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THE USE OF SOCIAL MEDIA TOOLS FOR RESEARCH SUPPORT IN ACADEMIC LIBRARIES

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DECLARATION

I, the undersigned, hereby declare that this thesis is my own work and has not been submitted for any other degree or professional qualification at any university. All sources cited or quoted in this research paper are indicated and acknowledged with a comprehensive list of references.

.....

Signature

.....

Date

DEDICATION

I give thanks to God who has provided me with all the strength throughout my studies.

I appreciate the guidance I got from my supervisor Dr Cecilia Penzhorn. Thank you for sharing your experience, knowledge and support during this study.

I also thank my sons Omphile and Thabo for their support, love and patience. You are my source of inspiration.

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Abstract

Academic libraries in Africa need to provide a research support service that is relevant to clients. Academic libraries are attached to the institutions of higher learning and support their teaching, learning and research objectives. Institutions of higher learning are always evolving and competing amongst each other based on the output produced.

The study addresses the importance for academic librarians of using social media tools to support researchers and how the academic libraries in Africa can tap into these opportunities presented and introduce new sustainable services using these tools that specifically support researchers.

A qualitative research approach was used in the form of a questionnaire distributed to a sample of two groups from the Continuous Professional Development programme offered by the University of Pretoria, with participants from Ghana, Nigeria, Uganda, South Africa and Tanzania. The questionnaire comprised closed and open-ended questions to complement each other. The respondents were asked to indicate which social media tools they are familiar with, and which specific tools they used to support researchers or lack of use and reasons thereof.

Although social media tools are used widely in academic libraries and in developing (African) countries, this study showed that the tools are not widely used for research support services in the African academic libraries studied. There are hindrances that need to be overcome and addressed such as training of librarians on the tools relevant for research, raising awareness of such tools, assigning dedicated personnel for social media support for researchers and constantly provide upgrading of the skills. In order to ensure sustainability, the leadership must ensure that there are appropriate resources such as infrastructure.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

It was predicted in 2012 that within the next 10 years, Internet usage would grow tremendously. Today, it is evident that this prediction is being realised because of the accelerated rate of technology. The Internet is not only used for information searching, but increasingly for other purposes specifically with the introduction of social media tools. However, there are gaps in higher education and other sectors in adapting to this rate /speed and general use of many of these new social technologies (Selwyn, 2012a).

1.2 Universities/ Higher Education

Social media has become the most popular way of interaction in the world. Most people are using the internet, especially to access social media tools. Today many learners come to university with an expectation to continue on the social network environment, to pursue their educational goals within a collaborative environment for networking, complete several projects concurrently, and acquire knowledge. Universities have to cater for these needs because the traditional ways of teaching, implemented alone, do not work effectively for today's learners. Universities are realising this fact and in most instances, provide a social networking environment to facilitate online interaction within the university community. However, this is not the case for all universities. This has become a norm for those in developed countries whereas in developing countries, it is still a challenge due to *inter alia* broadband limitations.

Universities are using social media for teaching and learning purposes and engaging learners to take an active role for their learning and collaboration with peers. There are numerous and lengthy debates on the validity of social media for teaching and learning purposes within universities. Amongst debaters, there are those who believe that social media in universities is vital for teaching, learning, research and collaboration whereas others maintain that it is not effective when pertaining to the notion of "blended curricula", collaborative assessment. The fact of the matter is that these technological tools are here to stay and will continue to develop with more

enhancements. Universities must not to be caught up in these debates and be left behind, but rather devise mechanisms that are effective to ensure an enabling environment for the use of social media tools, ensuring that the university community is supported with infrastructure, tools, software, skills, and security (Selwyn, 2012a).

Academic libraries are regarded as the hub of the university and are therefore required to position themselves strategically to support the university mission and vision. The libraries have to develop an E-strategy that is constantly revised, depending on the needs of the institution and the trends in the Information and Communications Technology (ICT) world. It is of paramount importance that academic libraries continue to be innovative in all aspects, physical environment, information resources, infrastructure, ICT, skilled human resources, and many more. The modern librarian has to be a regular user of social media tools and be aware of the services that can be incorporated in such environment to facilitate e-Learning, collaboration, marketing and networking for the purpose of teaching, learning and research. The ICT developments call for transformation of library services.

Ongoing training is a crucial aspect for the librarians and academic library users. Today, the digital world is a 24/7/365 concept and library services need to be accessible at any time. Academic libraries have to ensure that there is appropriate user licencing on information resources, speed and security of the network, Wi-Fi hot spots and should constantly improve on any ICT barriers (Penzhorn, 2009a; Chauhan, 2013).

Cann et al. (2011) state that social media can be used for research collaboration and research increase. There are some researchers who are sceptical about this due to various reasons such as illiteracy, mindset, limitations, and librarians can play an advocacy role on the benefits of using social media for research.

The aim of this study is to investigate whether academic libraries in Africa use social media for the provision of research support services, specifically focusing on Ghana, Nigeria, South Africa, Tanzania and Uganda, which are part of Sub-Saharan African countries.

1.3 Central Research Question and Research Sub-Questions

Within the above context the **central research question** is as follows:

What is the significance of social media tools in academic libraries for enhancing research support services?

Sub-questions that need to be addressed in order to solve the above are:

- How are social media tools used in universities/ academic Institutions?
- What changes are necessary in the librarian's role in order to remain competitive in this age of significant usage of social media tools?
- What are the adopted social media tools for research support services?

1.4 Justification for the research

This research contributes to the existing theories which focus on social media tools in academic environments; the benefits of using social media tools, academic learning and collaboration environment (Abram, 2008); implementation of relevant social media products; responding to client's needs and upgrading of library staff skills.

1.5 Some areas related to the topic as covered in the literature

Arguments and examples supporting use of social media

According to Tess (2013), a student comes to university with a foundation that has already been built on social networking and thus obliges the educational institutions to use these.

According to Hung and Yuen (2010), social media tools encourage learning, applying the concept of community of practice. Eijkman (2008) states that the use of Web 2.0 allows the global construction of knowledge, using various learning channels. Reuben (2008) states that social media is effective for marketing in a university.

According to Greenhow et al. (2009), social technologies change traditional learning systems but also that a further investigation is warranted, to investigate factors surrounding participation by learners, the creation of digital content, collaboration activities, and the standards of practice for quality assurance pertaining to “curriculum, pedagogy, and policy” by the teacher.

Tess (2013) states that most universities support the use of social media, but the adoption for education purposes varies, some educators are slowly incorporating this and are still in the early stages, whereas others are unwilling.

Pedagogy and Usefulness

According to Cann, et al. (2011), depending on the researcher’s preferences, social media tools can be used for social and professional networking, social bookmarking, citation sharing, blogging, microblogging, collaboration for writing and research and project management and is in agreement with what Roblyer et al. (2010) have reported in their survey that students use Facebook mostly for social networking.

Wang et al. (2012) revealed that respondents view Facebook as a learning management system even though it does not support uploads of pdfs and PowerPoint documents.

Schroeder & Greenbowe (2009)’s comparative study of Facebook and WebCT as a learning management system revealed discussion posts for enrolled students in a specific course to be four times higher than those in WebCT.

Blogs are effective for both personal and educational use, such as “a learning journal for gathering or reporting course-related information, disclosing personal information and expressing emotions and feelings, a communication tool for social interaction with other people, an assessment tool for peer evaluation, a task management tool for posting assignments” (Tess, 2012). Cann, et al. (2011) further state that blogs are effective in building profiles for researchers and facilitating collaboration, learning and generating new ideas.

Cann, et al. (2011) also state that tools such as Zotero, Mendeley, etc., facilitate social citation sharing, connecting people with similar or related interests, and that Twitter,

as an example of microblogging, facilitates the exchange of short pieces of information depending on discussions in which one is participating. Twitter is helpful in sending relevant links. Wikis, Google Docs, Dropbox are collaborative writing tools.

Areas of Consideration

Penzhorn (2009b:1) emphasises that it depends on the library to provide enhanced research support services that are adaptive and incorporating social media in order to enable researchers to collaborate, “write articles on restricted wikis, and use social bookmarking sites as vehicles for soft peer review, personal copyright ownership of publications and open access”. Rowlands et al. (2011) state that the survey undertaken reveals that researchers are now responding and using social media more and are no longer sceptical; a total transformation from a previous study which revealed a lot of uncertainty in using social media.

Social Media, Strategy, Privacy, Quality, Ethics, Copyright

Madden (2012) argues that 58% of social media users set their profiles on ‘private’ because of fears that technology providers encroach on their privacy for financial gain. The concept of “privacy” is becoming a norm due to the technological evolution that is able to track and provide personal details of social media users, account holders, citizens, etc.

Other authors such as Dutta, (2010) allude to the establishment of a strategy guiding social media use. The strategy ensures quality and alleviates the concerns that prohibit effective use of social media in academic institutions. A typical strategy, amongst others, deals with the following aspects: What are the goals for using social media, i.e. learning, collaboration, marketing, etc. Which social media platforms are relevant for specific goals depending on subject speciality, needs of researchers, and so forth, management of intellectual capital, reliable authorship, quality assurance. Guidelines must be clear in terms of information to disclose, regular updates. Dedicate time and spent it for continuity and commitment to social media activities and evaluate and monitor if the information gathered is beneficial, and respond to set goals (Chretien & Kind, 2013).

Rodriguez (2011) maintains that the use of social media has brought a shift from the traditional ways of ownership and intellectual property and that students, together with lecturers, are now "co-authors/creators" of academic work. The author states that issues of ethics, access, security, technology have to be scrutinised. Jones et al. (2010) agree on the relevance of social media in education and suggest looking further into some issues such as privacy, copyright, information overload, and the limitations of technology.

Social Media Tools for Researchers

Libraries are expected to provide excellent service and support their academic institutions to realise their goals. This will be successful if librarians take the leading role, by starting to explore "Web 2.0 technologies" to be able to identify effective strategies for use. Librarians have always been and are good at transferring skills to users, and this can also be effectively done with social media tools.

Carpenter and Drezner (2010) state that it is worthwhile for academics to explore using social media tools as this is a trend and will continue to improve as more research continues to explore aspects relating to this study. Previous studies indicate that "13% of UK academics frequently use Web 2.0 in novel forms of scholarly communications, 80% of scholars have social media accounts, 10% of UK doctoral students use for purposes of research." The common tools that are used in such instances include: "reference managers, Twitter, blogs, bookmarking services, and more." (Priem et al., 2012:2).

1.6 Research Methodology

This study used a quantitative method of data collection employing a questionnaire focusing on selected academic libraries from Africa who were requested to provide information on their experiences and implementation of social media tools specifically in promoting research support services.

1.7 Value of Study

Literature consulted in terms of social media use in academic institutions has not dismissed the concept, but instead alludes to the enormous benefits that enhance learning. There are areas of concerns highlighted which need further investigation and adaptations in individual institutions so that social media use becomes effective and manageable to yield quality results relevant for an academic environment. Technology, overall, is here to stay and affects all spheres of life and it is logical that academic institutions remain at the forefront and champion the use of social media to provide a model for other sectors.

The outcome of the study contributes and effectively highlights the advantages of using social media in a university, academic libraries, and even libraries in general. The effective use of social media for competitive advantage touched on a number of issues such as training, skills, policies, strategies, etc. that need to be in place as enablers.

1.8 Clarification of Key Terms

1.2.1 Social media tools

Social media tools refers to online interactive gadgets which enable individuals to communicate instantly or at a later stage. Individuals on this platforms can find peers with similar topics of interest without any limitation of geographical boundaries. The tools vary and an individual may participate on as many tools as possible, (Theunissen, 2015).

1.2.2 Academic Libraries

Academic libraries are attached to an institution of higher learning and actively serve them to ensure that they attain their objectives for teaching learning and research. The users of academic libraries have needs that constantly change and the library needs to always cater for this in order to remain relevant, (Padma, 2018).

1.2.3 Researcher

A researcher is one category of the users of academic libraries and may be involved with research for example to solve a problem, generate new knowledge, etc. A researcher directly contribute to the research output of his/her institution, (Kyvik, 2013)

1.2.4 Research Support

Research support is a service that is provided by academic libraries to researchers to assist them to increase their research output and make their works easily accessible globally using various libraries' traditional and modern platforms, (Kennan et al., 2014).

1.9 Division of Chapters

Chapter 1: Introduction

Chapter 2: Literature Review

Chapter 3: Research Methodology

Chapter 4: Data Analysis

Chapter 5: Interpretation of results, recommendations and conclusions

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This study investigates the use of social media by libraries in Africa in support of researchers at their institutions. This chapter covers information found in the literature pertaining to issues relevant to the study.

The chapter starts with a discussion of the role that research plays in the academic environment, followed by the use of social media in research endeavours; benefits as well as possible challenges in the use of social media for research are covered and an overview of various social media tools used in the academic environment is provided. The chapter concludes by pointing out some of the challenges faced by African libraries within the context of using new technologies, such as social media, in support of researchers.

2.2 The importance of research in academic institutions

2.2.1 Introduction

Academic institutions engage in research across various disciplines and this develops rich scientific and reliable facts that shape the future of the world and provide a foundation on which the next generation of academics can rely (Kyvik, 2013; Gravette & Forzano, 2018).

Brownson (2017) states that research ensures sustainability in various sectors, for example, health, the economy, science, etc. The government funds academic institutions to conduct research because their success depends also on the innovations in research. De Rond and Miller (2005) state that research in academic institutions also classifies the higher education landscape because the rankings of institutions inform the nation about its research performance and global contribution to the economy.

2.2.2 The researcher and publishing

According to Jaensch (2017), it is important for researchers to publish their works and be familiar with the art of scientific communication. In order for a researcher to gain respect in a field, the publications he/she chooses to publish in must have certain characteristics that are academically recognised. Some of these characteristics are, for example, specialised focus, expert knowledge, contributes highly in theory and practice, peer reviewed, brings forth innovation to the existing body of knowledge and so forth (Serenko & Bontis, 2013). These characteristics result in publications having a high impact factor due to the fact that they are of high quality, efficient in comparison with other publications, attract broad audiences including students, have clear guidance on scope and coverage, and researchers are acknowledged for their intellectual rights (Serenko et al. 2011; Bornmann, 2013).

Researchers who are actively publishing establish networks with colleagues in similar and related fields and get valuable feedback that results in their being well known in their research areas, thus regarded as experts. Researchers publish in order to leave a legacy within the fields in which they are experts (De Rond & Miller, 2005).

Not only are expert researchers in a position to lobby for employment opportunities, job progression, increase in remuneration, etc., but a researcher who is regarded as an expert in a field may also contribute to the university rankings of the home institution (De Rond & Miller, 2005; OCallaghan, 2018; Serenko & Bontis, 2013).

Research output is an influential factor for university rankings and academic institutions get funds from government, based on how they perform with regard to various factors, such as number of research publications. Although the ranking systems differ, they are crucial for credible academic standing (Marginson, 2007). Rankings attract media coverage and accordingly, they inform various stakeholders such as politicians, university leaders, funding agencies, students and so forth, about where to invest their funds, skills as researchers and enrolment as student (Butler, 2010; Saisana et al., 2011).

2.3 Social Media and the Researcher

2.3.1 Introduction

The barriers of limited interaction in organisations are broken when networking occurs online through words, pictures, videos, etc. Social media is “about dialogue – two-way discussions bringing people together to discover and share information” (Dlamini & Johnston, 2018; Reuben, 2008:1). Mangold and Faulds (2009) further elaborate that networking individuals eventually assist organisations to have defined categorised groups according to interest fields. Cann et al. (2011); Filo et al. (2015) agree that defined groups foster collaborations which are crucial for research.

A significant tool for collaboration is the use of social media. Although most universities support the use of social media, the adoption for education purposes varies, especially when it comes to research (Tess, 2013). Some institutions are incorporating social media practice for research purposes slowly, others have not conceptualised the phase, and some are unwilling to start. Within the dilemma of rapidly evolving technology, Selwyn (2012a) is of the opinion that universities need to take precautionary measures, adapt rapidly, and apply social media usage to all levels of the university community.

2.3.2 Benefits of the use of social media in the research process

Tess (2013); Selwyn (2010b); Merchant (2012) agree that researchers are aware of and familiar with social media tools and this is a competitive advantage for research growth and an aspect that needs to be explored further for more efficiency and effectiveness in universities. Researchers are using social media tools in the entire life cycle of research despite the challenges, and the success of social media tools is evident for the purposes of collaboration, authoring, and even practical issues, such as scheduling meetings (Nicholas & Rowlands, 2011). Researchers have specified tools they prefer to use and have embraced this in their research.

The following are some examples of areas where research endeavours can be enhanced / benefitted through the use of social media:

2.3.2.1 Engaging with fellow researchers

Lang and Lemon (2014) state that social media improves and accelerates feedback from colleagues. This promotes knowledge production, exchange, transfer and sharing of knowledge; all so essential in the research environment. Professional networking by means of social media is a broad spectrum of collaboration which helps researchers engage with fellow professionals and keep abreast of developments, conferences, and other professional activities and events (Cann et al., 2011; Davis, et al., 2012; Stone, 2014; Scellato et al., 2015).

2.3.2.2 Developing one's professional network

The benefits of using social media not only include getting a broad audience and thus increasing awareness and acceptance of science and research but it also enhances researchers' own rights of publications thus enabling citation sharing, connecting researchers with related areas of research, co-authoring and overall strengthening professional research networks (Cann et al., 2011; Penzhorn, 2009a; Tabor, 2012).

2.3.2.3 Improving research impact

The measuring of research output is a widely accepted undertaking in the academic environment. Altmetrics, which take into account traditional measurements such as citation counts and h-indices, also provide information regarding research in the social media environment, such as number of downloads and similar actions (Tabor, 2012; Roemer & Borchardt, 2012). Stone (2014) is of the opinion that the use of altmetrics is an effective way of measuring research impact globally.

The use of altmetric scores, in addition, broadens networking with other researchers. Publishing houses increasingly help the researchers view their altmetric score and enable them to see: who their followers are, followers' selected works that they have further shared, friends and other researchers promoting their work, areas that require more research, as suggested by the audience seen in blogs and news bullets, and so forth (Priem et al., 2012; Stone, 2014).

2.3.2.4 Facilitating funding for research

Knowledge sharing in the research environment is becoming increasingly valuable with funding agencies making funds available for collaborative work (Ghazali, et al.,

2016). In this regard, social media assists to justify grant applications, providing evidence, for example, altmetrics, to sponsors, proving that the money invested in research was a worthwhile endeavour (Bailey, 2014; Das & Mishra, 2014).

Some funders furthermore require researchers to be actively involved on social media platforms. Researchers are kept abreast of possible funding opportunities when funders post invitations for grants on their respective social media sites (Leonard, 2014).

2.3.2.5 Saving time

Social media has brought efficient ways of saving time by communicating with other researchers globally and getting instant feedback, help in decision making and solving problems (Lang & Lemon, 2014; Cann et al., 2011; Collin, 2011). In addition, the collaborations are more efficient because the peers correspond in their own free time in a very relaxed way, thus contributing to saving time as compared to everyone being required to be at a specific location at the same time in order to communicate. The peer-to-peer established networks furthermore assist the researcher to filter relevant conferences and events to attend instead of just attending events as previously and discovering whilst there, that it was a total waste of time (Bailey, 2014; Cann, et al.; 2011; Shanahan, 2013).

2.3.2.6 Enabling career development

Social media is best suited for career development for young or emerging researchers, (Tachibana, 2014). Researchers can easily identify associations of professional groups in which they wish to partake (Bailey, 2014; Stone, 2014). In addition, young researchers are invited by older researchers to work together on papers and conference presentations. Bailey (2014), Chandrasekaran (2015), and Shanahan (2013) maintain that social media usage enhances job hunting and provides comprehensive details about one's professional portfolio, as compared to a resume.

2.3.2.7 Transforming research protocols

A research protocol gives an overview, goals, objectives, and so forth of a research project and make it simple for universities to provide ethical clearance and funding for a research that has met certain requirements (Bakketeig & Magnus, 2002). According

to Hermida (2012), social media is transforming research protocols within specific fields which also provides young researchers a better chance to engage in research.

According to Moreno et al. (2011), the current trend of the contribution of social media in research is growing and recent studies on this in the fields of law, medicine, and social sciences, suggest embracing this norm in other disciplines and adapting viable research protocols. A successful codebook was developed with the support of an institutional review board to address ethical issues associated with data evaluation of user profiles. This codebook example can form a basis and be adapted by other researchers to suit their specific needs (Moreno et al., 2013).

2.3.3 Possible challenges in the use of social media for research

2.3.2.1 Quality Assurance

Researchers adhere to certain principles of quality for any research activities that they do. Social media platforms do not have mechanisms in place to ensure that the information available has followed the quality assurance processes. Researchers tend to find this a challenge to scientifically rely on such information or to submit their scientific work for ethical reasons (Donelan, 2016). According to Cann, et al. (2011), researchers are not comfortable on these platforms because they feel their exchange of ideas will be tarnished as not credible because they avoid the traditional process of peer review. Researchers feel that academic principles of practice to ensure quality are required in the use of social media for research.

2.3.2.2 Privacy, security and intellectual property

Personal and professional privacy and security in the social media environment is often a real concern for users (Wimmer & Lewis 2010; Lewis, et al., 2008; Kronqvist-Berg, 2014).

For researchers, such concerns relate, inter alia, to issues of security of personal information where researchers do not want their identity to be stolen. They are also concerned about research data that is sold and/or used by other parties without authorisation (Irshad & Soomro, 2018; Wimmer & Lewis, 2010; Lewis, et al., 2008).

It is a norm to have copyright endorsed on academic works to ensure fair use and acknowledge the authors. As was discussed, researchers are funded to conduct research and they require recognition for their intellectual property to improve their citations. It is, however, easy to copy, reuse and remix digital content on social media platforms (Rodriguez, 2011; Selwyn, 2012a) and this proves to be another major concern for researchers.

2.3.2.4 Skills and new knowledge required

Technology is constantly increasing and there are various levels of digital literacies required in the use of social media. Researchers need to adapt quickly. They need a change in mindset from using only traditional ways of conducting research to embracing new ways brought about by social media, and in the process, acquire adequate skills for effective utilisation of the tools (Davis, et al., 2012; Kronqvist-Berg, 2014; Lang & Lemon, 2014). A viable solution could be the creation of a support system in universities to help researchers whenever they require assistance (Selwyn, 2012a; Nández & Borrego, 2013; Donelan, 2016).

2.3.2.5 Time consuming

In order for researchers to have effective collaboration, they need to commit reasonable time to engage with fellow researchers, and to update their skills on social media usage on a constant basis (Reuben, 2008). There is often a lack of support in institutions, and support staff in libraries who are expected to guide researchers, are themselves experiencing challenges of funding, skills, and dedicated staff on social media (Lee, 2015; McCallum, 2015).

There is also a feeling amongst some that the use of social media in higher learning institutions defeats and distracts from the purposes of institutions, such as academic excellence and performance (Naizabekov, 2012), that while browsing for research purposes, for example, a researcher could be distracted and start browsing pictures, going on Twitter and other entertainment platforms which may result in loss of valuable time that was supposed to be invested for research.

2.3.2.6 ICT Infrastructure

The lack of viable, adequate, reliable and efficient ICT infrastructure can limit the use of social media (Rodriguez, 2011; McCallum, 2015). At a certain point, a researcher might want to connect on a social media platform and be hampered by the lack of an Internet connection. As a result, the researcher will then have to prioritise and work, for example, on searching for information sources for article writing rather than collaborating on the social media platforms.

2.3.2.8 Information overload

Reuben (2008) argues that the use of both social media and traditional media tools result in overwhelming information. Cann, et al. (2011) further argue that the technological evolution affects every sphere of life and this has the negative effect of preventing a researcher striking an equitable balance between professional and general activities. The nature of research projects requires huge amount of time investment for co-ordination and collaboration and it is sometimes difficult for a researcher to filter social media with minimal time and acquire required information (Neal, 2012).

2.4 Overview of social media tools available for academics

2.4.1 Social networking and collaboration

Social network sites (SNS) offer academics platforms to collaborate as peers and have become an integral part in the academic environment (Relojo & Pilao, 2016). Corrado (2016) agrees that just by a click of a button, social network sites facilitate information sharing and access to information. Sobaih et al. (2016) added that social networking sites not only increased collaboration for academics, but also that such platforms have distinctive features relevant for the promotion of collaboration of academics. This has resulted in a massive increase in academic related content, amongst others, generated and shared, using social network sites (Relojo & Pilao, 2016).

“With the increasing use of computers, mobile devices, and social media, collaboration seems to be present more than ever before. At its core, collaboration occurs when 2 or more entities work together to produce a desired and shared outcome. Collaboration can be a significant catalyst to positive advancement in research, as it allows access to resources so that more complex, and perhaps more meaningful, investigation may be possible” (Green and Johnson, 2015:1-2).

2.4.1.1 Facebook

Facebook is currently the most common social networking site (Sharma et al., 2016) and was developed by Mark Zuckerberg, an American computer programmer and Internet entrepreneur. In terms of Facebook statistics, over 2.27 billion users log onto Facebook monthly and 1.49 billion every day (Zephoria, 2018).

Facebook has transformed since its inception from being a directory of information about people, to a tool enabling users to collaborate socially, to a global social infrastructure on the network (Hoffmann et al. 2016; Sharma et al. 2016). This evolution highlights the potential Facebook has in the promotion of research and its structure is suitable for collaboration on specific topics of interest, getting comments amongst researchers (Bumgarner, 2007).

2.4.1.2 ResearchGate

ResearchGate was started in 2008 by Dr Ijad Madisch, Dr Sören Hofmayer and a computer scientist, Horst Fickensche (ResearchGate, 2018) and is used by 89% of scholars in 193 countries in the world. ResearchGate connects more than 15 million researchers and hosts more than 100 million publications (ResearchGate, 2018).

It is regarded by some as the best-known collaborative network amongst academics (Relajo & Pilao, 2016; Mikki et al., 2015).

As a “Social networking site for scientists” Mikki et al. (2015:5), the aim of ResearchGate, as mentioned on its own website, is to “Advance your research, discover scientific knowledge, and make your research visible” (ResearchGate, 2018). It allows users to login for free using either a Facebook account or LinkedIn and there are no charges there on articles reviewed (Rejojo & Pilao, 2016).

2.4.1.3 Academia.edu

Academia.edu was started in 2008 by Richard Price, has more than 36 million users and has uploaded 13,597,846 papers since it started (Academia.edu, 2018). Academia.edu has brought a dynamic way into how researchers communicate and exchange their works as compared to the old traditional way, (Relajo & Pilao 2016). Registration on the platform is free and researchers can then create their profiles, list publications and collaborate with other researchers in the fields of interest. A researcher is able to get feedback in the form of number of downloaded articles from the webpages created. The webpages are synchronised with Google, giving the author information about keywords, tags used by other peers to search for their works (Mikki et al., 2015).

2.4.2 Bibliographic management tools

2.4.2.1 Mendeley

Mendeley was developed in 2007 by PhD students from London University and derives its name from Gregor Mendel and Dmitri Mendeleyev (Bhardwaj, 2017). It has been owned by Elsevier since 2014 (Thelwall & Wilson, 2016). Mendeley allows researchers to create profiles, list publications, identify research areas of interest and discover peers with similar research interest. It therefore has functionalities similar to those of ResearchGate and Academia.edu and an added benefit, it can be used as a bibliographic management tool which is helpful to users who generate or would like to view other lists of references (Thelwall & Wilson, 2016).

2.4.2.2 Zotero

Zotero is a free bibliographic management tool (Greenhow & Lewin, 2016). Zotero is solely financed by the contributions from its users/ community (Zotero, 2018).

Zotero can do the following: Effectively capture the metadata from YouTube, Flickr, or the New York Times, Manages citations easily and Researchers are able to edit, search and tag them with keywords. Its new version has further enhanced

collaboration amongst researchers because they are able to share their collections (Sample, 2011).

2.4.2.3 CiteULike

Citeulike helps scholars to manage and discover references related to their fields of research. It is non-fee based and has more than 8,661,296 articles (Citeulike, 2018). Researchers are able to discover other researchers reading similar literature, share lists of their publications with others, recommend articles related to one's research field, allows searching PDF documents and also provides alerts through RSS. Citeulike keeps a list of the references that researchers recovered online (Mu, 2011).

2.4.3 Social Bookmarking

2.4.3.1 Delicious

Delicious was developed in 2003 by Yahoo, later recreated by AVOS, and eventually owned by DomainerSuite in 2015. Delicious is a free web-based service with more than a billion links saved on a daily basis across the globe. Users do not have to remember the webpages visited, Delicious automatically stores this information for future access and retrieval. It is user-friendly and easy to search (Fanlore, 2018).

2.4.3.2 Diigo

Delicious used to be regarded as the world's largest social bookmarking site, but this may have changed as Diigo has introduced new features that are competing with Delicious such as: organising, tagging, and sharing sites, highlighting, sticky notes, annotated links, sharing links, searching, snapshots (Mu 2011); Diigo (2018) effectively and efficiently manages information in the cloud. It is a compatible social bookmarking tool which help users to keep abreast of new developments in research areas and facilitates easy access to information by creating a personal library for the user (Diigo, 2018).

2.4.4 Blogging and Microblogging

2.4.4.1 Blogs

According to Powell, et al. (2012), a blog is a space that is owned by a specific author online, used to convey personal comments on events, issues, ideas, which results in collaboration with peers, and facilitates the generation of new knowledge. Blogs may contain essays, articles, links to related blogs and websites, etc. Blogs are updated at regular intervals in order to remain relevant.

Blogs help in publishing the ideas of a researcher and present an opportunity for academics to reach a wider audience, not only limited within researchers, but also available to other sectors in public and private (Kjellberg et al., 2016). Blogs that are academically focused can be categorised as blog mention or blog citations. The blog mention is just a reference to scholarly literature, whereas blog citations refers to those articles that have been cited. As a result, blogs can be explored further on the basis of providing evidence on research impact (Shema, et al., 2014).

2.4.4.2 Micro blogging

Twitter started in 2006 and is well known as a microblogging site (Shema et al., 2014). Twitter has 326 million users online and on a monthly basis, with lots of million tweets sent daily (Statista, 2018). Collaboration on Twitter is easy and avoids hierarchies because researchers connect with each other globally in various institutions, and is not as restrictive as other social media platforms such as Facebook where 'friend' requests need to be accepted prior to any conversations. Researchers may interact with professionals across different roles and institutions, eradicating organisational hierarchy (Schnitzler et al., 2016). Research has shown that the majority of researchers engaged in social media activities are active on Twitter (Kjellberg et al., 2016).

2.5 Alternative tools that measure social media research output

Altmetrics is the term used for non-traditional metrics used as an alternative or complement to more traditional metrics such as citation metrics, h-indexes, etc. These

new forms of measurement have become indispensable in the social media research environment (Barbic et al., 2016).

The following are some examples of tools used:

2.5.1 Plum Analytics

Plum Analytics has been owned by Elsevier since 2017. Collaboration of researchers is tracked from multiple sources such as journals, media channels and social media and its metrics provide detailed analysis which help researchers to tell their stories to those funders who require more details (Elsevier, 2018; Cave, 2012).

The broad overview provides accurate scholarly impact and, according to Plum Analytics (2018), this helps to track exactly where research stories originate and also to determine their authorship. The deeper analyses provide answers in quantity relating to comparison of various departments, upcoming researchers in a specific or various research fields, etc. (Cave, 2012).

2.5.2 ImpactStory

Heather Piwowar and Jason Priem are the founders of ImpactStory. It was developed in 2011 after a workshop when several attendees decided to work on a new project which resulted in ImpactStory (Impactstory, 2018). ImpactStory is an open source website which enables academics to share the virtual impact of their studies. It harvests data from various research outputs such as research articles, datasets, blog posts, figures, and code repositories. In order to use ImpactStory, a researcher needs to enter information sources such as articles from Google Scholar and presentations from SlideShare, etc. (Cave, 2012).

2.5.3 Google analytics

Google Analytics offers users a website tracking service that started in November 2005. Google analytics provides information that varies ranging from site visits,

collaborations, performance, and this gives a broad overview of the use of a specific website (Plaza, 2011). It is important to create a Google account to access this service and generate reports, and to interpret information generated for competitive advantage. The report is informed by how the analytics tracking has been configured as the features are easily adaptable (Gordon et al., 2016).

2.6 African academic libraries and research support

2.6.1 Introduction

Academic libraries are regarded as the hub or heart of institutions of higher learning and they support and contribute to the realisation of the vision of their parent institutions (Pupeliené, 2007). The libraries have to develop a strategic plan that is constantly revised, depending on the needs of the institution, the trends in the information world and in accordance with the needs of the library users (Nfila, 2009).

Penzhorn (2009a) and Selwyn (2010b) emphasise that the parent institution depends on the library to provide enhanced research support services that are adaptive and incorporate social media in order to remain relevant and competitive.

Mosha (1986) argue that the development of a nation is defined by its literacy level and measured by the state of its institutions; specifically its academic institutions. Academic libraries cannot be separated from academic institutions and, as a result, it is crucial that they be adequately resourced to cater for effective and efficient services (Kargbo, 2010). In Africa, to adhere to this requirement, especially in the rapidly developing technological environment, this often proves to be problematic (Korter & Olubusoye, 2016).

Some of the challenges encountered are discussed below:

2.6.2 Infrastructure and technology

Challenges, such as overcrowding, poor infrastructure, and inadequate access to resources, especially electronic resources, apply across all African universities in varying degrees. Further challenges include electricity, broadband issues, and finances, such as charges for e-library services that are core to scholarly communications and research (Adebowale, 2013).

Kavuma (2011) states that the dilapidated infrastructure of African universities and subsequent overcrowding of students, result in inequitable access to necessary scholarly resources. In addition, lack of appropriate technology, lack of skilled staff and a lack of technical support, all serve as contributing factors to the declining image of these universities and, as a result, many institutions are thus incapable of maintaining “good libraries” (Arunachalam, 2003; Kargbo, 2002a).

Moropa (2010) elaborates on these challenges and mentions the impact of, inter alia, technological developments in this environment. He then states that: “In reality the library’s situation is even more volatile than that of the university, since it stands with one leg in the education sector and the other in the ICT sector; and it is largely dependent on the situation” (Moropa, 2010:382).

2.6.3 Collaboration

Sharma (2012) maintains that African university libraries are in a state of flux and the gaps in development between them and those in developed countries is increasingly widening. African university libraries need to act swiftly and change their mindset of ignoring the competitive factors. Kargbo (2002) alludes to partnerships of institutions in order to collaborate and suggests putting aside the different existing values and focusing instead on the interest of library users. Such partnerships will yield positive results and provide collaborative inputs to deal with technological challenges.

Mutula (2004) agrees with Kargbo with regard to co-operation and further states that these systems exist in African academic libraries, examples are Cape Library Co-

operative (CALICO), South East Academic Libraries System (SEALS), Zambia Library Consortium (ZALICO), Malawi Library Consortium (MALICO) and South African National Library and Information Consortium (SANLIC) (Chisita, 2017).

Although these systems focused primarily on traditional roles in the library, the same systems can be modified to cater for social media usage for scholarly communications (Adebowale, 2013). Cann, et al. (2011) suggests that appropriate budgets and policies need to be set aside and investment in ongoing training should become the norm in African academic libraries. Information and Communication Technology departments need to look into the issues of bandwidth, firewalls, security, etc., in order to ensure the smooth implementation of new plans by librarians. Library staff development, which is inclusive of training and skills development, should be revised and embedded in the school's curriculum or as continuous education for in-house training. The way forward for all partnering academic institutions is the need to collaborate and put aside the different existing values in order to yield positive results (Cann et al., 2011).

2.6.4 Leadership

African academic libraries are deteriorating. Their leaders need to apply competitive strategies for survival garnered from the private sector and for this, clear leadership commitment in the form of innovative strategies is required (Moropa, 2010; Boadi, 2006). Clear leadership will bring about new strategies, roles and objectives that will enable librarians to respond appropriately to changes and bring positive developments relating to scholarly communication using social media tools (Aslam, 2018).

2.6.5 Funding

Ubogu and Okiy (2011) states that most countries in Africa experience political instability which has a direct impact on the funding of universities. Universities are not funded appropriately and as a result, academic libraries lack the required resources. Most of the resources are acquired from international vendors and Africa's currencies are very weak in international markets. Creaser (2014) states that most academic

institutions are funded by their respective country's government. Some of the universities therefore resort to acquiring external funding to overcome financial constraints. Sawyer, (2004) argues that the external funders dictate what needs to be done with the funds and this results in conflict with the strategic objectives of universities and the progression of libraries.

2.6.6 Research output

University rankings provide a foundation and understanding of institutions that produce recognised research output. According to the results from the Times Higher Education World University Rankings (2018), Egypt has a representation of nineteen universities and South Africa nine universities and also has the only African country appearing in the top two hundred, which is the University of Cape Town, ranked 156. The best five universities in Africa include the University of Cape Town, Witwatersrand University, Stellenbosch University and Makerere University, of which the first four are from South Africa and the fifth from Uganda. According to Salager-Meyer (2008), of all the African countries (except South Africa), fewer than 1,000 papers were published by each country; in many cases, fewer than 500).

Africa is a continent with a plethora of ethnic and cultural diversities, having more than 50 nations and hundreds of languages. It is a continent with an abundance of natural resources, though plagued by poverty, want, political instability and corruption, disease, and armed conflicts, frequently driven by ethnic and tribal conflicts. According to Salager-Meyer (2008), research output is influenced by dynamics such as: 1) science itself, 2) publishers, 3) the role of nation states, 4) the world power structures, and 5) the researchers, themselves.

According to Bodoimo (2015), a problem for Africa as a whole, like China and India in the past, is the loss of talent. Many of its best students take their higher degrees at universities in Europe, Asia and North America and very few return. The African diaspora provides great intellectual input to the research achievements of other countries, but returns fewer benefits to their natal countries.

2.7 Conclusion

The university community in general is already aware of and is using social media tools, which provides the opportunity for higher education institutions to use this foundation to build on incorporating academic research activities (Tess, 2013; Selwyn, 2010; Merchant, 2012).

Within this context, it is a necessity that academic libraries also become creative and responsive in order to remain relevant and convince its users that the notion of libraries as hubs is still relevant and applicable to libraries of today. Academic libraries that respond to the evolution of technology such as the introduction of social media, recognise the need to provide researchers with effective and efficient information that is not limited by space or a physical visit to the library (Rosenberg, 1998). This need for a change in thought and direction also applies to African libraries.

This study is aimed at investigating the situation in African libraries with regard to the use of social media for research support. The next chapter reports on how this study was undertaken.

Chapter 3: Research methodology

3.1 Introduction

This chapter describes the methodology used to gather data for the current study and provides reasons why the chosen methodology and related procedures were appropriate for answering the research question. The aim of the study was to investigate whether academic libraries in Africa use social media for the provision of research support services. Social media tools are mostly used in academic libraries for communication, but have not been fully explored to enhance research (Chizwina et al., 2017). As was shown in the previous chapter, social media tools offer academic libraries many and wide service opportunities. In African academic libraries, however, there has been limited exploration of social media, nor has ample research been done on social media in libraries (Adewoyin et al., 2017).

3.2 Research design and approach

3.2.1 Research design

Research design involves the structural approach followed by the researcher to yield an answer or provide a solution to the research question. Firstly, it is the research objective and research question identified and thereafter research design follows thereafter.

This means that the research design incorporates the mandatory data, the methodology relevant to use in collecting and analysing data, and ensuring that all this produces a perfect fit or roadmap to answer the research question. The research design also carefully considers the strength and weaknesses of available research processes to ensure that the selected one is more beneficial. Selection of a research design needs to carefully consider the research aim, to enable the researcher to collect the required and relevant data for the research question (Nishishiba et al., 2013).

Research designs differ and are tailored in respect of the specific types of research (Ethridge 2015). Some examples of the types of the research used are as follows (Kumar, 2011; Nishishiba et. al, 2013).

- Exploratory research caters for a study which, for example, may be complex and not understood because of little research done or it is a new area of development. It is also relevant in instances where there is ignorance and more probabilities of uncertainties on the subject matter. Within this context, limitations, problems, prominent factors, etc. are identified related to the study. This type of approach allows the researcher to be flexible and adapt the research design as it unfolds.
- Descriptive research follows a structural approach as compared to exploratory and provides a precise presentation of summarised factors related to the research question.
- Explanatory research is analytical and clearly depicts the connections of factors related to or having a direct impact on the research problem (Nishishiba et al., 2013) (Kumar, 2011).

The type of research undertaken in this study is partially exploratory and partially descriptive because of the use of both open and close ended questions. A combination of the two types of research followed, helped to complement each other and truly respond objectively to the research question.

3.2.2 Research approach

There are three main research approaches, namely quantitative, qualitative and mixed methods. Research approaches are categorised in line with the foundation or nature of the research undertaken (Creswell, 2017). A brief description of the three research approaches is indicated below.

- **Quantitative Research**

According to Maree (2007), in quantitative research, the researcher is aware in advance of the objective, the structure to be followed during research. Data obtained is well organised and is presented in figures and quantified in numbers. The data collection instruments may involve, for example, using surveys such as printed questionnaires, online questionnaires, telephonic interviews and what is observed is categorised according to features, counted, and statistically analysed. Interpreted

results from a quantitative study can be based on a sample but be applicable to the entire population (Creswell, 2017).

- Qualitative research

With a qualitative approach, the researcher does not really know fully in advance what he/she is looking for and the research design can be adapted during the study. This type of research takes a lot of time and its analysis might not be easily generalised to the entire population as compared to quantitative (Dudovskiy, 2018; Maree, 2007). The forms of collecting data in a qualitative study can include questionnaires, focus groups, interviews, as well as observation (Bernard, 2017).

- Mixed method research

Mixed methodology presents the researchers with an opportunity to adopt the simultaneous use of quantitative and qualitative approaches. This helps the researchers to bypass the limitations presented by each method. Depending on how the researcher would like to execute the study, various research instruments can be used at the same time or following each other. A researcher can first start with a qualitative approach and interview participants, and later probe the findings by using a questionnaire as a quantitative research approach (Creswell, 2009).

A qualitative research approach in the form of a questionnaire was deemed the most appropriate for the current study as the aim was to obtain in-depth information and personal opinions of the librarians' use of social media in support of their users i.e. researchers.

3.3 Population and sampling

3.3.1 Introduction

Population refers to a study of a group of individuals who fit into a specified criterion developed by the researcher; a sample is drawn from the population and the results of the findings are applied to the entire population (Polit & Hungler, 1999; Bernard, 2017).

3.3.2 Target population

This research project was undertaken with the aim of establishing the use of social media tools for researchers in academic libraries in Africa.

The population chosen for the study were academic librarians who participated in a Continuous Professional Development (CPD) programme, funded by the Carnegie Corporation of New York and presented at the University of Pretoria.

The aims of the CPD programme were to: 'Empower the next generation of library and information professionals within Sub-Saharan African countries with hands-on skills to apply current and emerging information and communication technologies (ICTs); Build capacity amongst library and information services (LIS) professionals to support and enable researchers' (University of Pretoria, 2018).

The Carnegie CPD Programme ran from 2014-2016 and comprised 10 intakes consisting of a total of 320 selected participants from Ghana, Nigeria, South Africa, Tanzania and Uganda.

Using these participants for this particular study provided an ideal population for the research objectives because they work in academic libraries based in Africa and understand the importance of research in universities. The population was easily accessible because they were located centrally at the University of Pretoria for a practical component of the programme.

3.3.3 Sampling

Sampling is the process whereby a sub-group representing the larger target population is selected for research purpose (Polit & Hungler 1999; Nworgu 1991). Studies focusing on large populations conduct sampling in order to save money, time and energy and if sampling is done properly, the findings of the study are accurate, trusted and is beneficial on the research growth in the field (Bernard 2017; Daniel, 2012).

The CPD programme had an intake of approximately three groups per year. Mainly due to time constraints, two groups /intakes were chosen to take part in the study; one

in October 2015 and the other in May 2016. It must be noted that it was not the intention of the researcher to do any comparison between the two groups as the aim was that they merge into a total sample of 56 research participants.

3.4 Data collection

3.4.1 Introduction

The various data collection methods may include interviews, questionnaires, etc. Interviews and questionnaires are used to collect primary data in research. Interviews collect data for a qualitative study, whereas questionnaires are often used as data collection instruments for a quantitative study (Kumar, 2014).

3.4.2 Questionnaires

In this study, a self-administered questionnaire was used as the data collection instrument (See Appendix A).

3.4.2.1 Advantages of Questionnaires

Some of the advantages in using questionnaires, specifically applicable for this study included the following:

- *Saves time and money*

According to Brace (2018); Fink (1995), written questionnaires save time and money as compared to other research methods. In the case of this particular study, the researcher was fortunate to have the participants physically available at the University of Pretoria to complete the questionnaire.

- *Group dispensing and location*

According to Bourque (2004), group dispensing of questionnaires takes place in one location such as classrooms, workplaces, or other group settings. The availability of the researcher provides an advantage to respondents in cases where clarity is needed and this enhances the overall reliability and accuracy of the answers provided. Sekaran and Bougie (2013) further mention that participants are encouraged to

participate when questionnaires are distributed personally by the researcher. Respondents in this study had an option to choose to complete or not complete the questionnaire, but they all did so.

Questionnaires are administered effectively when respondents are in one location, such as in a classroom (Bornman, 2009). In the case of this study, the participants were provided the questionnaires in the venue where the CPD training was taking place and completed them before the specific session(s) commenced.

- *Impartiality*

Questionnaires are impartial when compared to interviews because of the systematic way they are presented to respondents (Malhotra, 2006).

3.4.2.2 Disadvantages of Questionnaires

Some of the possible disadvantages in using questionnaires are listed below:

- *Limited chance of elaboration*

Kumar (2011) states that questionnaires, in certain instances, have no room for respondents to elaborate ideas further unless, as in the case of this study as will be seen later, respondents are provided with an opportunity to express opinions in the space provided (Open University, 2018).

- *Respondents forgetting and weak response rate*

Respondents requested to complete questionnaires after a long period following a meeting, for example, tend to forget the details of what happened (Milne, 1999). In other cases where participants are asked to return questionnaires within a specific time frame, they often forget and need to be reminded – which can result in a low response rate.

In this study, both the shortcomings were addressed by getting respondents to complete the questionnaire during the training intervention whilst at the University of Pretoria.

- *Privacy and confidentiality*

Superficial or incorrect data may be collected if participants' privacy and confidentiality are not assured (Milne, 1999).

In the study, this was avoided because the cover letter, as well as the researcher herself, introduced clearly the purpose of the study and assured the confidentiality of participants. Respondents were also not required to provide their names.

3.4.3 Developing the Questionnaire

The following aspects need to be considered and be included when designing a questionnaire:

- Clearly introduce the researcher
- Relevant questions must be asked clearly and in a simple manner
- Present questions logically and group them into related categories
- Make sure that the questionnaire covers every relevant aspect

These were all adhered to in developing the questionnaire for this study.

First of all, the researcher was present when the questionnaires were distributed and the aim of the study was clearly explained. As mentioned above, the questionnaire was introduced by means of a cover letter which also explained the purpose of the study.

The questionnaire itself comprised a total of twelve questions containing both closed-ended and open-ended questions.

Closed ended questions provide respondents with a list of possible answers from which to choose. The respondent may select one answer or even more depending on how relevant the answers are (Maree, 2007). Delport (2005) further states that it is simpler to analyse data from closed questions, be more inclusive and adequately cover a wide aspect of the research phenomenon, easily complete the results and conclusion quickly and fairly, compare the answers of the respondents and capture the statistical analysis of the data in a meaningful way.

One example of how closed-ended questions were used in this study was when choices of type of social media used was required. There is such a wide variety of social media tools and providing lists to choose from assisted respondents to remember, identify and select appropriate tools to ensure accuracy and to save time. Babbie and Mouton (2001); Babbie (1992) agree that such question types are popular, ensure consistency and provide the required data.

Open-ended questions were used to obtain further information or understanding on relevant issues. In this study, respondents were provided with a list of possible answers to choose from in the form of closed-ended questions as discussed above, but they were also provided with space to provide additional information on, for example, social media tools that they use that were not listed. As has already been discussed, social media tools are very broad and this was one way to ensure that none of the knowledge of the respondents on specific questions is omitted. The questionnaire also contained a further four open-ended questions which required respondents to give their own additional information in their own words on the specific issues covered.

The first section of the questionnaire covered mainly demographic data such as country of origin, institution working for and a brief description of their current position.

The second part consisted of a question firstly, on whether the libraries where the respondents work are involved in the use of social media and also whether the respondent him/herself works with researchers at their institution. If the response was a 'no' to this question, respondents were released from answering further questions and thanked for participation. Those who answered 'yes' proceeded to the subsequent set of questions.

In this manner, the few respondents who were not working with researchers as clients in their institutions were eliminated at an early stage. This was done to ensure that respondents are knowledgeable about what they are asked and are able to provide relevant answers as the research focus was to investigate whether academic libraries in Africa use social media, specifically for research support services.

The third group of questions asked respondents about the various social media tools used to support this endeavour and to assess the purpose served by the social media tool in research support.

The fourth section of the questionnaire focused on practical ways that the library supports academic research and the final section asked about possible problems/hindrances in supporting researchers with the use of social media tools for their research endeavours.

3.5 Data analysis and interpretation

Data analyses refers to the strategies used to organise the responses from participants. According to Kothari (2004), this is done in a meaningful way in order to eliminate errors, inaccuracies, blank answered spaces, contradictions, to facilitate proper interpretation and to reach accurate conclusions relating to the study.

In this study, data was captured using the Statistical Package for the Social Sciences (SPSS) programme. The analysed data was represented in the form of pie-charts, bar-charts and percentages analyses. Microsoft Excel was used for graphical presentations. The data captured from open-ended questions was presented thematically for each question and reflected the number of times a theme appeared and its percentage.

3.6 Conclusion

This chapter outlined the research approach and methodologies used for the study. This included the population of participants in the study, the data collections instrument used as well as how the data was analysed.

The next chapter presents the findings from the questionnaire.

CHAPTER FOUR: DATA ANALYSIS

4.1 Introduction

This chapter presents an analysis of the findings obtained from the questionnaire given to students from Ghana, Nigeria, South Africa, Tanzania and Uganda who were attending a CPD programme at the University of Pretoria, as outlined previously in chapter 3. Data was analysed using both percentages and frequency counts, and in other instances, themes and frequency counts. The researcher observed the highest frequency of occurrence per question then translated this into percentages in some instances. Analysed data is presented in tables and charts.

4.2 The Questionnaires

4.2.1 Profile of the Respondents

The researcher found it crucial to know the country of origin of respondents, their main job roles, to ascertain whether, in their jobs, there is promotion of social media usage. Respondents were also requested to indicate if they work with clients who are researchers. The researcher wanted to get an overview of the basic background of respondents to aid in analysing and understanding the composition of the respondents.

4.2.1.1 Country of Work

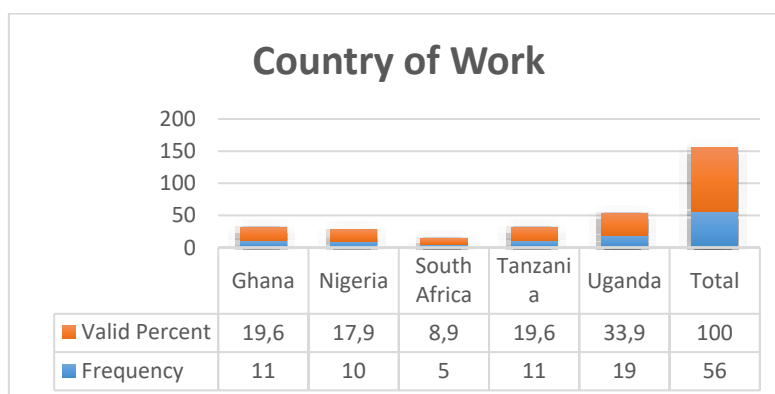


Figure 4.1: Country where the Respondents Work

The findings' valid percentage revealed that the majority of the respondents worked in Uganda (33.9%), followed by both Tanzania and Ghana at 19.6% with Nigeria at 17.9%, very close to Tanzania and Ghana. South Africa was the lowest at 8.9%. This means that the respondents were distributed almost equally with the exception of Uganda and South Africa.

4.2.1.2 Academic Institution

The respondents were advised that the universities to which they are affiliated would not be revealed to ensure confidentiality. The data analyses therefore does not reveal the universities in which the respondents work.

4.2.1.3 Job Description

The researcher's aim in asking this question was to establish the various job roles of respondents to ensure that they were adequately equipped to answer the questionnaire

Table 4.1 Job Description / Title

		Frequency	Valid Percent
Valid	Academic Librarian	1	1.8
	Acquisition and Cataloguing Librarian	1	1.8
	Ag University Librarian	1	1.8
	Lecturer	2	3.6
	Assistant Librarians	5	8.9
	Cataloguer	5	8.9
	E Resources Librarian	9	16
	Emerging Technology	1	1.8
	Head Librarian	3	5.3
	Information Librarian	3	5.3
	Institutional Repository	3	5.3
	Librarian	4	7.1
	Librarian Cum Lecturer	1	1.8
	Library Administration and Capacity Development	1	1.8

Medical Librarian	1	1.8
Reference Librarian	6	10
Satellite Librarian	1	1.8
Senior Librarian- African Co-ordination CPDS	1	1.8
Senior Library Assistant	3	5.3
Social Media Librarian	1	1.8
Team Leader Librarian Circulation	1	1.8
Training Librarian	1	1.8
Virtual Librarian/ ICT Librarian	1	1.8
Total	56	100.0

The description of jobs held by respondents was mostly Librarians, which can be classified as the traditional reference librarian. However, due to recent changes in the job descriptions of traditional reference librarians, there is an influence on position titles due to the revolution of information communication technologies that affect academic libraries. Most of the respondents are familiar with the concept of providing a relevant information service to clients, and this is one of the major roles in their positions.

The highest position title from the respondents were E-Resources librarian with a valid percentage of 16%, followed by Reference Librarians at 10%, Assistant Librarians and cataloguers with a tie at 8.9%, Librarians with no further description of the title at 7.1%. There were various position titles at 5.3% comprising Head Librarian, Information Librarian, Senior Library assistant and Institutional repository librarian. At 3.6% were Lecturers and the last percentage of 1.8% comprised twelve different job titles such as: University Librarian, Librarian, etc.

There was a position that comprised dual roles as Lecturer and Librarian. There were a total of five Leadership positions, such as University Librarian, Head Librarians, and Team Leader Librarian Circulation. It was an interesting observation to note that some position titles have transformed to modern trends in academic libraries, such positions were social media librarian, Institutional repository Virtual/ICT Librarian.

4.2.2 Adoption of social media by academic libraries for research support

4.2.2.1 Promotion of social media usage by library

It was important to establish, on a basic level, whether respondents work in libraries that promote the use of social media. The analysis on this question revealed that 80% of respondents work in libraries that promote social media usage whereas 20% of respondents worked in institutions that did not promote social media usage. This question was intended to gauge the level of adoption of social media in libraries to understand whether academic libraries in Africa are responding to the latest or modern trends in the field.

4.2.2.2 Involvement with Clients as Researchers

This question was key as the researcher knew that non-involvement with researchers as clients, automatically dismisses the respondents from participating further in answering the questionnaire. This question served as a basic requirement which qualified respondents to ensure that they were relevant respondents to the research question. 100% of respondents were involved with serving clients as researchers and these qualified respondents to proceed with answering the questionnaire.

4.2.3 Use of social media tools

The next set of questions focused on social media tools.

4.2.3.1 Social media tools for communication with researchers

Respondents indicated in the previous question that they were involved with researchers as clients, and this question further clarifies the level of involvement with researchers as clients in relation to communication using social media tools.

The respondents who answered ‘no’ to the question were informed to leave out other questions and only indicate reasons they consider as hindrances to the use of social media tools. Only 16% of respondents indicate non-usage of tools to communicate with researchers, whereas 84% are using the tools to communicate with the researchers.

4.2.3.2 Why not using Social media tools for communication with researchers

This question was asked to find out reasons why respondents were not using social media tools to communicate with researchers. The reasons provided by each respondent are listed in table 4.2

Table 4.2 Reasons for not using social media to communicate

It is not part of my job role	2
I am know sure how the tools work with research	1
It seems unprofessional	1

4.2.3.3 Types of Social media tools used for communication with researchers

Social media tools were listed according to the activities for which they are used and respondents were requested to select all the tools they use. 82% of respondents use social networking tools to communicate with researchers. This shows that social networking tools are clearly popular and preferred. Video and presentation sharing were the second-most popular tools with a tie of 28.6%. Microblogging made up to 21.4% of responses, photo sharing 17.9%, scheduling of meetings 16.1%, RSS Feeds at 10.7%. Wikis, gaming and virtual worlds were rated the lowest at less than 10%. The researcher asked this question to check whether respondents had an interest in using social media tools which are available at no cost for them to enhance communication with researchers.

There were other used tools which were added by respondents at 89.3%, such as, chat systems, group works assignment, Libguides and Blackboard library communities.

4.2.3.4 Advantages/benefits of researchers using social media for research endeavours

The researcher wanted to establish whether respondents were aware of the enormous benefits for researchers as clients when they use social media tools.

The findings in table 4.3 reveal that 82.1% of respondents agree that researchers get quick feedback from colleagues around the world, when they use social media tools. 80.4% of the respondents view the use of social media tools as beneficial to increasing research impact. 57.1% of respondents agree that social media tools benefit researchers in effective collaboration, enabling them to identify new collaborations and benefit from the experiences of peers. Assisting in promoting the works of researchers made up 55.4% of responses, and 53.6% of respondents state that the entire research process would benefit whereas 42.9% see an advantage of collected knowledge documented and passed on or shared.

Table 4.3 Benefits of researchers using social media for research endeavours

Selected		
Q8.a	Increase awareness and Impact	45
		80.4%
Q8.b	Researchers get quick feedback from colleagues around the world	46
		82.1%
Q8.c	Promotion of Researcher's work	31
		55.4%
Q8.d	Staying up to date	30
		53.6%
Q8.e	Inform every step of the research process	26
		46.4%
Q8.f	Collective knowledge is documented and passed down	24
		42.9%
Q8.g	Effective collaboration and benefit from other's experiences	32
		57.1%
Q8.h	Spread their works beyond just academic circles	38



		67.9%
Q8.i	Intentionally target specific readers	14
		25.0%

4.2.3.5 Researchers are often judged by the impact factor of their research

Measurement of the impact of the researcher's publications is important because it contributes to the overall output performance of a university. One university's research output is compared with that of other universities in the world to decide which are leading institutions, on research in the world, regionally or nationally. There were two questions asked about this, one covered traditional tools and the other question covered the newer tools used to measure research impact.

Table 4.4 Impact factor as judgement of research

		Never heard of it	I have heard of it but not really familiar with the concept	I am familiar with the concept	Total
Impact factor	Count	8	9	39	56
	Row N %	14.3%	16.1%	69.6%	100.0%
Citation analysis	Count	5	8	43	56
	Row N %	8.9%	14.3%	76.8%	100.0%
H-index	Count	13	25	18	56
	Row N %	23.2%	44.6%	32.1%	100.0%

Table 4.4 relates to the traditional tools and the majority of respondents indicated that they are familiar with the concept of impact factor at 69.6%. 14.3% of respondents indicated that they have never heard of the concept impact factor. 16.1% of

respondents have only heard of impact factor although are not really familiar with the concept.

Most of the respondents indicated familiarity with citation analysis at 76.8%. Only 14.3% of respondents are not really familiar with the concept although they have heard of it. The respondents who have never heard of citation analysis comprised 8.9%.

The H-Index is less popular amongst respondents at 32.1%. The majority of respondents, at 44.6%, have heard of the H-index, even though they are not familiar with the concept. Those respondents who never heard about the concept H-Index comprised of 23.2%. An interesting observation on the responses for the three traditional tools, citation analysis has the highest percentage on familiarity, followed by impact factor with only a difference of about 7%. The minimal responses relating to the H-index clearly show it is less popular. The researcher asked respondents this question in order to establish current knowledge, interest and implementation of such traditional tools for researchers.

The researcher also wanted to find out from the respondents the social media tools with which they are familiar relating to measuring the researcher's output.

Table 4.5 shows responses to this question for each listed tool. Most of the respondents are familiar with academic.edu at 51.8%, followed by Research Gate at 42.9%.

Many respondents indicated that they have never heard of tools such as Plum analytics at 76.8%, PLOS at 67.9%, Altmetrics at 66.1%, and Impactstory at 62.5%. It is also interesting to note that although ResearchGate is the second most familiar tool amongst respondents, it is also the highest at 33.9% amongst respondents who have heard of it, but are not really familiar with it. This is followed by academia.edu and Impactstory, both at 26.8%.

Table 4.5 Familiar platforms

		Never heard of it	I have heard of it but not really familiar with it	I am familiar with it	Total
Research Gate	Count	13	19	24	56
	Row N %	23.2%	33.9%	42.9%	100.0%
Academic.edu	Count	12	15	29	56
	Row N %	21.4%	26.8%	51.8%	100.0%
Impactstory	Count	35	15	6	56
	Row N %	62.5%	26.8%	10.7%	100.0%
Plum Analytics	Count	43	9	4	56
	Row N %	76.8%	16.1%	7.1%	100.0%
Plos	Count	38	13	5	56
	Row N %	67.9%	23.2%	8.9%	100.0%
Altmetrics	Count	37	14	5	56
	Row N %	66.1%	25.0%	8.9%	100.0%

4.2.4 Library support

4.2.4.1 Practical support the library can provide on how researchers can make their research output visible to the rest of the scholarly world

The researcher wanted to find out from the respondents, irrespective of whether they are involved currently with social media tools or not, what their projections are in the way researchers can be supported to enhance visibility of their works. The

respondents were asked to choose from the provided list as many times as an answer is applicable.

Table 4.6 Practical support library can offer researchers

		Yes	Total
Make researchers aware of the tools	Count	48	
	Row N %	85.7%	100.0%
Provide training in the use of the tools	Count	46	56
	Row N %	82.1%	100.0%
Actively assist in the use of the tools	Count	44	56
	Row N %	78.6%	100.0%
Use tools on their behalf	Count	17	56
	Row N %	30.4%	100.0%
Other	Count	2	56
	Row N %	3.6%	100.0%

A large number of 48 respondents felt strongly with 85.7% that it is important for the library to provide training in the use of the tools, and a very close response of 82.1% agree that researchers must be made aware of the tools. 78.6% agree with the statement that researchers must be actively assisted in the use of the tools whereas a small percentage of 30.4% approve using tools on behalf of researchers.

Respondents were also provided with an opportunity to list additional activities that the library can provide to support research output by making it visible to the rest of the scholarly world. The activities are listed below in table 4.7 with percentages and frequencies.

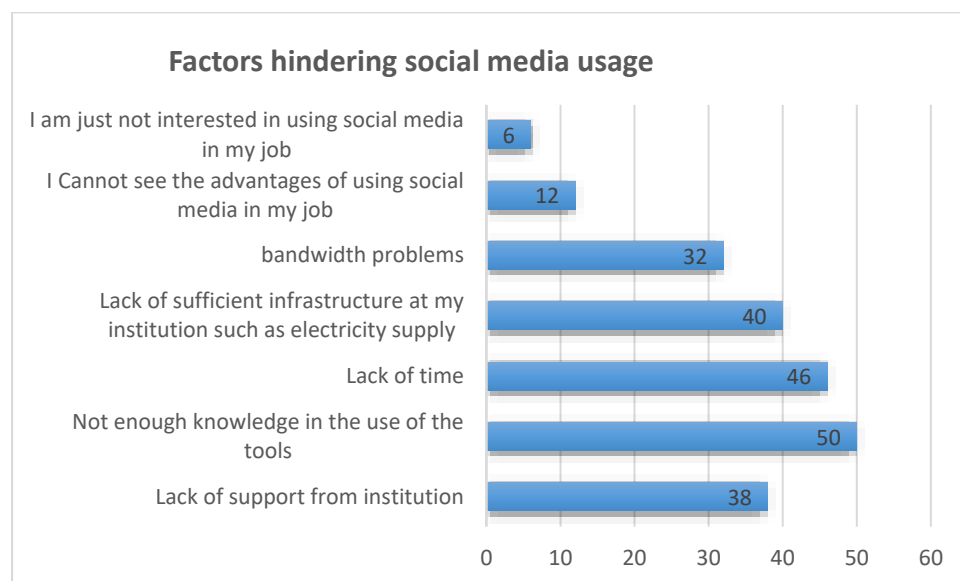
Table 4.7 Other support the library can offer researchers

	Frequency	Percent
Valid		
Deposit copies of their researched work in libraries	51	91.1
Librarians should also be at home with the use of these technologies if they must make desired impact	1	1.8
Make them aware of tools they can use	1	1.8
Making it compulsory for researches to publish in visible journals	1	1.8
Provide marketing string tools for such social media platforms, use and benefits	1	1.8
Through Institutional Repository	1	1.8
Total	56	100.0

4.2.5 Factors hindering use of social media tools in supporting researchers

In chapter 2, it became clear from the literature that social media usage has hindrances that prevent libraries from using the tools. The researcher wanted to find out from the respondents the specific hindrances they have met that prohibits them using social media tools. Below is a table representing their responses:

Table 4.8 Hindrances on social media use



Most of the respondents reflect that the hindrances in using social media tools are due to lack of knowledge with 50 occurrences, followed very closely by lack of time with 46 occurrences. 40 respondents are hindered due to lack of sufficient infrastructure and 32 respondents allude to a hindrance towards bandwidth problems. This question was asked to find the challenges that academic libraries are facing in order to provide services on social media tools for researchers. The majority of respondents are challenged due to environmental factors whereas only a few are just not interested in this service. Respondents were also provided the opportunity to name any additional items that could hinder the use of social media tools.

Table 4.9 provides the hindrances as listed by respondents. The majority of respondents are confused by the social media tools because there are so many of them now available. The other responses, all with 1.8%, are; not being sure of which tool is relevant, social media invade privacy, information from social media is not reliable and lastly, that social media tools change fast.

Table 4.9 Other hindrances on social media use

	Frequency	Percent
Valid		
The social media tools are many and confusing	4	7.2
I am not sure which tools are relevant	1	1.8
Social medial tools invade privacy	1	1.8
Information from social media tools is not reliable	1	1.8
They change faster	1	1.8

4.3 Conclusion

Data gathered from the questionnaire was provided in this chapter from respondents. The analysis has provided an overview and understanding on the use of social media tools for researchers in academic libraries, covering aspects from respondents such as their:

Country of work, job position, Promotion of social media usage by library, Involvement with Clients as Researchers, Social media tools for communication with Researchers, Types of Social media tools used for communication with Researchers, Advantages of researchers using social media for research endeavours, Researchers are often judged by the impact factor of their research, Social media tools are increasingly being used to measure the impact of researchers' output, Practical support the library can provide on how researchers can make their research output visible to the rest of the scholarly world, Factors hindering the use of social media tools in supporting researchers.

In the next chapter, the data is interpreted and conclusions and recommendations drawn therefrom.

CHAPTER 5: INTERPRETATION OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

This chapter focuses on the key findings based on the literature where applicable, and responses to the questionnaire. The aim of the study was to investigate whether academic libraries in Africa use social media for the provision of research support services.

5.2. Discussion of results

5.2.1 Introduction

Discussion of the findings is based on the data collected from respondents who participated in completing the questionnaire instrument for the study. Chapter 3 indicated that not all the groups on the CPD programme were part of the participants and only a sample of two groups participated.

In order to ensure a comprehensive discussion of the results, the researcher focuses on the main themes that emerged from the questionnaire.

5.2.2 Promotion of social media usage by library

The findings indicate a high rate of adoption of social media tools in academic libraries in Africa. This demonstrates an acceptable level of responding towards modern trends and exploration. In chapter two, Selwyn (2012a); Tess (2013) indicated that social media tools create many opportunities for academic libraries and are already widely used in developed countries, for engaging with fellow researchers, developing one's professional network, improving research impact, facilitating funding for research, career development, etc.; thus suggesting that social media are beneficial for use in

academic libraries in developing countries. These beneficial aspects assist and position researchers to be competitive in the academic environment.

The countries which were represented in the study included Ghana, Nigeria, South Africa, Tanzania and Uganda, which are part of Sub-Saharan Africa. These countries generally have a high rate on the use of social media tools for various purposes, with Facebook being the highest used tools and Zephoria (2018) agrees with the findings.

5.2.3 Social media tools used

Social media tools are mostly used by librarians to communicate with researchers and social networking sites such as Facebook, MySpace are the most popular ones (Sharma et al., 2016). The use of videos and presentation sharing are also commonly used. The findings also indicate the least used tools such as Wikis, and gaming, and these can be promoted once librarians are trained on how to use them although even if this is done, it is unlikely that these tools will match the popularity of tools such as Facebook. Facebook is the most popular social media tool used in academic libraries in Africa, to effectively communicate with researchers.

5.2.4 Benefits of social media use for researchers in their research endeavours

The findings reveal enormous benefits for using social media tools when a researcher engages in their research endeavours. Researchers can easily get instant feedback from colleagues anywhere in the world and this breaks the geographical limitations and provides solutions to some challenges faced by researchers based in Africa. Researchers benefit by increasing the visibility of their research works, collaborating with other peers, and these benefits were alluded to by Stone (2014); Scellato, et al. (2015) in chapter 2.

5.2.5 Researchers judged by impact factor

The study found that librarians are aware that researchers are often judged by the impact factor of their research. Whilst there is an overwhelming response on awareness, it causes concern that there are librarians who have only heard of research impact and some who have not heard of it at all. This implies that research impact factor has not been fully explored in academic libraries in Africa. Training is

required to focus on raising awareness and thereafter, to empower librarians to acquire skills to support researchers with such support services.

5.2.6 Social media tools used to measure the impact of researcher's output

The study reveals that tools such as Academia.edu, ResearchGate, are increasingly being used to measure the impact of the researcher's output (Barbic, et al, 2016). The majority of respondents have never heard of tools such as Plum analytics, PLOS, Altmetrics and Impactstory. Although many respondents are familiar with Academia.edu and ResearchGate, it is important to explore the benefits presented by other tools in order for academic libraries in Africa to provide research support services that are dynamic and competitive. Therefore, awareness and training are required on this for librarians to know which relevant tools to use for specific purposes (Lang & Lemon, 2014; Adebowale, 2013).

5.2.7 Library support

The study revealed the majority of respondents indicated that the libraries can assist researchers by depositing their works in libraries, provide training in the use of the tools, make researchers aware of the tools and actively assist researchers in the use of the tools (Selwyn, 2010b).

5.2.8 Factors that hinder use of social media tools in support of researchers

5.2.8.1 Lack of knowledge

The study reveals that most librarians in Africa are hindered in using social media tools due to lack of knowledge. This is because there are many social media tools and it is not easy to adapt to all of them and use them effectively.

5.2.8.2 Lack of time

The other factor which is a major hindrance is that librarians do not have enough time to explore the various social media tools and this is not only because of other priority roles, but that social media tools require constant instant feedback. Librarians are

expected to always be online and provide researchers with instant feedback (Lee, 2015; McCallum, 2015). Even though time can be put aside to adopt the tools, they change constantly and rapidly, and it is not easy to keep up with changing tools (Neal, 2012).

5.2.8.3 Lack of adequate infrastructure

One other popular finding in this study which is confirmed in literature by Adewabole (2013) is the fact that the institutions do not have adequate infrastructure, such as bandwidth, to even allow them to access the tools.

5.2.8.4 Privacy and security concerns

Other factors which also emerged from the study and literature, indicate hindrances such as unreliability of information from social media to be used for research, invasion of privacy on social media platforms (Krongvist-Berg, 2014; Cann, et al., 2011).

Overall, the majority in the study indicated the social media usage in academic libraries, however it is obvious that a lot of work is required to ensure effective usage, and another fact that emerged from the study, although it was only from a few respondents; those libraries that do not use social media completely are impacted by the above hindrances. The next section provides recommendations based on the findings.

5.3 Recommendations for academic libraries in Africa on the use of social media for research support

Academic libraries in Africa need to realise that in order to support research which is the main objective which makes academic institutions excel, need to consider the following recommendations as informed by the findings of the study:

5.3.1 Provide dedicated personnel for research support on social media

Librarians need to be trained on the social media tools which support researchers in order to ensure that there is sustainability because technology constantly changes and to ensure an optimum service to researchers, dedicated social media librarians are a prerequisite. Social media librarians will be able to update their peers on new developments in this regard and also provide instant support to researchers.

The social media librarian will be able to alleviate the concerns relating to the unreliability of social media tools and the invasion of privacy. The researchers will be aware of the tools relevant for research and be confident to use these on their own or to request the social media librarians to use the media on their behalf. This kind of support will provide researchers with some assurance about the trustworthiness of using the tools.

5.3.2 Provide constant awareness of social media tools

The dedicated librarians will also need to constantly provide awareness at regular intervals for any new developments on social media tools to both other librarians and to researchers.

5.3.3 Provide training on social media tools

This will help to address the concerns relating to lack of time to use the tools. Training targeting other librarians and researchers must be provided.

5.3.4 Leadership Support

Furthermore, commitment is required from the leadership in academic libraries to create such positions and develop long-lasting support strategies for such librarians to be positioned competitively with social media trends in academic libraries. The leadership needs to ensure that they set aside adequate dedicated funds, for on-going training, and set guidelines for the appropriate use of social media tools. The

guidelines must set standards which can be measured to ensure effective and efficient research support services on social media tools. The leadership also needs to identify specific challenges relating to infrastructure which hinder the use of social media usage in academic libraries and come up with solutions.

5.4 Conclusion

The study revealed that academic libraries in Africa are using social media tools, but not primarily for research support. However, there is an awareness of the positive impact from which academic libraries can benefit by adopting and supporting researchers with social media tools to increase their visibility and research output. The hindrances identified on lack of social media usage can be addressed to enable implementation of such services.

The study contributed to arguments / existing theories, such as the relevance of social media tools for researchers, the role academic libraries play in supporting researchers. There are also currently investigations on Internet access in Africa, which is a huge problem that also impedes the use of social media tools and WorldWideWorx, for example, has pioneered such related research in Africa.

The challenge faced by universities in relation to funding is a matter that has received a lot of attention in research. Further studies relating to this study may be to probe the effectiveness of social media support services by academic libraries in Africa to researchers, and ascertain quality based on the skills of personnel, turnaround time of responses on research queries, whether tools used and content retrieved are relevant to researchers, is training provided adequate, and track usage statistics.

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7. Appendices

Appendix A: Letter of introduction and Questionnaire

Dear Sir/Madam

Thank you for taking the time to complete this questionnaire. I am currently doing research for my mini-dissertation which forms part of the Masters in Information Technology degree at the University of Pretoria.

The aim of my research is to investigate whether academic libraries in Africa use social media for provision of services and support to researchers at their institutions.

The questionnaire consists of 12 questions and should not take more than about 10 minutes to complete.

All the information that you provide will be treated with confidentiality and neither your own identity nor that of your institution will be revealed when the results of the study are analysed and reported on.

Thank you

Anna Siwela

(M.IT candidate: University of Pretoria)



QUESTIONNAIRE

Please mark with an X or fill in where applicable

1. Country where you are currently working (e.g. South Africa)

.....

2. Academic institution that your library is affiliated with (e.g. University of Pretoria)

.....

3. Job description – please provide a description of your current job (e.g. Reference Librarian, Cataloguer etc. etc.)

.....

4. Does your library promote the use of social media?

- a) Yes
- b) No

5. Do you work with clients involved in research at your institution?

- a) Yes
- b) No

*If you answered **No** to this question, thank you for your time. You do not need to continue with the questionnaire.*

*If you answered **Yes** to this question, please continue with the rest of the questionnaire*



6. Do you use any social media tools when communicating with your researchers?

- a) Yes
- b) No

If **not**, please indicate *why not* - and then proceed to **question 12**

.....
.....

If **Yes**, please continue with the rest of the questionnaire

7. Which of the following Social media tools do you use when communicating with your clients i.e. researchers? (Choose as many as you like)

- a) Social networking (e.g. FaceBook, MySpace etc.)
- b) Blogs
- c) Microblogging (e.g. Twitter)
- d) Social bookmarking (e.g. Delicious)
- e) Video sharing (e.g.. YouTube)
- f) Photo / Image sharing (e.g. Flickr, Instagram)
- g) Sharing presentations (e.g. Slideshare)
- h) RSS Feeds
- i) Wikis
- j) Gaming
- k) Virtual worlds (e.g. Second Life)
- l) Scheduling meetings (e.g. Google Calendar, Doodle etc.)
- m) Other (please specify)

.....
...
.....
...



8. What do you think are the benefits or advantages of researchers themselves using social media tools in their research endeavours? (Choose as many as you like)

- a) Increase awareness and impact – more and more people reading their work, writing about their work
- b) Researchers get quick feedback on their work from colleagues around the world.
- c) Assists in the promotion of their work - raising the profile of the research more rapidly than conventional academic publishing allows.
- d) Staying up to date easier - get a pulse of movement in the industry
- e) Social media platforms can inform every step of the research process
- f) Collective knowledge is documented and passed down
- g) Effective collaboration - opportunities to forge new collaborations and benefit from the experience of others
- h) Spread their work beyond just academic circles
- i) Intentionally target specific readers

9. Researchers are often judged by the impact factor of their research. Which of the following ‘traditional’ ways of measuring research impact/output are you familiar with?

	I am familiar with the concept	I have heard of it but not really familiar with the concept	Never heard of it
Impact factor – frequency with which an article is cited in a specific period			
Citation analysis - impact based on the number of times works and/or authors have been cited by others			
H-index – based on number of author’s papers cited by other publications			

10. Social media tools are increasingly being used to measure the impact of researchers’ output. Which of the following social platforms are you familiar with?

	I am familiar with it	I have heard of it but not really familiar with it	Never heard of it
Research Gate			
Academia.edu			
ImpactStory			
Plum Analytics			
PLOS			
Altmetrics			

11. What practical support can the library provide on how researchers can make their research output visible to the rest of the scholarly world? (Choose as many as you like)

- a) Make researchers aware of the tools
- b) Provide training in the use of the tools
- c) Actively assist in the use of the tools
- d) Use tools on their behalf (e.g. re-tweeting content)
- e) Other – please specify

.....
...
.....
..

12. Which of the following factors could hinder you in your use of social media tools in support of your researchers? (Choose as many as you like)

- a) Lack of support from the institution where I work
- b) Not enough knowledge in the use of the tools
- c) Lack of time



- d) Lack of sufficient infrastructure at my institution such as regular electricity supply
- e) Bandwidth problems
- f) I cannot see the advantages of using social media in my job
- g) I am just not interested in using social media in my job
- h) Other – please specify

.....

.....



Appendix B: Informed Consent

Informed Consent Form (Form for research subject's permission)

(Must be signed by each research subject and must be kept on record by the researcher)

1. Title of research project: ***The use of social media tools for research support in academic libraries***
2. I..... hereby voluntarily grant my permission for participation in the project as explained to me by: Ms Anna Siwela.
3. The nature, objective, possible safety and health implications have been explained to me and I understand them.
4. I understand my right to choose whether to participate in the project and that the information furnished will be handled confidentially. I am aware that the results of the investigation may be used for the purposes of publication.
5. Upon the signature of this form, you will be provided with a copy.

Signed: _____

Date: _____

Witness: _____

Date: _____