisor(s): Prof OB Onyancha
onyanob@unisa.ac.za
012 429 6724

The role of subject librarians in academic institutions in South Africa in the 21st Century: a comparative study of the University of the Witwatersrand and the University of South Africa.

Qualifications: Masters Study

Thank you for the application for research ethics clearance by the Unisa Department of Information Science Research Ethics Committee for the above-mentioned research. Ethics approval is granted for five years.

The *low risk application* was reviewed and expedited by the Department of Information Science Research Ethics Committee on 20 September 2019 in compliance with the Unisa Policy on Research Ethics and the Standards Operating Procedure on Research Ethics Risk Assessment. The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy of Research Ethics.

2. Any adverse circumstances arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the Department of Information Science Ethics Review Committee.

3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.

4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards the protection of participants' privacy and the confidentiality of the data should be reported to the Committee in writing, accompanied by a progress report.

5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no. 4 of 2013; Children's Act no. 38 of 2005 and the National Health Act, no. 61 of 2003.

6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.

7. No field work activities may continue after the expiry date of **20 September 2024**. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

The reference number **2019-DIS-0034** should be clearly indicated on all forms of communication with the intended research participants, as well as the Committee.

Yours sincerely

*[signature]*

Dr Isabel Schellnack-Kelly
Department of Information Science: Ethics Committee

*[signature]*

Dr EEN Dube
chairperson of
CREC

NAME OF COLLEGE REPRESENTATIVE: Dr EEN Dube

COLLEGE: CHS DATE: 16/10/2019 SIGNATURE: _(signed)_

## 7. SECTION 7: APPLICATION CHECKLIST (All applications for permission to conduct research involving UNISA employees, students and data must be submitted to the University of South Africa's Research Permissions Subcommittee (RPSC) chaired by the Executive Director: Research (See section 8))

| Item | Checkbox | Comments |
|---|---|---|
| 7.1. Completed all sections of the application form | ☒ Yes ☐ No | Comments: |
| 7.2. Attached a copy of the research proposal / plan (including supporting documents such as the information leaflet, consent form, cover letter and data collection instruments) | ☒ Yes ☐ No | Comments: Interview schedule, Role of Subject Libr. / Informed consent form 1 2019.doc / Proposal summary Form 1.pdf |
| 7.3. Attached an abridged copy of the CV(s) of ALL researcher(s) involved, including the CVs of the supervisors | ☒ Yes ☐ No | Comments: Onyancha_CV2019_Ethics.pdf / BRIEF CV MR Senyolo Form 1.pdf |
| 7.4. Attached copies of ethics clearance certificates / letters (if applicable) | ☒ Yes ☐ No | Comments: In process |
| 7.5. Completed Form H – Request for access to a record of the University and personal information of UNISA employees, students and / or data (in terms of the Promotion of Access to Information Act 2 of 2000 and Protection of Personal Information Act 4 of 2013) Refer to Annexure A of this application form. *This would include access to student and / or employee data bases e.g. email addresses.¹* | ☒ Yes ☐ No | Comments: No personal information of Unisa employees is required |
| 7.6. Signed the declaration (Section 6) | ☒ Yes ☐ No | Comments: |
| 7.7. Obtained the signature of the research supervisor (if applicable) (Section 6.3) | ☒ Yes ☐ No | Comments: |

## 8. SECTION 8: SUBMISSION PROCEDURE

Return the completed application form and relevant documentation electronically on or before the due date to the following email address: **RPSC@unisa.ac.za**

If you have any queries about the application process, contact the office bearers of the RPSC below:

| Secretary: Permission Subcommittee of the Senate Research, Innovation and Postgraduate Degrees Committee, University of South Africa | Permission Ms Kgomotso Gill Administrative Officer: Research Integrity Research Support Directorate Unisa | Deputy Chairperson: Permission Subcommittee of the Senate Research, Innovation and Postgraduate Degrees Committee, University of South | Research Dr Retha Visage Manager: Research Integrity Research Support Directorate Unisa |
|---|---|---|---|

¹ According to PAIA a "record" of, or in relation to a public ....body, means any recorded information, (a) regardless of form or medium,(b)in the possession or under the control of that public ....body, .... and whether or not it was created by the public ....body ....

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# 6. SECTION 6: DECLARATION

## 6.1.BY SIGNING BELOW, I UNDERTAKE TO:

| | | |
|---|---|---|
| a) | Execute the research in an ethically responsible way, thus ensuring participants' privacy and the confidentiality of records | ☒ Agree |
| b) | Not to use the research and information in a manner that is detrimental to the University of South Africa or to persons or institutions outside the university unless it can be scientifically justified | ☒ Agree |
| c) | Notify the Chairperson of the University of South Africa's Research Permission Subcommittee of significant changes in research activities or timelines that may make the information in this form inaccurate | ☒ Agree |
| d) | Submit an electronic copy of the final report or dissertation based on the information gained through the research activities described in the application to the Executive Director: Research (Chairperson of the University of South Africa's Research Permission Subcommittee) within 3 months of completing the project | ☒ Agree |

## 6.2.I CONFIRM THAT:

| | | |
|---|---|---|
| a) | I am familiar with the University of South Africa's Policy for Conducting Research involving Unisa employees, students and data and agree to adhere to it in order to protect the rights of UNISA employees and students **(click here)** | ☒ Agree |
| b) | I am familiar with the University of South Africa's Policy on Research Ethics and agree to adhere to it in order to protect the rights of UNISA employees and students **(click here)** | ☒ Agree |
| c) | I am familiar with the University of South Africa's Research and Innovation Policy and agree to adhere to it in order to protect the rights of UNISA employees and students **(click here)** | ☒ Agree |
| d) | I am familiar with the University of South Africa's Intellectual Property Policy and agree to adhere to it in order to protect the rights of UNISA employees and students **(click here)** | ☒ Agree |
| e) | I am familiar with the Protection of Personal Information Act, no 4 of 2013 and agree to adhere to in order to protect the rights of UNISA employees and students **(click here)** | ☒ Agree |
| f) | I am familiar with the Promotion of Access to Information Act 2 of 2000 and agree to adhere to in order to protect the rights of UNISA employees and students | ☒ Agree |
| g) | I am familiar with the Standard Operating Procedure on conducting research involving UNISA employees, students and/or data (click here) | ☒ Agree |

**NAME:** Mokgadi Rebecca Senyolo   **SIGNATURE:**

**DATE:** 6 October 2019

## 6.3.RESEARCH SUPERVISOR (if applicable):

To my knowledge the student has addressed all aspects in his/her planning of the research in complying with the requirements for obtaining research permission set forth in the University of South Africa's Policy for Conducting Research Involving Unisa Employees, Students and Data.
I therefore recommend that permission to conduct research involving Unisa employees, students and/or data should be granted in respect of this application.

**NAME:** Omwoyo Bosire Onyancha (Prof)   **SIGNATURE:**

**DATE:** 6 October 2019

## 6.4.RELEVANT UNISA REPRESENTATIVE (ERC CHAIRPERSON OR HEAD:OFFICE OF GRADUATE STUDIES AND RESEARCH (UNISA RESEARCHERS)):

To my knowledge the applicant has addressed all aspects in his/her planning of the research in complying with the requirements for obtaining research permission set forth in the University of South Africa's Policy for Conducting Research Involving Unisa Employees, Students and Data.
I therefore recommend that permission to conduct research involving Unisa employees, students and/or data should be granted in respect of this application.

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APPENDIX D: INFORMED CONSENT

**PARTICIPANT INFORMATION SHEET**

Ethics clearance reference number:

Research permission reference number (if applicable): **#2019-DIS-0034**

**Title: The current and emerging roles of subject librarians in academic institutions: A comparative study of the University of the Witwatersrand and the University of South Africa**

**Dear Prospective Participant**

My name is Mokgadi Rebecca Senyolo and I am doing research with Prof O.B. Onyancha, a Professor, in the Department of Information Science, towards a M. Inf at the University of South Africa. We are inviting you to participate in a study entitled "The role of subject librarians in academic institutions in South Africa in the 21st Century: a comparative study of the University of the Witwatersrand and the University of South Africa".

**WHAT IS THE PURPOSE OF THE STUDY?**

I am conducting this research to find out the current roles of subject librarians in the University of South Africa, how subject librarians cope with their changing roles, and what are the effective training programmes best suited to improve the level of understanding of the needs of users.

**WHY AM I BEING INVITED TO PARTICIPATE?**

The total sample size of 20 subject librarians of Unisa library is selected because it is more appropriate and convenient for the study. Details of the participants were sourced from their line Manager after the ethical clearance was permitted. The researcher chose this particular group of participants as the findings will benefit the library a great deal in the sense that services will be served in an effective and efficient manner to meet its objectives,

user needs and that of the University.  It will also assist the library and its staff to keep track with new developments.

## WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

The study involves the role that Subject Librarians play in an Open Distance Institution. An interview schedule *is attached, and it is estimated to take approximately +_20 minutes*

*to participate in the interviews at the time convenient to you.*

Interview schedule
Role of Subject Libra

## CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary and there is no penalty or loss of benefit for non-participation. You are under no obligation to participate.  Please note that you are at liberty to withdraw should there be any personal reason preventing you from proceeding in participating in this interview.  However, your withdrawal may hamper the success and timely complexion of this study which is meant to improve your role to best improve the services of the clients.

## WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

The study will assist the participants (Subject Librarians) to identify, plan and organize effective training programmes best suited to improve the level of understanding of the needs of users as they come.  The research will identify some gaps required to address the need of library staff when developing training services.  The discussion will be followed by suggestions on how constructively and innovatively subject librarians can prepare themselves in order to be positioned well for these new roles and how these roles and skills can be transferred into a networked academic environment.

**ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?**

The researcher do not anticipate any discomfort to participants. Questions have been structured in a way that there is no harm anticipated. However, should any of the participants feel any discomforts or should there be any adverse events, the researcher will seek advice from PRC for a way forward.

**WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?**

No identifying information will be collected. Questions will only pertain to your work. Anonymous data without personal identifiers will be collected and analysed.

**HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?**

Research data will be saved in a password protected PC.

**WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?**

In line with Unisa research ethics policy, no incentives will be given for participants in this study.

**HAS THE STUDY RECEIVED ETHICS APPROVAL?**

This study has received written approval from the Research Ethics Review Committee, with reference: **#2019-DIS-0034**.

**HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?**

If you would like to be informed of the final research findings, please contact Ms Mokgadi Senyolo on Tel: 012 429 4157 or email senyomr@unisa.ac.za.  The findings will be shared with the line Manager of the unit (Research Quality & Planning) and alert respondents (subject librarians) via email and will also be put in the Institutional Repository.

Should you have concerns about the way in which the research has been conducted, you may contact Prof O.B.Onyancha , email onyanob@unisa.ac.za, internal phone number 012 429 6724 Contact the research ethics chairperson Dr M.P. Molapo, of the Professional Research Committee, email molapmp@unisa.ac.za, Tel: 012 429 2031 if you have any ethical concerns.

Thank you for taking time to read this information sheet and for participating in this study.

Thank you.

Mrs. Mokgadi R. Senyolo

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

**OFFICE OF THE DEPUTY REGISTRAR**

14 April 2022

Mokgadi Rebecca Senyolo
Master of Information Sciences University
of South Africa

**TO WHOM IT MAY CONCERN**

**"The current and emerging role of subject librarians in academic institutions: A comparative study of the University of the Witwatersrand and the University of South Africa."**

This letter serves to confirm that the above project has received permission to be conducted on University premises, and/or involving staff and/or students of the University as research participants. In undertaking this research, you agree to abide by all University regulations for conducting research on campus and to respect participants' rights to withdraw from participation at any time.

If you are conducting research on certain student cohorts, year groups or courses within specific Schools and within the teaching term, permission must be sought from Heads of School or individual academics.

Ethical clearance has been obtained. (Protocol number: 2019-DIS-0034)

Research Expiration: (20 September 2024)

Nicoleen Potgieter
**University Deputy Registrar**

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