

**UTILISATION OF SOCIAL MEDIA TOOLS TO ENHANCE KNOWLEDGE SHARING
PRACTICES AMONG KNOWLEDGE WORKERS AT THE NELSON MANDELA
AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY IN ARUSHA,
TANZANIA**

MINI-DISSERTATION

BY

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2014

DECLARATION

I, Neema Florence Mosha declare that this mini-dissertation, submitted by me, is my own work, that I have referenced all the sources that I have used and that no part was previously submitted at any tertiary institution.

Signature.....Neema Mosha..... Date: 27th November, 2014

Neema Florence Mosha

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DEDICATION

If we mean to have heroes, statesmen, and philosophers, we should have learned women.

Abigail Adams (1744-1818)

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TABLE OF CONTENTS

DECLARATION	2
ACKNOWLEDGEMENTS.....	3
DEDICATION	4
TABLE OF CONTENTS.....	5
LIST OF FIGURES	10
LIST OF TABLES.....	11
LIST OF ABBREVIATIONS.....	12
SUMMARY	13
CHAPTER ONE: INTRODUCTION	14
1.1 Background information	14
1.2 Research question and sub-questions.....	18
1.2.1 Research question	18
1.2.2 Research sub-questions.....	18
1.3 Scope of the study.....	19
1.4 Rationale of the study	19
1.5 Research methodology.....	20
1.6 Ethical issues.....	20
1.7 Clarification of the key terms.....	20
1.7.1 Academic libraries	20
1.7.2 Explicit knowledge	21
1.7.3 Knowledge sharing	21
1.7.4 Knowledge worker.....	21
1.7.5 Social media.....	21
1.7.6 Tacit knowledge.....	21
1.8 Outline of the mini-dissertation	22

CHAPTER TWO: LITERATURE REVIEW	23
2.1 Introduction.....	23
2.2 Knowledge management: an overview	23
2.3 Knowledge sharing practices	25
2.4 Factors which facilitate knowledge sharing practices.....	28
2.5 Institutional factors	29
2.6 Individual factors	32
2.7 Mechanism factors	33
2.8 Social media tools: an overview	34
2.9 The role of social media tools utilisation within academic institutions	36
2.10 Categories of social media tools to enhance knowledge sharing practices.....	39
2.11 The role of academic libraries within academic institutions.....	43
2.12 Challenges that hinder the utilisation of social media tools to enhance knowledge sharing among knowledge workers	44
2.12.1 Institutional challenges	44
2.12.2 Individual challenges	45
2.12.3 Technological and technical challenges.....	46
2.13 Conclusion	47
CHAPTER THREE: METHODOLOGY	48
3.1 Introduction.....	48
3.2 Research methodology	48
3.3 Research approaches.....	48
3.4 Research design	50
3.5 Study population	51
3.6 Sampling procedure	52
3.7 Data collection methods.....	53

3.1.1	Interview method	53
3.1.2	Document content analysis method	55
3.1.3	Research instruments	56
3.1.3.1	Interview guide	56
3.1.3.2	Document content analysis guide	57
3.8	Data analysis	57
3.9	Validity and reliability	57
3.10	Ethical issues.....	60
3.11	Conclusion	61
CHAPTER FOUR: PRESENTATION AND DISCUSSION OF FINDINGS		62
4.1	Introduction.....	62
4.2	Description of the respondents.....	62
4.2.1	Response rate of respondents.....	62
4.2.2	Characteristics of respondents	63
4.2.3	Current position.....	63
4.2.3.1	Years of services	64
4.2.3.2	Section of operation	64
4.3	Findings from the interview	66
4.1.1	Knowledge sharing practices at the Nelson Mandela African Institution of Science and Technology	66
4.1.2	Social media tools utilisation among knowledge workers at the NM-AIST.....	71
4.1.3	Utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST	77
4.1.4	Challenges which prohibit knowledge workers in utilizing social media tools to enhance knowledge sharing practices at the NM-AIST.....	80
4.1.4.1	Institutional challenges	81
4.1.4.2	Individual challenges	82

4.1.4.3	Technological/technical challenges	84
4.2	Findings from document content analysis guide.....	87
4.3	Discussion.....	90
4.4	Conclusion	92
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....		94
5.1	Introduction.....	94
5.2	Summary of the major findings	94
5.1.1	Summary of the characteristics of the respondents.....	94
5.1.2	Summary on knowledge sharing practices at the Nelson Mandela African Institution of Science and Technology	94
5.1.3	Summary on social media tools utilisation among knowledge workers at the NM-AIST.....	95
5.1.4	Summary on the utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST.....	96
5.1.5	Summary on the challenges which prohibit knowledge workers in utilizing social media tools to enhance knowledge sharing practices at the NM-AIST.....	96
5.3	Conclusion	97
5.1.6	Conclusions on the knowledge sharing practices at the Nelson Mandela African Institution of Science and Technology	97
5.1.7	Conclusion on social media tools utilisation among knowledge workers at the NM-AIST ...	98
5.1.8	Conclusion on the utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST	98
5.1.9	Conclusion on the challenges which prohibit knowledge workers in utilising social media tools to enhance knowledge sharing practices at the NM-AIST	99
5.2	Recommendation	99
5.2.1	Recommendations on the knowledge sharing practices.....	99
5.2.2	Recommendations on social media tools utilisation among knowledge workers at the NM-AIST	100
5.2.3	Recommendations on the utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST	101

5.2.4	Recommendation on the challenges which prohibit knowledge workers in utilizing social media tools to enhance knowledge sharing practices at the NM-AIST	101
5.3	Suggestion for further research	103
5.4	Final conclusion	104
5.5	References.....	106
5.6	Appendices.....	116
	Appendix A: Informed consent for library staff	116
	Appendix B: Interview guide for knowledge workers (library staff).....	118
	Appendix C: Interview guide for knowledge workers (ICT-RC staff)	121
	Appendix D: Document content analysis guide.....	124

LIST OF FIGURES

Figure 1 : Academic Library 2.0 concept model as adapted from Habib (2006:35) 103

LIST OF TABLES

Table 1: Years of services for library staff	64
Table 2: Years of service for ICT-RC staff.....	64
Table 3: Section of operation for library staff.....	65
Table 4: Section of operation for ICT-RC staff	65

LIST OF ABBREVIATIONS

ACRL	Association of College and Research Libraries
HRM	Human Resource Management
ICTs	Information and Communication Technologies
ILL	Information Literacy Learning
IR	Institutional Repositories
ICT-RC	Information and Communication Technology Resource Centre
IS	Information Science
IT	Information Technology
KCMUC	Kilimanjaro Christian Medical University College
KM	Knowledge Management
KS	Knowledge Sharing
LIS	Library and Information Science
M.IT	Masters of Information Technology
NM-AIST	Nelson Mandela African Institution of Science and Technology
RSS	Really Simple Syndication
SET	Science, Engineering and Technology
SNS	Social Networking Sites
SPARC	Academic Resources Coalition
SSA	Sub-Saharan Africa
TCRA	Tanzania Communication Regulatory Authority
UGC	User Generated Content
UP	University of Pretoria

SUMMARY

It is vital for knowledge workers to utilise social media tools to enhance knowledge sharing practices and the adoption of these collaborative tools in higher learning institutions. This study investigated the extent to which social media tools are utilised to enhance knowledge sharing practices among knowledge workers at Nelson Mandela African Institution of Science and Technology (NM-AIST) in Arusha, United Republic of Tanzania. The study conducted semi-structured interview with the NM-AIST library staff and Information and Communication Technology Resource Centre (ICT-RC) personnel in 2014.

The study found that, the utilisation of social media tools to enhance knowledge sharing among knowledge workers is still in its early stages in higher learning institutions in Tanzania. However, there was much interest amongst respondents for integrating and utilising social media tools to support knowledge sharing in higher learning institutions. The findings indicated that: social media tools can be used to enhance knowledge sharing practices; however, face to face mechanism, Google Mail, and Google Drive were indicated as main mechanisms to enhance knowledge sharing practices in higher learning institutions. Knowledge workers at the NM-AIST shared knowledge to facilitate teaching and learning activities, research and innovation; however knowledge sharing practices occur when needs arise. The study revealed the lack of knowledge sharing culture documented at the NM-AIST.

The study has recommended the following: proper training for knowledge workers, employment of skilled and experienced knowledge workers, provision of full support (motivation), provide support to individual users. Application of social media tools which are very familiar and simple to use, establishment of a good relationship between knowledge workers and the management, as well as with schools and departments in higher learning institutions. Additionally, the study recommends the provision of adequate social media tools to facilitate knowledge diffusion within institutions.

Keywords: Social media tools, Knowledge sharing practices, Knowledge workers, Higher learning institutions, Nelson Mandela African Institution of Science and Technology, Tanzania.

CHAPTER ONE: INTRODUCTION

And I have always had an especially great desire to learn to distinguish the true from the false, in order to see my way clearly in my actions and to go forward with confidence in my life.

Descartes (1998).

1.1 Background information

Social media tools utilisations has become part of everyday activities within higher learning institutions. It is therefore vital for higher learning institutions to utilise social media tools to enhance and improve the quality of their services (Davis, *et al.* 2012:17). Knowledge sharing is among the services which are highly facilitated by social media tools. Thus, higher learning institutions and their libraries have been incorporating social media tools to enhance knowledge sharing practices (Veletsianos, 2013:640). Knowledge sharing is one of the components of the knowledge management (KM). KM is an umbrella which covers various components such as knowledge creation, knowledge generation, knowledge acquisition, knowledge capturing, knowledge codification, and knowledge sharing (Maponya, 2004; Pearson & Saunders, 2009; Raja, Ahmad, & Sinha, 2009). Townley (2001:45) asserts that KM is a process of capturing an organisation's goal-related knowledge as well as knowledge of their products, customers, competition and processes, and therefore sharing that knowledge with appropriate people throughout institutions.

This study focused on knowledge sharing aspect. Knowledge sharing has been identified as the most critical area for KM to facilitate the exchange of ideas, experience, and problems (Hendriks, 1999; Du, Ai, & Ren, 2007). Knowledge sharing within institutions provides a link between knowledge workers, where knowledge resides, and institutions, where knowledge attains its competitive value (Hendriks, 1999; Du, Ai, & Ren, 2007). Thus, academic institutions seek ways to share information and knowledge so as to equip academic communities with enough information and knowledge in order to perform their tasks properly (Maponya, 2004). Nevertheless, knowledge sharing is considered as the most prominent challenge as compared to other components of KM because it is very difficult to attain and encourage people to share their knowledge (Gupta, 2008).

Knowledge sharing is a process of communicating, sharing and exchange information, ideas, views and experiences in order to solve problems, develop new ideas and implement policies and procedure manuals within institutions (Hendriks, 1999; Wang & Noe, 2010). Cheng, Ho, and Lau (2003) add that “Generally, sharing knowledge is about communicating knowledge within a group of people”. In addition, Kuhlen (2003) adds that knowledge produced by a single author provides less meaning unless it can be communicated, shared and used as a collaborative process, involving multiple authors, knowledge sources and building upon past experiences and research in order to create new ideas and understanding. Since knowledge sharing practices take place within groups, this study focused on a group of knowledge workers within the NM-AIST.

Hislop (2013:71) defines knowledge workers as “someone whose work is primarily intellectual, creative, and non-routine in nature, and which involves both the utilisation and creation of abstract/theoretical knowledge”. Further, Hislop (2013) as well as, Mládková (2011) add that knowledge workers are people who apply knowledge in most of their daily activities; whose work is primarily intellectual; and who utilise both conceptual (tacit) and theoretical (explicit) knowledge. Drucker (1966) suggests that “Every knowledge worker in modern organization is an ‘executive’ if, by virtue of his position or knowledge, he is responsible for a contribution that materially affects the capacity of the organization to perform and to obtain results”. The most valuable knowledge within any institution is stored within the heads of knowledge workers (tacit knowledge) (Mládková, 2011); thus, knowledge workers constitute a critical group within any institution to create, share, and use knowledge for the benefit of the institution (Hislop, 2013:138). Academic institutions have a number of knowledge workers who are scattered in different schools and departments; therefore, the importance of knowing where such knowledge workers located, helps to explain why the concept of sharing knowledge through the utilisation of social media tools has been developed and researched (Zaffar, 2012).

The development of Information and Communication Technologies (ICT) and the emergence of social media tools influenced knowledge sharing practices by lowering barriers among knowledge workers who refused to participate in knowledge sharing practices (Hendriks, 1999:91). Social media tools are online technological tools that enable people to communicate, participate, collaborate and share knowledge (Sodt & Summey, 2009; Chua & Goh, 2010; Harinarayana & Vasantha Raju, 2010; Kim & Abbas, 2010; Lwoga, 2013). Social

media tools are used to turn communication into interactive discussions like-minded (Hislop, 2013:43). Therefore, individuals and researchers within higher learning institutions formulate various groups, discuss and share knowledge by using social media tools. Therefore, through social media tools, higher learning institutions can easily facilitate the flow, transfer, communication and sharing of knowledge.

Social media tools are enablers of knowledge sharing practices; however the main success of knowledge sharing lies in the hands of people (Gottschalk, 2005; Sandhu, Jain, & Ahmad, 2011). Social media tools have enhanced the dissemination of knowledge beyond its creator (Gottschalk, 2005). Therefore, there is a great need to determine the value of social media tools to enhance knowledge sharing among knowledge workers within academic institutions worldwide; however, research shows that knowledge sharing practices are not sufficiently conducted especially in Sub-Saharan Africa (SSA) (Makori, 2012).

Social media tools like wikis and blogs are increasingly becoming popular for managing and sharing knowledge activities within higher learning institutions (Zaffar, 2012; Penzhorn, 2013). Social media tools provide a virtual space which inspires and facilitates formal interactions and processes of knowledge sharing among employees (Schwartz, 2006; Hislop, 2013). Examples of categories of social media tools which support knowledge sharing practices include: social networking sites such as *Facebook* and *LinkedIn* which enable bilateral flow of information, collaboration and effective communication among members (Kim & Abbas, 2010; Ayiah & Kumah, 2011; Lwoga, 2013) and *Rich Site Summary/Really Simple Syndication (RSS)* which is useful for alerting and filtering information (Schneckenberg, 2009; Penzhorn, 2013).

Harinarayana and Vasantha Raju, (2010:70) add that, “Library web sites are changing in their content and structure, with the introduction of Social Networking Sites (SNSs) in recent years and ever-increasing usage among teenagers”. Thus academic institutions are regarded as excellent centres for information storage, knowledge repository and provision in order to facilitate dissemination of information and knowledge sharing activities which can be done through the utilisation of technological tools (Kim & Abbas, 2010:211). Hislop (2013:27) as well as, Sohail and Daud (2009:126) higher learning institutions need to facilitate their libraries and ICT departments to install a number of social media tools to enhance various activities.

Higher learning institutions and their libraries use social media tools to facilitate knowledge sharing and collaboration activities (Veletsianos, 2013:640). Globally, the utilisation of social media tools within academic institutions created many developments such as open access activities, Scholarly Publishing Academic Resources Coalition (SPARC), Institutional Repositories (IR), educating faculty and researchers about options for retaining rights to academic performance and knowledge sharing in a responsible way (O'Dell, 2010:246). Majority of the higher learning institutions in developed countries employ social media tools for professional development and communication including communicating with knowledge workers (O'Dell, 2010; Makori, 2012).

Higher learning institutions in developing countries and Tanzania in particular employ social media tools to facilitate various activities. Nelson Mandela African Institution of Science and Technology in Arusha, Tanzania (NM-AIST) is among academic institution which employed a number of social media tools since it was officially opened in 2012 in order to enhance online communication, participation, collaborate and share information within the institution (NM-AIST, 2009). The NM-AIST is located in Arusha, Tanzania; and is among the network of Pan-African Institutes of Science and Technology located across the continent (NM-AIST, 2009). The NM-AIST is a public university under the Tanzanian Ministry of Communication, Science and Technology. The NM-AIST operates in a modern environment where information literacy is encouraged; therefore, knowledge workers can use information for knowledge creation and knowledge sharing. Furthermore, the primary functions of an academic library are to act as a knowledge repository and an agent for the dissemination of knowledge (Kim & Abbas, 2010:211). Thus, NM-AIST library plays a major role in supporting and engaging users to use the social media tools to enhance knowledge sharing practices. Social media tools utilisation within an academic library can be regarded as a kind of information system (IS) that library users can use to access, retrieve and share relevant information (Lwoga, 2013).

Despite the potential of social media tools to enhance knowledge sharing practices, knowledge workers do not use such tools for knowledge sharing practices within academic institutions. Thus, this study investigated the extent to which social media tools could be utilised to enhance knowledge sharing practices among knowledge workers at NM-AIST. The main areas discussed were: sharing knowledge, types of knowledge to be shared and why

knowledge sharing, types of social media tools which could be utilised to enhance knowledge sharing, challenges which prohibit knowledge workers to utilise social media tools to enhance knowledge sharing practices and how such challenges could be prohibited. In addition, the studies investigated the roles played by both the library and ICT-RC to facilitate the utilisation of social media tools to enhance knowledge sharing practices.

In relation to knowledge sharing practices, the utilisation of social media tools is believed to have positive impact on knowledge workers who utilise them and for institutions which utilise them. Therefore, there is a need to investigate the impact of utilisation of social media tools in enhancing knowledge sharing practices among knowledge workers with a case study of NM-AIST in Tanzania.

1.2 Research question and sub-questions

1.2.1 Research question

Research is an investigation which is conducted in order to find a solution to a certain problem within a community (Kothari, 2004:9; Kombo & Tromp, 2006:3). In order to conduct research, a researcher must have a research problem or a research question which focuses on the problem to be investigated. This study is guided by a research question which states: **How can social media tools be utilised to enhance knowledge sharing practices among knowledge workers at NM-AIST?**

1.2.2 Research sub-questions

Based on the main research question, the following research sub-questions were also identified in order to guide the study:

1. What knowledge sharing practices are supported and how are they applied at the NM-AIST?
2. To what extent do knowledge workers at the NM-AIST use social media tools?
3. How can social media tools support knowledge sharing amongst knowledge workers at the NM-AIST?
4. What challenges prohibit knowledge workers in utilising social media to enhance knowledge sharing practices at the NM-AIST?

1.3 Scope of the study

The study was conducted at NM-AIST in Tanzania. This is the researcher's working place, thus, it was easily for the researcher to collect the reliable data. The institution encourages knowledge sharing practices among knowledge workers. NM-AIST employs a variety of subject expertise from different parts of the world that generates and creates new knowledge for the development of the institution. The institution via its library installed a number of social media tools to provide access to information; to get feedback from users, to promote and market library services and to enhance interactive and collaborative teaching and learning activities. There was no comparative study which focused on utilisation of social media tools to enhance knowledge sharing practices within academic institutions in Tanzania. The study was conducted over a one year.

1.4 Rationale of the study

The development of ICTs and the emergence of social media tools changed the way academic institutions communicate and share knowledge. While several studies have looked at the application of ICTs to facilitated knowledge sharing practices among knowledge workers, there is limited information in Africa and Tanzania in particular on how social media tools can be utilised to enhance knowledge sharing practices among knowledge workers within academic institutions (Paroutis & Al Saleh, 2009; Kim & Abbas, 2010; Hosseini & Hashempour, 2012; Lwoga, 2013). Social media tools need to be employed and utilised in order to enhance knowledge sharing practices; therefore, challenges which prohibit the utilisation of social media tools to enhance knowledge sharing must be removed. The current study attempted to critically assess the challenges which prohibit knowledge workers to utilise social media tools to enhance knowledge sharing practices in higher learning institutions. Lack of institutional support and lack of skills and awareness have been identified as among challenges for underutilisation of social media to support knowledge sharing practices in higher learning institutions.

Further, the study has introduced the importance of utilising social media tools to enhance knowledge sharing practices, as well as, to overcome the challenges for not utilising social media tools in higher learning institutions in Tanzania. This study will help scholars, academicians, and researchers to access and use social media tools to enhance knowledge sharing practices. The utilisation of social media tools is believed to have a positive impact on knowledge workers who utilise them and for institutions which utilise them.

1.5 Research methodology

The purpose of this study was to assess the utilisation of social media tools to enhance knowledge sharing among knowledge workers in the library and ICT-RC in NM-AIST. The study has used a qualitative research approach to get in-depth information from respondents. The study has employed a case study design to employ an in-depth investigation of the problem at hand. According to Rowley (2002:17) a case study design “is good for contemporary events when the relevant behaviour cannot be manipulated”. Further, the study has employed the purposive sampling technique to select respondents participated in this study. Data collection was conducted by using both semi-structured interviews and institutional document analysis. Data was analysed by using emerging themes (thematic analysis). According to Kombo and Tromp (2006:118) emerging themes refer to topics or major subjects which come up during discussions of the findings. A further and detailed explanation and discussion about research methodology as applied in this study was explored in Chapter Three.

1.6 Ethical issues

The ethical issues in this study has employed the informed consent, privacy and confidentiality (Bailey, 2007; Johnson & Christensen, 2008). The researcher has informed each participant the reasons for conducting this study, the demands it will make, the potential risks, and the benefits of participating in the study (Borbasi, Jackson, & Langford, 2004:117). The study has adhered to the University of Pretoria Code of Ethics for Research (UP, 2009). The study complies with the University of Pretoria’s Code of Conduct throughout the research. All ethical procedures with regard to confidentiality were strictly observed and participants were asked for their consent. Aliases or pseudonyms were used in data analysis to ensure confidentiality and privacy of the study participants. Further, all sources which were used in this study were acknowledged in order to avoid plagiarism.

1.7 Clarification of the key terms

1.7.1 Academic libraries

Academic libraries are libraries which are established within higher learning institutions such as universities and polytechnic institutions in order to support the mission of the parent institutions and to provide information and knowledge to serve the needs of stakeholders within higher learning institutions (Wen, 2005).

1.7.2 Explicit knowledge

Explicit knowledge is the knowledge which can be easily communicated and shared among people and which can also be stored, retrieved and accessed in the form of literature, reports and presentations (Gupta, 2008; Hislop, 2013).

1.7.3 Knowledge sharing

Knowledge sharing is the process of communication, exchange and transferring knowledge between an individual and among groups so as to create new knowledge. Van den Hooff and De Ridder (2004:118) defined knowledge sharing as “the process where individuals mutually exchange their (tacit and explicit) knowledge and jointly create new knowledge”.

1.7.4 Knowledge worker

A knowledge worker is as an individual who possesses specialist knowledge or know-how and who always applies their theoretical and practical understanding of a specific area of knowledge in order to perform his or her daily activities purposefully (Mládková, 2011:249). Hislop (2013:71) defines a knowledge worker (‘professional knowledge work’ perspective) as “someone whose work is primarily intellectual, creative and non-routine in nature, and which involves both the utilisation and creation of abstract/theoretical knowledge”.

1.7.5 Social media

Social media can be defined as a group of internet-based applications that build on the ideological and technological foundations of Web 2.0, and hence allow the creation and exchange of user generated content; thus social media comprises various online tools that facilitate collaboration, communication and sharing of resources, information and knowledge (Kaplan & Haenlein, 2010:61).

1.7.6 Tacit knowledge

Tacit knowledge is the knowledge which resides in human minds which may importantly shape how people think and act; it is highly invisible and confined in the mind of a person. Tacit knowledge is hard to formulate and difficult to communicate and share with others, it cannot be stored and is difficult to articulate in an explicit form. Tacit knowledge is regarded as more informal, more personal and individualised, less rigorous and highly subjective (Gupta, 2008; Hislop, 2013).

1.8 Outline of the mini-dissertation

The outline of this mini-dissertation is based on the guidelines and suggestions from various resources (Creswell & Plano-Clark, 2007; Leedy & Ormrod, 2005; Teddlie & Tashakkori, 2009) as follows:

- Chapter One introduces the study with the inclusion of background information, the research question (s) and brief outline of the methods.
- Chapter Two consists of review of the literature on social media tools and knowledge sharing practices. The chapter also explains how the present research will cover existing other research gaps by examining other empirical studies.
- Chapter Three describes the research methodologies, research design, and justification for qualitative approach, sampling techniques, data collection methods and procedure, research instruments, data analysis, reliability and validity and ethical consideration.
- Chapter Four presents the analysis of data and presents the findings and discussions by using tables and figures in the light of research question and sub-questions.
- Chapter Five presents the conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter provides the review of the literature on the utilisation of social media tools to enhance knowledge sharing practices. According to Kaniki (2006) literature review provides a comprehensive summary by identifying and evaluating a body of writings in relation to one's research study. This study has reviewed several pieces of literature in order to identify different methodologies and approaches that have been used by others to study similar problems (Bryman, 2004; Kaniki, 2006). As a result different experiences and research findings were presented that later on proves that this study has the potential to make a significant contribution to the topic of social media to enhance knowledge sharing practices.

2.2 Knowledge management: an overview

KM is a general term which comprises various components such as knowledge sharing, knowledge creation, knowledge transfer, knowledge application and knowledge acquisition (Maponya, 2004; Gupta, 2008; Kude, Nalhe, & Mankar, 2012). Higher learning employ KM activities in order to identify, capture, evaluate, retrieve and share all an enterprise's information assets (Kumaresan, 2010). KM is a combination of people, processes and technology (Sarrafzadeh, Martin, & Hazeri, 2010). In this era of knowledge economy, knowledge is regarded as an important resource which needs to be managed and shared (Sandhu, Jain, & Ahmad, 2011); and an important resource for knowledge workers (Yu, Lu, & Liu, 2010; Mládková, 2011). Knowledge is also considered as a central part of continuous learning within academic institutions (Sandhu, Jain, & Ahmad, 2011). Townley (2001), as well as, Pearson and Saunders (2009) mention the following reasons for managing knowledge as follows:

- (a) Rapid change which means that, existing knowledge becomes obsolete faster and that knowledge workers must learn new skills in less time for an organisation to remain competitive;
- (b) Smart products, such as selective dissemination of information services which offer knowledge as part of the product's value;

- (c) Globalisation whereby new computing and telecommunicating technologies allow data, information, and even explicit knowledge, to flow instantly around the world which results in the emergence of an interconnected global economy;
- (d) The growth of information resources along with an accelerating rate of technological change produce a mass of information that often exceeds the ability of knowledge workers to digest and use it productively;
- (e) Turnover is increasing throughout academia; therefore knowledge that is used to be embedded in one person for a career now leaves as individuals change jobs with greater frequency. The coming retirement of a larger number of academics who began careers in the 1960s will create a knowledge deficit situation in academia similar to the corporate downsizing that took place in the 1990s;
- (f) Virtual operations require more embedded knowledge to work more effectively; and
- (g) Sustainable competitive advantage.

Generally, there are two types of knowledge which are tacit and explicit knowledge (Lloria, 2008:83). Tacit knowledge is the knowledge that people possess and which is stored on human minds hence cannot be easily communicated and shared (Lloria, 2008; Rajurkar, 2011). Tacit knowledge consists of experiences, beliefs and skills and it is entirely subjective (Pearson & Saunders, 2009:351). Explicit knowledge is the knowledge which can easily be collected, communicated, organised, documented and transferred through digital means (Shanhong, 2000; Gottschalk, 2005; Jain, 2007; Pearson & Saunders, 2009; Rajurkar, 2011). Institutions are always benefiting from the knowledge stored within knowledge workers' heads (tacit knowledge) (Paroutis & Al Saleh, 2009:52). In addition, Roth (2003:33) mentions two dimensions in order to understand the practical meanings of knowledge, which are: "*first*, knowledge exists on the individual, group or organisational levels of the organisation; therefore what knowledge management initiatives usually focus on is generalising the individual and group levels of knowledge into easily accessible organisational knowledge; and *second*, knowledge can be either explicit or tacit".

KM on the other side is the way of keeping knowledge growing through communicating and sharing knowledge among employees (Rajurkar, 2011). Rajurkar (2011) mentions six objectives of promoting knowledge management within academic libraries as follows:

- (a) To promote the collection, processing, storage and distribution of knowledge;
- (b) To promote scientific research;

- (c) To promote the relationship between library and users;
- (d) To protect intellectual property rights, in the information technology era;
- (e) To create knowledge repositories and manage knowledge as an asset; and
- (f) To organise the value of knowledge and improve effective research.

KM is linked to Information System (IS) in order to facilitate knowledge capture, flow and sharing among people. Pearson & Saunders (2009:347) propose three ways in which KM can be related to IS as follows:

- (a) Information technologies make up the infrastructure for knowledge management systems (KMS);
- (b) KMS provide the source for information needed to run the business; and
- (c) KM is often referred to as an application of IS, much like e-mail, word processing and spread sheets.

KM comprises several components; knowledge sharing is a key and vital component of KM (Kumaresan, 2010). Therefore, institutions need to facilitate knowledge sharing among knowledge workers. Pearson & Saunders (2009) assert that when organisations understand the determinants of knowledge sharing and exchange among employees, appropriate KM practices can be well implemented. Pearson & Saunders (2009:354) “Knowledge management provides the way to optimise the use of existing knowledge and streamline transfer and adoption of new knowledge across the firm”. Thus, the effective management of knowledge activities such as creation and sharing are necessary to increase the knowledge stocks that will sustain organisational success (Cabrera & Cabrera, 2005). One of the critical components of KM is knowledge sharing; however, it is very difficult to get and encourage people to share their knowledge (Gupta, 2008:188).

2.3 Knowledge sharing practices

Knowledge needs be transferred from where it is created or stored to where it is needed in order to be communicated and shared effectively (Mtega *et al.* 2014:189). Knowledge sharing is a process of exchanging, transferring and communicating information, skills, experiences and understandings among people (Tsui, 2006). Moreover, knowledge sharing within institutions is regarded as the process of capturing, organising, reusing and transferring

experience-based knowledge that resides within the organisation and making that knowledge available to others (Lin, 2007:138). Knowledge sharing is based on the experiences gained internally and externally within the organisation (Maponya, 2004).

Foss, Husted, and Michailova, (2010:458) report that most institutions engaged in knowledge sharing practices in order to transform individual knowledge into institutional knowledge and enhance sharing of such knowledge. Knowledge sharing is an activity which comprises both tacit and explicit knowledge among knowledge workers in order to add value to institutional performance and to provide opportunities to discuss know-how and know-why practices in directing a particular organisation towards future development and growth (Riege, 2005:19; Chow & Chan:458, 2008; Ling, Sang, & Hock, 2009:137). Therefore, knowledge sharing is hard to ensure because generally, knowledge is created and initially stored within employees' heads (Chow & Chan, 2008:458).

Sharing tacit knowledge provides many challenges within organisations (Mládková, 2011:248). Ardichvili, Page, and Wentling, (2003:65) add that among the ways of helping people to share knowledge and internalise tacit knowledge is to allow knowledge sharing members to talk about their experiences, skills and understandings. Thus, knowledge workers need to work with both dimensions of knowledge that is tacit and explicit knowledge (Mládková, 2011:248).

Knowledge sharing practices started long time ago; when people shared knowledge via traditional means of communication such as storytelling, face-to-face conversations and songs. In nowadays, many institutions report to use face-to-face for knowledge sharing practices instead of technological tools (O'Dell, 2010:238). According to Barak *et al.* (2009:842) assert that storytelling was regarded as the main mechanism which was used to share knowledge among people; however trust among people who participated in knowledge sharing practices was highly recommended. Roth (2003:35) also adds that storytelling was believed to bind people together within communities and it has influence on users in terms of enhancing their pluralistic views and tolerant opinions.

Storytelling is regarded as one of the traditional means of sharing knowledge before the invention of computers (Roth, 2003). According to Roth (2003:35) traditional view of knowledge sharing comprised of few experts who embody the organisation's critical knowledge and share this with others; such as, a management team that passes on their knowledge to other teams in the organisation and/or a professor lecturing to students.

Through traditional knowledge sharing; cultural knowledge and values have been understood, maintained and communicated from generation to generation (Barak *et al.* 2009:842).

Additionally, knowledge sharing includes employees' willingness to communicate and collaborate actively with colleagues (donate knowledge), and actively consult with colleagues to learn from them (collect knowledge) (Lin, 2007:138). Individuals share what they have learned and transfer what they know to those who have a collective interest and those who have found the knowledge useful; and generally the value of knowledge expands when it is shared (Cheng *et al.* 2009:314). The outcome of knowledge sharing is the creation of new knowledge and innovation that will improve organisational performance (Sohail & Daud, 2009:129). On the other hand, the success of knowledge sharing practices in higher learning organisations depends on the active participation of a substantial part (ideally, all) of its members (Ardichvili, Page, & Wentling, 2003:65). Cabrera and Cabrera (2005), as well as, Hislop (2003) assert that external partners such as expert consulting or partners in joint ventures are excellent source of new knowledge within institutions.

There are various approaches to promote and facilitate knowledge sharing within organisations. For example, Hsu (2006:330) provides three approaches used to promote knowledge sharing practices which include:

- (a) Tool-based approach which focuses on building sophisticated IT systems in knowledge sharing;
- (b) Incentive-based approach which emphasizes the importance of incentives to facilitate knowledge sharing; and
- (c) Integrative approach which considers not only management values and organisational culture; but also processes and structures to encourage knowledge sharing.

There are various advantages of knowledge sharing practices in higher learning institutions. Cabrera and Cabrera (2005) provide that knowledge sharing helps valuable information/knowledge to be gained and shared from production workers. Knowledge sharing within academic institutions is for profit motivated (Cheng *et al.* 2009:313). Koenig (2003:13) adds that knowledge sharing enhances easy access to information and provides free flow of information both within and outside institutions. Magnier-Watanabe, Benton, and Senoo, (2011:17) report that knowledge sharing helps the institution to achieve the intended goals and to build human relationships within the institutions. Knowledge sharing provides

opportunities to discuss what practices are needed in order to direct the institution to the future development and growth (Azudin, Ismail, & Taherali, 2014:143). Hendriks (1999:91) adds that knowledge sharing provides a link between the level of individual knowledge workers where knowledge resides; and the level of the institution where knowledge accomplishes its competitive value. Pearson and Saunders (2009:354) add that knowledge sharing facilitates the use of existing knowledge and restructure the transfer and creation of new knowledge across the institution. Knowledge sharing helps knowledge workers to share their best practices and therefore to contribute to the competitive advantage within their institutions (Pearson & Saunders, 2009:355).

Cabrera and Cabrera (2005) add that knowledge sharing helps institutions to build human capital or store the knowledge from employees' skills and abilities. Knowledge sharing practices help to enhance and manage information flow, communication and participation so as to reduce information overload within institutions (Pearson & Saunders, 2009:355). Knowledge sharing helps institutions to solve different problems by providing solutions to those problems through sharing ideas and experiences. Pearson and Saunders (2009:358) assert that knowledge sharing brings together people with different backgrounds, cognitive styles, experiences and educational backgrounds to work on the same problems. According to Cabrera and Cabrera (2005) "The understanding of knowledge-sharing dynamics helps to identify the people management practices in order to facilitate the exchange of knowledge within organizations". According to Lam and Lambermont-Ford (2010:54), knowledge becomes a public good from which interdependent members of an institution can benefit directly, whether or not they have contributed.

2.4 Factors which facilitate knowledge sharing practices

The quality of work of knowledge workers depends on their ability to create, distribute, communicate and share their knowledge (Mládková, 2011:248). The workplace became more complex and chaotic therefore institutions seek various factors to facilitate knowledge sharing practices (Pearson & Saunders, 2009:353). Thus, this study categorises various factors which could be employed to facilitate knowledge sharing practices, which are institutional factors, individual factors and mechanism/tool factors as follows:

2.5 Institutional factors

Institutional factors are those factors which could be employed within the institutional level in order to facilitate knowledge sharing practices as follows:

(a) Rewards

Knowledge workers need to be motivated to share knowledge. The provision of institutional rewards ranging from monetary incentives such as increased salary and bonuses to non-monetary awards such as promotions and job security can facilitate knowledge sharing practices among knowledge workers (Lin, 2007:319). Hislop (2003:186) asserts that having properly motivated knowledge workers does not only encourage knowledge sharing practices, but also influences the loyalty of such knowledge workers to remain working within their institution. Chang and Chuang (2011:10) add that individuals can participate in knowledge sharing practices if the personal perceived benefit outweighs the perceived loss of valuable knowledge.

(b) Organisational commitment

Organisational commitment is very important to support knowledge sharing practices. According to Hislop (2003:198), “Commitment may be important variable influencing the attitudes of workers towards participating in KM initiatives, or in sharing their knowledge with colleagues”. (Van den Hooff & De Leeuw van Weenen, 2004:15) defined organisational commitment as “The relative strength of individuals’ identification with, and involvement in a particular organization”. Meyer and Allen (Van den Hooff & De Leeuw van Weenen, 2004:15) (as mention three types of organisational commitment which are:

- *Affective commitment* (related to identification and involvement with the organisation; therefore, affective commitment leads to a feeling of wanting to continue employment in the organisation);
- *Continuance commitment* (created by the high costs associated with leaving the organisation; and
- *Normative commitment* (related to the feeling of obligation towards the organisation and that creates a feeling that one ought to continue employment).

Additionally, Van den Hooff and De Leeuw van Weenen (2004:15) assert that commitment influences both the willingness to contribute to the institution (donate knowledge) and to the extent to which others' activities are known and perceived to be relevant (collect knowledge).

(c) Institutional structure

Institutional structure is a backbone of an institution. Mládková (2011:253) adds that institutional structure is an important factor for KM practices as well as for the management of knowledge workers. Institutional structure is an important factor to promote communication across the institution, as well as, to make employees aware of the knowledge sharing practices. Therefore, it is critical for the institution to board on knowledge sharing practices to facilitate the creation and the sharing of knowledge through the institution (Skyrme, 1999).

(d) Human Resource Management (HRM) policies and practices

HRM policies and practices play a key role to enhance knowledge sharing practices within institution. According to (Hislop, 2003). "HRM policies and practices can influence commitment levels, and underpin attitudes towards knowledge sharing". (Hislop, 2003) mentions the following factors which could be included in HRM policies and practices to enhance knowledge sharing practices within organisations:

- i. The extent to which decision making processes are fair and equitable;
- ii. The role of appraisal and reward systems which includes knowledge sharing behaviours and attitudes;
- iii. The extent to which job design can induce commitment and positive knowledge sharing attitudes (through giving workers autonomy and making work fulfilling and rewarding;
- iv. The type of organisational cultures which support knowledge sharing;
- v. The extent to which job security affects organisational commitment, worker loyalty, and their willingness to share knowledge; and
- vi. The role played by internal promotion and career opportunities in shaping levels of commitment and loyalty.

(e) Strong partnerships

It is revealed that, strong partnerships within and outside the institution can facilitate the exchange and sharing of information. (Jain, 2007) asserts that strong partnerships are very important to facilitate sharing of knowledge which is required to build a knowledge base.

(f) Environment

Institutions need to ensure good environmental conditions in order to facilitate knowledge sharing practices. Mládková (2011:250) points that, it is the role of institution to establish a good environment where knowledge workers are able to create, share and use both explicit and tacit knowledge.

(g) Job design

Job design is a very important aspect to enhance knowledge sharing among knowledge workers. According to Foss *et al.* (2009:871) job design is an antecedent of actual knowledge-sharing behaviors' within the institutions. Also, Foss *et al.* (2009:871) add that job design is significant when there is a risk that, highly knowledgeable employees want to leave the institution or when there are high costs of retaining such talent, which are pressing problems for many consulting, accounting, and professional services firms that knowledge sharing may alleviate.

(h) Institutional culture

Gaffoor and Cloete (2010) defined institutional culture as "The unique combination of values, beliefs and models of behaviour in an organisation". Institutional culture has a connection with knowledge sharing practices within organisation (Azudin, Ismail, & Taherali, 2014:144). Each organisation has its own culture to support their activities.

Al-Alawi, Al-Marzooqi, and Mohammed (2007:25) support that "Each institution has its own culture which develops over time to reflect the organisation's identity". Institutional culture represents both significance and the advantages of the institutions and their employees' willingness to share their knowledge (Yeh, Lai, & Ho, 2006:797). Jones, Cline, and Ryan (2006:412) add that institutional culture is regarded among knowledge resources because it provides the context within which institutional members could create, acquire, share and

manage knowledge; therefore, it influences members' attitudes towards knowledge sharing practices. Skyrme (1999:184) recommends the following characteristics which can be integrated under institutional culture in order to foster knowledge sharing activities:

- i. Transparent institutional milieu;
- ii. Empowered workforce;
- iii. Dynamic learning environment;
- iv. Continual quest for novel means of development and innovation;
- v. Concentrated, transparent and extensive communication;
- vi. Periods of reflection, learning and experimentation; and
- vii. Communication and interaction across and within groups.

Objectives and performance gauges that are synchronised across the organisation and an inclination toward extensive knowledge sharing among individuals who make up the workforce.

2.6 Individual factors

These are factors that can enhance an individual worker to contribute to knowledge sharing practices within an institution. Such factors include the following:

(a) Trust:

Trust is among the critical factors which can facilitate an individual to share knowledge within an institution. Hsu and Lin (2008:68) add that knowledge sharing builds trust, unity and relationships among people within the same working place. Moreover, competence based trust allows one to feel confident that a person sought out knows what s/he is talking about and is worth listening to and learning from (Abrams *et al.*, 2003:65).

According to Mládková (2011:253), trust is a factor that influences knowledge workers to share their knowledge, especially sharing of tacit knowledge; this is because, people are rarely share their knowledge with people who they do not trust. Trust is also required to stimulate knowledge workers to share knowledge and to enter into social knowledge creation and sharing processes (Gottschalk, 2005:25). Abrams *et al.* (2003:63) also report that trust makes knowledge exchanges less costly by increasing the likelihood that knowledge acquired

from a colleague must be sufficiently understood and absorbed to be used and shared among others.

(b)Basic skills

In order for knowledge to be shared properly, an individual must require basic skills for knowledge sharing practices. Roth (2003:35) asserts that basic skills required to enhance knowledge sharing practices include: the skills to work together, communication and collaboration skills, technical skills and professional skills. Bothma (2013) recommends various skills which a librarian need to occupy in order to serve the new generation library users:

- i.Skills to utilise new information technologies;
- ii.Skills on implementing new information technology techniques for non – traditional library and information studies (LIS) functions;
- iii.Skills on referencing techniques and referencing software;
- iv.Skills to electronic and open access publishing tools: and
- v.Skills on data curation and archiving tools mobile technologies and Library 2.0/3.0 specialist.

2.7 Mechanism factors

These are factors/means that can facilitate the flow of knowledge from one individual to another. Mechanisms can also be regarded as tools which can be employed to facilitate knowledge sharing. Mechanisms for knowledge sharing can be technological tools such as groupware, email and intranet, traditional mechanisms such as face-to-face conversations, documents and storytelling and Web 2.0 and social media tools such as Facebook, Twitter and Wikis. Paroutis and Al Saleh (2009:53) provide that social media tools “have distinct features that unleash passion for engaging in knowledge sharing and address drawbacks in the current technologies used within organizations”.

Jain (2007) adds that IT tools guarantee the accurate, timely expression and delivery of knowledge in a more efficient way; therefore, technological tools can be used as mechanisms which help people create, capture, store, exploit and share knowledge. IT tools also facilitates

KM and sharing by providing the means to organise, store, retrieve, disseminate, and share explicit knowledge within and outside institutions and by connecting people with collaborative tools (Jain, 2007:60). Taylor (2005:60) adds that institutions must evaluate and do an analysis about the tools to be employed to determine reliable and right tools to enhance knowledge sharing activities. Taylor (2005:60) adds that institutions need to conduct training on utilising the IT tools among its staff.

2.8 Social media tools: an overview

Social media has become ubiquitous and important technique for social networking and content sharing among people (Asur & Huberman, 2010:492). According to Ponelis (2013:231) “Social media comprise web-based platforms that allow people to interact freely, to share and discuss information about each other and their lives using a mixture of text, images, videos and audio”. Social media is classified into two classes which are social processes (self-presentation, self-disclosure) and media research (social presence, media richness) (Kaplan & Haenlein, 2010:61).

Kaplan and Haenlein (2010:60) assert that social media development started since 1979 when Tom Truscott and Jim Ellis from Duke University created Usenet, a worldwide discussion system that allowed Internet users to post public messages. On the other hand, the term “weblog” was the first social media tool to be developed followed by the creation of social networking sites such as MySpace (in 2003) and Facebook (in 2004) (Kaplan & Haenlein, 2010:61).

Generally, Social media tools are employed in higher learning institutions to facilitate various activities as well as to connect academic members to participate in various activities. Chandra (2005:251) mentions strategies which could be implemented in higher learning institution to enhance the utilisation of social media tools as well as to link the academicians and other members which are:

- (a) To network with people across the organisation through the application of social media tools;
- (b) To use superior communication skills in order to facilitate and involving collaborative environment;

- (c) To identify tacit knowledge that could be made explicit and to encourage people to identify and publish relevant ideas and observations for distributions;
- (d) To enable explicit knowledge to be shared ‘virtually’ throughout the organisations by utilisation of social media tools and to apply metadata and other information management techniques and principles for improved accessibility to relevant content; and
- (e) To create links between disparate but connected bits of information and knowledge across the organisation.

The utilisation of social media tools prove a number of advantages as compared to traditional media. Lee and Ma (2012:332) mention the following advantages of social media tools towards the traditional media:

- (a) Social media tools users’ actively participate in creating and producing information by submitting links and new information through various social media tools;
- (b) Social media tools users’ are connected with each other through similar interests and therefore information can be spread across such online tools and discussed and shared by people around the world within minutes; and
- (c) Social media tools users’ can actively participate in agenda setting processes by submitting, sharing and commenting news content.

Social media tools are powerful platforms for the human ambition to build and to sustain relationships and trust, to create and extend networks and to enhance online communication, share participation and collaboration (Schneckenberg, 2009:511). Sharma and Baoku (2012:348) assert that social media tools provide benefits for people to improve access to professional knowledge and reduce costs of communications with other professionals worldwide. For example, social media tools’ participatory nature is best exemplified in Wikipedia where people work collaboratively to input, produce, and update information (Paroutis & Al Saleh, 2009:53).

Social media tools build a platform on which users can exchange information and knowledge, express thoughts, and reconfigure existing explicit knowledge (Shang, *et al.*, 2011:178). Additionally, social media channels are user-friendly, inexpensive and mobile-based technologies that allow for the sharing of information among users (Fischer & Reuber, 2011).

Murugesan (2007:34-35) provides the advantages of utilising social media tools within academic institutions which include:

- (a) Facilitate flexible web design, creative reuse, and updates;
- (b) Provide a rich, responsive user interface;
- (c) Facilitate collaborative content creation and modification;
- (d) Enable the creation of new applications by reusing and combining different applications on the web or by combining data and information from different sources;
- (e) Establish social networks of people with common interests; and
- (f) Support collaboration and help gather collective intelligence.

On the other hand, Greenhow, Robelia, and Hughes (2009:253) mention the characteristics of social media tools which are:

- (a) To encourage contribution and feedback (*participation*);
- (b) Open to feedback and participation (*openness*);
- (c) Facilitate two way communications (*conversation*);
- (d) Facilitate formation of communities (*community*); and
- (e) Facilitate connections through links to other sites, resources and people (*connectedness*).

2.9 The role of social media tools utilisation within academic institutions

The emergence of social media tools has changed the way knowledge is communicated, shared and flows within academic institutions. Social media tools provide a highly visible symbol to support knowledge sharing practices (Connelley & Kelloway, 2003:296). Generally, social media tools have the potential for KM and knowledge sharing practices by facilitating the creation, sharing and collaboration among knowledge workers (Paroutis & Al Saleh, 2009:53). Most of social media tools are open source therefore can be easily integrated to enhance knowledge sharing practices within institutions (McKenzie & Van Winkelen, 2011).

Muneja and Abungu (2012) add that “Being freely open source and easy to adopt the tools can revolutionize provision of services and lead to rapid growth of knowledge acquisition”. Social media tools utilisation helps knowledge sharing across the widely dispersed elements within institutions by involving people who have common interests to form and share

knowledge (Levy, 2009:132). Lee and Ma (2012:332) add that social media tools empower individuals to create, share, and seek content as well as to communicate and collaborate with each other; therefore, these features have the potential to change knowledge sharing practices.

Adamovic, Potgieter, and Mearns (2012) report that social media tools assist the process of knowledge sharing by allowing easy and instant communication among employees. Social media tools create the openness in sharing knowledge and information, provide more opportunities for more people to share so as to improve their work and to build social and professional networks (O'Dell, 2010). Thus, the utilisation of social media tools support the dynamic knowledge exchange and encourage shared information structure which represents the genuine interests and competence domains of employees (Schneckenberg, 2009:512).

Murphy (2011) asserts that the use of social media tools is situated in a KM context in order to improve the extraction and utilisation of tacit knowledge. Social media tools are suitable for electronic research, knowledge creation, storage, sharing and usage and they suitable platform for sharing innovations and electronic learning (Schneckenberg, 2009:512). Social media tools are also used to facilitate networking, sharing information, commenting on published outputs and documenting and sharing experiences (Mtega *et al.*, 2014:193).

Social media tools provide the potential means for improving knowledge work productivity, for example, through helping knowledge workers to perform certain routine (non-value-adding) tasks easily and faster (Van den Hooff, & De Ridder, 2004; Palvalin, Lonnqvist, & Vuolle, 2013). Social media tools have also expanded the academic's ability to nurture social and professional connections and to potentially build and maintain larger networks for catalysing interdisciplinary collaborations, multisite research, and inter-institutional partnerships (Greenhow, Robelia, & Hughes, 2009:255). For example, individuals can set up the more casual and social Facebook accounts (<http://facebook.com>) and decide whether to add only colleagues or include students and others (Greenhow, Robelia, & Hughes, 2009:255). Social media tools are used to support dissemination, adaptations, and conversations about individual scholarship (Greenhow, Robelia, & Hughes, 2009:253).

Makori (2012) asserts that social media tools help to bridge, to expand and to promote information services within and outside the university's community, to support electronic and mobile learning, to promote online communication and to market and promote various services within academic institutions. According to Panahi, Watson, and Partridge (2013:379), social media tools enable rapid search, access and retrieval of information and

facilitate new methods of running universities such as virtual communities, scholarly communication, social scholarship and communities of practice.

Social media tools also allow firms to expand the existing social networks by overcoming geographical boundaries and thus achieving more effective collaborative activities (Panahi, Watson, & Partridge, 2013:379). Social media tools utilisation help in obtaining knowledge, defining, storing, categorising, indexing, and linking knowledge-related digital items; including seeking and identifying related content (Lin, 2007; Kumar, 2009). Social media tools such as wikis and blogs facilitate knowledge sharing through videos, images, and photos (Hosseini & Hashempour, 2012:139). Social media tools are currently assessed as a measure to increase employees' performance and to improve the web-based customer services (Schneckenberg, 2009:509).

Social media tools integration and utilisation are the solution to many barriers for knowledge sharing. Wikis represent the highest attainable information sharing ideal within institutions whereas groups of members are voluntarily and unselfishly create and collaborate knowledge for the benefit the institution (Grace, 2009). Social media platforms act as an intelligent broker to foster cooperation and to shift knowledge from platform providers to widely dispersed users (Shang *et al.*, 2011:178).

On the other hand, Social media networks are critically affect knowledge creation and sharing in higher learning institutions (Abrams *et al.*, 2003:64). White (2010:92) assets that social media tools are used to publish explicit knowledge (papers, blog posts, articles, tweets), to get exposure, to find knowledge from a global community of experts and to engage others to share knowledge. White (2010:93) provides the advantages of social media tools in knowledge sharing which include: to provide access to more and potentially more diverse peer practitioners, to connect people across time and geography, to provide means to capture interactions, to refine them for outputs and to connect individual communities into wider networks.

McKenzie and Van Winkelen (2011) provide the advantages of social media tools in supporting knowledge sharing 2.0 environments which are:

- (a) To enhance conversation between individuals;
- (b) To convert individual knowledge to resources;

- (c) To increase knowledge sharing among users so as to strengthen value-generating relationships; and
- (d) To save time and money through integrated KMS and processes, to enhance individual accessing knowledge from external relationships and to make organisational knowledge accessible.

2.10 Categories of social media tools to enhance knowledge sharing practices

Social media tools can be divided into different categories in order to facilitate various activities in higher learning institutions. This mentions the following categories of social media tools which can be employed to enhance knowledge sharing practices in higher learning institutions:

(a) Wikis

Wikis are collaborative and communication space which provides freedom, ease of use and access, and a better way to organise knowledge (Parker & Chao, 2007:57; Grace, 2009:65). Wikis provide links and references to other web sites that are related to various subjects to help users to better understand the context and therefore, to easily add and edit information (Murugesan, 2007:35; Grace, 2009:65; Levy, 2009:125). Wikis are also used to facilitate knowledge sharing, collaborative authoring and online discussion (Kim & Abbas, 2010:213). According to Grace (2009:69), users can easily add their articles on Wikis and allow other to read, edit and link to other relevant resources.

Wikis are used within to promote authored resources obtained within academic libraries (Harinarayana & Raju, 2010:77). Knowledge workers can use Wikis to facilitate communication, to distribute documents, to collaborate and share information and knowledge, to organise documents and resources from individuals and within groups (Grosbeck, 2009:479; Kumar, 2009:106; Tripathi & Kumar, 2010:197). Wikis are also used to enhance information literacy among knowledge workers (Lwoga, 2013:291). Academic libraries can also utilise wikis to encourage their users to contribute in the preparation of reference materials such as dictionaries, encyclopaedia, book review and instructional resources (Tripathi & Kumar, 2010:197).

(b) Social Networking Sites (SNSs)

SNSs are sites which contain social media tools such as Facebook and MySpace which are used to facilitate communication, chat and sharing of ideas among people. According to (Boyd & Ellison, 2008:210) SNSs are defined as “Web-based services that allow individuals to: (1) construct a public or semi-public profile within a bounded system, (2) to articulate a list of other users with whom they share a connection; and (3) view and transverse their list of connections and those made by others within the system.” SNSs provide a way to get and stay in touch with friends, family and associates (Mahmood & Richardson 2011:370). SNSs such as Facebook and Twitter are very important social media tools to enhance knowledge sharing through providing the communication and sharing of information (Lwoga, 2013:291). Facebook provides users with the ability to personalise profiles with photos and information therefore to communicate more efficiently (Ayu & Abrizah, 2011:239). Twitter allows users to share information including their thoughts with everyone (Kim & Abbas, 2010:214). According to Mahmood and Richardson (2011:369) about 85% libraries in the United States are using Twitter for microblogging.

(c) Blogs

Blogs are regarded as the central focus for discussion forums among knowledge workers (Hislop, 2013:217). Literature by Yu, Lu and Liu (2010:33) emphasise the use of blogs to enhance knowledge transfer and flow within organisations hence to encourage and support knowledge sharing. Weblogs are viewed as an evolved form of personal web pages used to publish personal knowledge. Blogs provide control to an individual or group of individuals for publishing contents or making commentary on it by providing quick feedback (Grosbeck, 2009; Kumar, 2009).

Blogs are reported as useful knowledge sharing platforms for within a collaborative work environment (Chai & Kim, 2010:408). Blogs have gained a lot of popularity among Internet users as a useful communication tool, whereas functions such as permanent links, trackback and RSS Feeds enable bloggers to be interactive and allow people to be more active to participate in information and knowledge generation (Chai & Kim, 2010:408). According to Akeriwa, Penzhorn, and Holmer (2014), blogs are very useful tools within academic libraries for updating library users on their areas of interest and also to provide information on new Internet sources.

(d)RSS Feeds

RSS Feeds is a family of web feed formats used for syndicating content from blogs or web pages which are useful in knowledge creation and sharing (Murugesan, 2007:35; Grosseck, 2009:479). RSS is a social media tool which contains an XML file that summarises information items and links to the information sources, and therefore, informs users of updates to blogs or web sites which they are interested in or stored within their institutions (Murugesan, 2007:35). RSS is an excellent tool for obtaining information on a regular basis from news services, and can be employed within academic libraries in order to disseminate library news and current alerts, posts library announcements, exhibition of new and already existing acquisitions processes and to enhance reference services. (Harinarayana & Raju, 2010:76; Akeriwa, Penzhorn, & Holmer, 2014:3).

RSS Feeds are used to publish frequently updated works, serves as a format for delivering regularly changing web content and publishers syndicate (distribute) their web content as an RSS Feeds to whoever wants it (Murugesan, 2007:35). Currently, scanning can be done through the use of social media tools, whereas RSS feeds can make it possible to automatically scan relevant websites and filter the way it is displayed (Pearson & Saunders, 2009:360). Chua and Goh (2010:2014) RSS Feeds support information dissemination within academic libraries whereby users can be kept informed of the changes made to the web content including blogs and podcasts without having to revisit the website.

(e) Social tagging

Social tagging is a very important social media tool to enhance knowledge sharing. Tagging provides a way to organise information, store the selected articles under the chosen category and also users are able to provide a note that will remind them about the content of an article, so they can easily locate the information, trace their memory, and remember the content of the article (Kim & Abbas, 2011:213). Tagging appears to be a social media application with great potential within academic institutions although only a small number of the libraries currently employ tagging (Grosseck, 2009:479). According to Chua and Goh (2010:2014), social tagging services support information organisation (the representation of content to facilitate subsequent search and retrieval) by allowing users to annotate websites using freely assigned keywords known as tags so that these websites can be easily accessed in the future.

(f) Social bookmarking sites

Social bookmarking sites are very important to support knowledge sharing practices within academic institutions (Gray *et al.*, 2008:113). Social bookmarking can be used to link users to free bookmarking sites online and presents many opportunities for networking with other persons or scholars with similar interests in order for them to share knowledge easily (Akeriwa, Penzhorn, & Holmer, 2014:3). Social bookmarking sites allow a user to build and store collections of chosen web-based resources over time in a database that is automatically maintained and shared on a web site (Grosseck, 2009:479). The user is able to assign his/her own keywords or “tags” and annotations (such as reviews) and may be able to add comments on other people's bookmarked resources as well (Gray *et al.*, 2008:113). According to Grosseck (2009:479), social bookmarking tools help to create a set of resources that can be accessed on any computer connected to the internet, conduct research and share that research with peers and track author and book updates. Social bookmarking tools allow users to store, organise, search, manage, and share webpage bookmarks through a list of favourites or bookmarked sites (Click & Petit, 2010:141).

(g) Photo and image sharing

Social media tools such as Flickr are used to enhance photos and image sharing within academic institutions (Penzhorn, 2013:66). Grosseck (2009:479) adds that photo/slide sharing can be used to inspire writing and creativity, create a presentation using the photos and use tags to find photos of areas and events around the world whereas video sharing sites can inspire video professional development on own their terms.

(h) Video and audio sharing

Video and audio sharing social media tools such as YouTube and Podcasts contain audio and video contents which are available on the internet and that can be automatically delivered to a personal computer or MP player (Harinarayana & Raju, 2010:75; Kim & Abbas, 2010:214). Podcasts can be stored within academic libraries to support library users to share knowledge through listening to lectures, debates and various conversations. According to Tripathi and Kumar (2010:196), “Libraries use podcasts mainly for offering tips, using the audio format”. On the other hand, knowledge workers can be asked to create their own agenda and share among other knowledge workers.

According to Penzhorn (2013:66) “Research has shown that information is remembered better if it is encoded both visually and verbally”. YouTube can be linked with library catalogue, and therefore enable library users to retrieve their needed information (Webb, 2007:355). Webb, (2007:356) adds several advantages of using YouTube within academic libraries which include uploading videos in any format, assisting in library instructions and training and also to notifying library users with new materials and contents. Mahmood and Richardson (2011:371) add that the application of YouTube within the library can enhance sharing videos of news and various subjects and enhance interviews and speeches as conducted within libraries.

2.11 The role of academic libraries within academic institutions

Academic institutions need to support academic libraries in order for such libraries to support knowledge creation and sharing activities. Academic libraries are service centres in which academic librarians are service providers who need more knowledge and skills so as to enable academic institutions to improve performance by enabling teaching, learning, research and innovation (Maponya, 2004:7).

Kude, Nalhe, and Mankar (2012:229) provide that “Academic libraries face unprecedented challenges in the 21st century. Libraries are human organisations, so they are subject to the same sort of influences that many other organisations must deal with”. Thus, knowledge created in higher learning institutions through research, teaching and learning and innovation should be relevant to such institutions’ development and to the labour market (Maponya, 2004:6).

KM is also aimed at extending the role of librarians to manage all types of information and tacit knowledge for the benefit of the library (Maponya, 2004:13). Thus academic libraries within academic institution are also to support and enhance knowledge management activities such as knowledge transfer and sharing to take place. Academic libraries work in close relationship to collaborate, communicate, share and disseminate knowledge within organisations. Through knowledge management practices, academic libraries have an opportunity to collaborate with other units in order to increase both their effectiveness and that of the academic institutions (Townley, 2001:46).

Academic librarians in knowledge sharing environments need to manage the relationships with internal and external providers of knowledge in order to enhance knowledge flow, transfer and sharing within the organisation (Kude, Nalhe, & Mankar, 2012). According to Akeriwa, Penzhorn, and Holmer (2014), the role of the academic library is to support the academic activities of the staff and students of its university as a whole, providing services geared towards their research and scholarship needs in order for them to participate in knowledge sharing practices.

2.12 Challenges that hinder the utilisation of social media tools to enhance knowledge sharing among knowledge workers

There are various challenges which hinder knowledge workers to utilise social media tools to enhance knowledge sharing practices within academic institution. Literature discuss various challenges which hinder the utilisation of social media tools to enhance knowledge sharing; therefore, challenges which hinder the utilisation of social media to enhance knowledge sharing among knowledge workers can be grouped into three groups which are institutional challenges, individual challenges and technological challenges (Lin, 2007:318; Gupta, 2008:187; Hosseini & Hashempour, 2012:139).

2.12.1 Institutional challenges

Institutional challenges are challenges which are caused by institutions or management in general. According to Sohail and Daud (2009:131), institutional challenges are challenges that are not derived from the individual personally and they can be environmental and may be caused by individuals which occupy managerial position within the institution. There are various institutional challenges which hinder the utilisation of social media tools to enhance knowledge sharing practices within academic institutions as follows:

(a) Inadequate infrastructure and resources

Makori (2011:32) reported low rates of internet penetration, low bandwidth and unreliable power supply are the main factors which hinder the utilisation of social media tools to enhance knowledge sharing practices within academic institutions.

(b) Lack of HRM/institutional policies and practices

Grace (2009:71) mentions lack of policies and practices to support the implementation and utilisation of social media tools in order to enhance knowledge sharing practices. For

example, according to Grace (2009:71) universities need to employ a specific institutional policies and guidelines to use wikis in order to protect security and integrity of information. Riege (2005:23) adds that the main reason why most companies do not reach their knowledge sharing goals is the lack of a clear connection between knowledge sharing strategy and usability of social media tools.

(c)Lack of Rewards and recognition

Paroutis and Al Saleh (2009:53) report that the lack of motivational support and recognition from management prohibit knowledge workers from utilising social media tools to enhance knowledge sharing practices. Knowledge workers claim that lack of rewards, recognition and incentives are the main problems which hinder them to utilise social media tools in knowledge sharing practices (Hosseini & Hashempour, 2012:139). According to Hosseini and Hashempour (2012), as well as Variant and Puspitasari (2013), lack of rewards such as money, training, attending seminars and conferences could prohibit knowledge sharing practices.

(d)Organisational cultures

Schneckenberg (2009:512) asserts that lack of institutional culture could prohibit knowledge workers to share knowledge. Other challenges mentioned by various authors include budget constraints, lack of institutional structure, lack of institutional commitments to support the utilisation of social media tools to enhance knowledge sharing practices, lack of good working environmental and lack of manpower (Hislop, 2003:189; Foss *et al.*, 2009; Mládková, 2011:250).

2.12.2 Individual challenges

Individual challenges are challenges which are derived from individually driven considerations such as wrong beliefs, wrong perceptions, technophobia, expectations, attitudes, feelings, lack of awareness on technological tools and unwillingness to use IT applications and technical/technological challenges relate to KM technology, such as software and hardware (Cheng, Ho, & Lau, 2009:315; Sohail & Daud, 2009:131). Moreover, the effectiveness and convenience of using existing tools also affect the willingness to adopt social media tools (Paroutis & Al Saleh, 2009:56). Paroutis and Al Saleh (2009:56) add that lack of organisational or management support in terms of communicating the benefits, lack of necessary training and lack of rewards and recognitions efforts are among the challenges

which hinder the utilisation of social media tools to enhance knowledge sharing. Lack of time, resources and interest in the utilisation of social media tools to enhance knowledge sharing are among the most common individual challenges which hinder the usage of social media tools to enhance knowledge sharing (Grosseck, 2009:480).

In addition, inadequate knowledge and skills about social media tools, their benefits and how to go about using them, unawareness about the value they could provide, and lack perceptions of certain risks and downsides associated with using social media tools are among individual challenges (Grosseck, 2009:480; Paroutis & Al Saleh, 2009:56). Vuori and Okkonen (2012:593) add that employees may not know that they have reliable knowledge to share for the organisation, even if employees recognize the importance of the knowledge to the organisation, they may not be motivated to share it and lastly, even if employees are motivated to share knowledge, there may be no mechanism to enhance knowledge sharing within the organisation. Hislop (2003:186) add that most of knowledge workers claimed lack of fairness, friendship, lack of trust and openness prohibit them to utilise social media tools to share their knowledge.

2.12.3 Technological and technical challenges

Technological and technical challenges are challenges which are associated with lack of skills and techniques in utilising social media tools to enhance knowledge sharing practices within academic institutions (Hosseini & Hashempour, 2012:139). Lack of technological skills such as integrating social media tools, uploading social media tools, linking social media tools to the institutional and/or library websites and maintenance and repair of devices used to facilitate the utilisation of social media tools are among the technological tools that hinder the utilisation of social media tools to enhance knowledge sharing practices (Hosseini & Hashempour, 2012:139; Muneja & Abungu, 2012:18).

Grosseck (2009:480), as well as, Paroutis and Al Saleh (2009:56) mention technological challenges such as unwillingness to use applications, unrealistic expectations of IS/IT systems, and difficulties in building, integrating and modifying technology-based systems hindering the utilisation of social media tools to enhance knowledge sharing among knowledge workers. Lack of knowledge about the tools, their benefits and how to go about using them, unawareness or cynicism about the value they could provide, and perceptions of certain risks and downsides are also associated with the low usage of social media tools (Paroutis & Al Saleh, 2009:53).

2.13 Conclusion

This chapter discussed the literature findings from existing literature. The review of literature gave an opportunity to study what others have done to support the utilisation of social media tools to enhance knowledge sharing among knowledge workers within academic institutions. Some of the studies that have been done previously were also looked to find out if any of the findings are applicable to the current study. Knowledge sharing is recognised as an important component in knowledge management practices.

Knowledge was also recognised as an important resource within academic institutions which needs to be management and shared for the development of institutions. Advantages of both social media tools and knowledge sharing practices within academic institutions were also mentioned and discussed. Various categories of social media tools which enhance knowledge sharing practices were also reported. There are many challenges which prohibit the utilisation of social media tools to enhance knowledge sharing practices. It is also reported that, academic libraries can play a major role to support and encourage knowledge workers to share knowledge.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter describes the research methodology as applied in this study. Specifically, chapter outlines the research design, research approach, study population, sampling procedure, data collection procedure and research instruments, data analysis, validity and reliability and research ethics.

3.2 Research methodology

Research methods and methodology are distinctly different from one another. Research methods comprise all methods/techniques that are used for conducting research such as: data collection, data analysis, explanation and prediction (Kothari, 2004:7). Research methodology involves research methods, the logic behind the methods to be used in the research study and the purpose of using a particular method so that research findings are capable of being evaluated either by the researcher or by others (Kothari, 2004:8). Therefore, research methodology focuses on the research process and the kind of tools and procedures to be used in the study (Babbie & Mouton, 2001:75).

3.3 Research approaches

There are two research approaches utilised in most studies, namely the qualitative approach and quantitative approach. Most studies tend to use quantitative or qualitative approaches in order to explore unexplained phenomena (Creswell, 2003:4; Welman, Kruger, & Mitchell, 2005:6); however, a research study might employ both qualitative and quantitative approaches (mixed research approaches) (Creswell, 2003:4). This study employed the qualitative approach. According to Yin (2011:4), the qualitative approach focuses on a specific group of people, therefore this study focused on a group of knowledge workers at NM-AIST.

The qualitative approach is based on the philosophical orientation called *phenomenology*, which focuses on people's experiences, attitudes and feelings from their perspective (Roberts, 2010:143; Ellis, 2013:24). Qualitative research is more holistic and emergent, with flexible guidelines which have their roots in various associated academic disciplines and philosophical school of thought (Ellis, 2013:26). Furthermore, the qualitative approach can

also be called naturalistic inquiry because the research is conducted in real-world settings (Roberts, 2010:143). The qualitative approach is inductive in its approach to problem solving; that is, the research moves from a specific idea to something more general (Ellis, 2013:29).

Ellis (2013:29) adds that the subjective nature of qualitative enquiry means that, it is hard to replicate since it is based on people's opinions and attitudes, beliefs and ideas. The findings of a qualitative study are inextricably linked to people that were studied, the time in which they were studied and the prevalent cultural and social norms (Ellis, 2013:29). The main advantage of qualitative research is the detailed and exact analyses of few cases in which participants have much more freedom to determine what is relevant for them in order to present it in a contextual manner; however, these analyses often require a lot of time (Ellis, 2013:14). Oliver (2010:21), as well as, Yin (2011:8) mention the following key features as proposed by:

- (a)The qualitative approach involves particular social occurrences, events, interactions and groups in order to understand the meaning. This study aimed at gaining an in-depth understanding about the utilisation of social media tools to facilitate knowledge sharing practices among knowledge workers at NM-AIST;
- (b)The qualitative approach investigates the views and perspectives of the participants in their natural environment. Therefore, in this study knowledge workers were asked to explain their views and experiences in utilising social media tools and their experiences towards knowledge sharing practices and challenges encountered during the utilisation of social media to share knowledge;
- (c)The data collected following the qualitative approach is mostly descriptive in nature and the researcher is considered as the main instrument for data collection. Therefore, in this research study, the researcher was the main data collector;
- (d)The qualitative approach covers contextual conditions that are the social, institutional and environmental conditions within which people's lives takes place. In this study, participants (knowledge workers) are working at an academic institution (NM-AIST); and
- (e)The qualitative approach strives to collect, integrate and present data from a variety of sources of evidence as part of any given study. In this study, data were collected from knowledge workers working from the library and ICT-RC. Data collection techniques implemented were interviews (semi-structured interviews) and document content

analysis; whereby research instruments employed were interview guides and document content analysis guide.

Therefore, the qualitative approach was used in this study in order to apply a more holistic and natural approach to the resolution of a problem. Qualitative approach tends to give more attention to the subjective aspects of human experience and behaviour towards the utilisation of social media to enhance knowledge sharing practices (Polit & Beck, 2003; Flick, 2006).

On the other hand, the qualitative approach bears some weaknesses. Ellis (2013:29) and Yin (2011:5) provide the following weaknesses of the qualitative approach:

- (a)The subjective nature of the qualitative enquiry which means that, it is hard to replicate, that is people's opinions, beliefs and attitudes in one setting are not necessarily the same in another because they are affected by culture and life experiences;
- (b)The findings of qualitative research are so subjective and so bound to the context in which the research is undertaken; that means that, findings are hard to be generalised; and.
- (c)The qualitative approach has been criticised for lacking scientific rigour and credibility, this is because the process involved is subject to the values and beliefs of the person undertaking the research.

3.4 Research design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine the relevance to the research purpose with economy in procedure (Kothari, 2004:31). Generally, research design in qualitative approach includes: planning a study; collecting data, data analysis and how to select empirical materials in order to be able to answer research questions in the available time and resources (Flick, 2006:68). According to Kombo and Tromp (2006:70) research design is the glue that holds all the elements in a research project together.

Research design is needed in order to facilitate the smooth sailing of various research operations; thereby making the research as efficient as possible by yielding maximal information with minimal expenditure of effort, time and cost (Kothari, 2004:32). Creswell (2013:112) and Borbasi, Jackson, and Langford (2004:133) mention five classes of research

design found when following a qualitative approach which includes: phenomenological, ethnography, grounded theory, historical method and case study designs.

This study employed a case study design. A case study is an in-depth examination of a certain phenomenon related to an individual or a small number of individuals (Borbasi, Jackson, & Langford, 2004:137; Leedy & Ormrod, 2005:108; Creswell, 2013:119). There are four types of case studies which are: a single case study (holistic), a single case study (embedded), multiple case (holistic) and multiple case (embedded) (Gray, 2009:256). This study has employed a single case study (embedded), whereby library and ICT-RC departments were embedded in a single case study.

The case study was suitable for this research because the focus was unique and sought to understand the particulars of the knowledge workers in utilising social media tools to enhance knowledge sharing practices. The limited time scale for the research made the case study approach more appropriate since it allowed for the investigation of a particular phenomenon to some depth in a short time as this study was conducted within a year (Merriam, 2009:8).

3.5 Study population

Study population encompasses the total number of possible units or elements that are included in the study and the procedures used to select them (Borbasi, Jackson, & Langford, 2004:108; Welman, Kruger, & Mitchell, 2005:52; Gray, 2009:148; Roberts, 2010:149). According to Neuman (2006) in defining a population, a researcher must specify unit being sampled, geographical location and the temporal boundaries of the population. This study included knowledge workers working at the library and ICT-RC. These two departments are highly involved with information and communication technology (ICT) activities such as integration and utilisation of social media tools, integration and monitoring of information systems, integrated library systems supervision, purchasing hardware and software and ensuring internet connectivity.

Toffler as cited in (Mládková, 2011:249) adds that typical knowledge workers are regarded as scientists, engineers or persons who operate sophisticated technology; therefore, a knowledge worker must be able to create and improve his or her technological knowledge and/or to manage technological knowledge of co-workers. Thus, the library was selected because it stores various types of materials (printed and online) which provide information and knowledge to the entire NM-AIST community. The library also employed several social

media tools to facilitate library activities including knowledge transfer and exchange. The ICT-RC was selected, because it deals with the integration and implementation of various social media tools within the institution, it ensures Internet connection within the institution, ensure information security and provision of enough bandwidth in order to facilitate information and communication technology services within the institution.

3.6 Sampling procedure

Sampling procedure is the process of selecting a sub-set of people or social phenomena to be studied, from the larger universe to which they belong (Kothari, 2004; Kombo & Tromp, 2006; Neuman, 2006). The primary goal of sampling when in a qualitative approach is to collect specific cases, events or actions that can clarify and deepen the understanding of a research problem (Neuman, 2006:219). Flick (2006:12) asserts that qualitative researchers select respondents purposely and integrate small numbers of cases according to their relevance. On the other hand, qualitative research often works with small samples of people, cases or phenomena nested in particular contexts (Gray, 2009:180).

There are two sampling techniques in doing research which are probability sampling and non-probability sampling techniques (Kombo & Tromp, 2006:81). The probability sampling technique is a sampling technique which provides equal chance for participants to be selected in a study and it is mostly applicable when following a quantitative approach (Kombo & Tromp, 2006:81; Saunders, Lewis, & Thornhill, 2009:594).

Non-probability sampling is a sampling technique which explains that; selection of participants depends on the chance or probability of each case being selected; and is mostly applicable when following a qualitative approach (Saunders, Lewis, & Thornhill, 2009:594). This study employed non-probability sampling technique. It was reported that, most qualitative studies tend to use non-probability (non-random) sampling technique (Welman, Kruger, & Mitchell, 2005:56; Teddlie & Tashakkori, 2009:170). There are three types of non-probability sampling techniques, which are quota sampling, convenience sampling and purposive sampling (Kombo & Tromp, 2006:81).

This study employed the purposive non-probability sampling technique because it wanted to get in-depth information from respondents. Many qualitative studies have a preference for purposive non-probability sampling because it involves selection of individuals or objects that yield the most information about the topic under investigation (Kothari, 2004:67; Leedy

& Ormrod:145, 2005; Cohen, Manion, & Morrison, 2007:115). Gray (2009:180) asserts that qualitative research usually works with purposive non-probability sampling because it seeks to obtain insights into particular practices that exist within a specific location, context and time. Patton as cited in (Pickard, 2007:64) adds that the logic of purposeful sampling lies in selecting cases which comprise of respondents which are information-rich; therefore, in this case, information-rich cases are those from which one can learn a great deal about issues of central importance to the purposes of the research. Thus, the sample of six library staff and six information technology personnel who considered being 'information-rich' were thus selected in the study. The total number of participants in this study was twelve.

3.7 Data collection methods

Data collection methods refer to a process of gathering various data which are useful in a particular study (Saunders, Lewis, & Thornhill, 2009:159). The objectives of data collection were to understand how knowledge workers utilise social media tools in order to facilitate knowledge sharing practices. There are various data collection methods used when following a qualitative approach such as interviews, focus group discussions, document content analysis methods and observation. This study employed interview and document content analysis methods.

3.1.1 Interview method

The interview method is a purposeful discussion between two or more people (Saunders, Lewis, & Thornhill, 2009:329). The use of the interview method can help a researcher to gather valid and reliable data that are relevant to the research (Saunders, Lewis, & Thornhill, 2009:318). There are three main types of interview methods, namely: structured interviews, semi-structured interviews and unstructured or in-depth interviews (Kombo & Tromp, 2006:92; Saunders, Lewis, & Thornhill, 2009:320). This study employed semi-structured interviews. Semi-structured interviews are non-standardised, and are often used in qualitative analysis (Gray, 2009:373; Ellis, 2013:52); and probably in case studies design (Yin, 2009:106).

McMurray as cited in (Ellis, 2013:42) adds that semi-structured interviews are very critical in case study design in order to gain insights. In semi-structured interviews, the order of questions may change depending on what direction the interview takes; and also additional questions may be asked, including some which were not anticipated at the start of the interview as issues arise (Gray, 2009:373; Ellis, 2013:52). The semi-structured interviews

also allow probing of views and opinions where it is desirable for respondents to expand on their answers (Gray, 2009:373). On the other hand, the semi-structured interview involves face to face conversations between the researcher and respondents whereby all the conversations are documented by note-taking or recorded by audio recording (Kothari, 2004:97; Gray, 2009:373; Yin, 2009:106). In this study, the interviews conversations were audio recorded.

Advantages for semi-structured interviews

Semi-structured interviews are the most widely used interview method because they have the dual advantage of having some structure while allowing for more in-depth probing of the answers a respondent gives (Cohen, Manion, & Morrison, 2007:182; Ellis, 2013:52). Therefore; the advantages for using semi-structure interviews in this study are as explained below:

- (a)Semi-structured interviews are useful to obtain information in general or about a specific topic, to analyse problems and opportunities and/or to discuss plans as well as to elicit perceptions (De Zeeuw & Wilbers, 2004:8).
- (b)Interviews are always face to face, so as to allow the interviewer to both respond to and to collect data about the participant's body language during the conversation process (Ellis, 2013:50).
- (c)Semi-structured interviews are flexible, and thus they are likely to yield information that the researcher had not planned to ask for (Marshall & Rossman, 1999:108; Bryman, 2004:321; Leedy & Ormrod, 2005:137). The researcher will have a list of themes and questions to be covered, although these may vary from interview to interview. This means that, the researcher can omit some of the questions in particular interviews, hence given a specific organisational context that is encountered in relation to the research topic (Saunders, Lewis, & Thornhill, 2009:318). Furthers, additional questions may be required to explore the research questions given the context or nature of the events within a particular organisation. For example, when a question has already been answered in a previous interview; it might not be asked again unless, if the researcher was not satisfied with the previous answers. On the other hand, the participant may pose emerging questions not listed in the interview guide to explore answers for clarification or to elicit more detail with respect to an answer but such questions will be guided by and be strictly limited to the scope of the research questions (Saunders, Lewis, & Thornhill, 2009:318);

in this case, the order in which the topics are discussed may also be varied depending on the way in which the interview develops.

Disadvantages of using semi-structured interviews

- (a) They can be time consuming due to open-ended questions;
- (b) Data analysis might be problematic;
- (c) The researcher gets different information from different people during interview sessions and may not be able to make comparisons among interviewees. Thus, the results might be generalised (Leedy & Ormrod, 2005:137);
- (d) Interviews can be prone to a form of bias where the person being interviewed answers questions in a way that he/she thinks the interviewee wants them answered. This is also referred to as the Hawthorne effect (Ellis, 2013:51) and
- (e) The participant may be cautious to the answers given in closed-ended questions.

3.1.2 Document content analysis method

Document content analysis is a data collection method which uses a set of procedures in order to make valid inferences from the text (Weber, 1990:9). According to Krippendorp (2004:18), content analysis is defined as, “A research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use”. According to Cohen, Manion, and Morrison, (2007:475), content analysis is defined as “The process of summarising and reporting written data about the main contents of data and their messages.”

Advantages of document content analysis guide

Nsubuga and Katamba (2013:113) provide the following advantages of document content analysis as follows:

- (a) It can be used at any time of convenience to the researcher because documents are considered as an unobtrusive source of information;
- (b) It is useful for collecting data from employees;
- (c) It allows the researcher to compare data from one organisation to another; and
- (d) The information collected via this method is written evidence and thus saves the time of the researcher in transcribing.

Disadvantages of the document content analysis method

Kothari (2004:96), as well as, Nsubuga and Katamba (2013:114) provide the following disadvantages of document content analysis method as follows:

- (a)The researcher finds difficult to establish the information provided;
- (b)It is time consuming and expensive especially during searching specific document to the research;
- (c)Some of the provided information are very confidential and thus; can not be provided for public use;
- (d)Confidentiality is required as content may be critical; and
- (e)The documents may not be authentic, may be incomplete and inaccurate which may not fully represent the phenomenon under study.

3.1.3 Research instruments

Research instruments are tools or mechanisms which a researcher prepared in order to guide him/her in collecting data based on the data collection methods he/she selected (Yin, 2009:9). Thus, the study employed the following research instruments which focused on the data collection methods mentioned above:-

3.1.3.1 Interview guide

An interview guide is used for semi-structured interviews. According to Yin (2009:9) a researcher need to prepare an interview guide in order to ensure that in-depth data will be collected from the interviewees free from bias. An interview guide used in semi-structured interviews contain themes and/or probing questions, which are based on the conceptual framework and research questions as applied in the study; however, the interviewer can pursue certain themes or questions in greater depth and also address any new areas as they emerge during the interview (Yin, 2009:106).

This study contained open-ended questions framed in a way that allows solicitation of both facts and opinions from respondents and can be changed to allow collection of data required and to obtain detailed information which are relevant to the study. On the other hand, the interview was recorded and stored safely and then will be destroyed after fifteen years.

3.1.3.2 Document content analysis guide

A document content analysis guide was used in order to obtain information relevant to the study and also to keep the researcher focused on the area of study. Therefore, this study analysed the following NM-AIST documents: NM-AIST Strategic Plan 2013-2018; Information and Communication Technology Resource Centre (ICT-RC) Policy 2013; Library report 2013 and NM-AIST staff manual 2013.

3.8 Data analysis

Data analysis is the process of discovering the patterns among data that point to theoretical understandings within a social context (Babbie & Mouton, 2001; Leedy, & Ormrod, 2005; Saunders, Lewis, & Thornhill, 2009). Creswell (2007:150) and Leedy and Ormrod (2005:138) add that data collection and data analysis in qualitative research are interrelated and often go on simultaneously in a research project. Generally, qualitative data analysis involves preparing and organising data for analysis, then reducing the data into themes through a process of coding, condensing the codes and finally representing the data in figures, tables or discussion (Creswell, 2007:148).

In this study, qualitative data was analysed by using emerging themes (thematic analysis). Thematic analysis is mostly applicable in qualitative studies and especially in case studies (Kombo & Tromp, 2006:89). Therefore, in this study, data was organised and presented according to the research sub-questions outlining the themes. This is a useful way of organising data as it draws together all the relevant data for the exact issue of concern to the researcher and then preserves the coherence of the material (Cohen, Manion, & Morrison, 2007:468).

In this approach, all the relevant data from applied instruments in this study (an interview guide and document content analysis guide) was collated to provide a collective answer to research question. Qualitative analysis involves the process of categorising themes contained in data, followed by linking themes and ideas and also exploring new ideas (Pickard, 2007:280). The presentation of qualitative data in this study involved the discussions of themes and categories.

3.9 Validity and reliability

Validity and reliability are of primary concern for data quality control measures in research (Ndunguru, 2007:89). Validity and reliability help to establish the truthfulness, credibility and

believability of findings (Neuman, 2006:218; Gray, 2009:188). However, validity and reliability can never be erased completely; rather the effects of these threats can be reduced by attention to validity and reliability throughout the research (Cohen, Manion, & Morrison, 2007:133). This section explains how threats to validity and reliability were minimised in this study.

Reliability in qualitative studies can be attained through a range of data sources and use of multiple measurement methods (Neuman, 2006:196). Reliability can be addressed in two ways: the use of standardised methods to write field notes and prepare transcripts; and comparing the analysis of the same data, by several researchers in the case of interviews and textual studies (Silverman, 2006:45).

On the other side, validity is the extent to which the research findings accurately represent what is really happening in the situation (Leedy & Ormrod, 2005:92; Welman, Kruger, & Mitchell, 2005:142). Validity tests how well an instrument that is developed measures the particular concept which is intended to measure (Leedy & Ormrod, 2005:28; Gray, 2009:219). On the other hand, validity means truthfulness (Neuman, 2006:196; Silverman, 2006:47).

According to Pickard (2007:139), trustworthiness is very important in qualitative research because it gives a researcher the investigation credibility in terms of problem solving and solution testing. In order to prove trustworthiness, a researcher needs to be familiar with the environment in which the study will be conducted. Thus, in this study, a researcher is working in the same institution where the data was collected.

Lincoln and Guba as cited in (Marshall & Rossman, 2011:40) state that trustworthiness in qualitative research can be achieved through prolonged engagement, persistent observation, sharing data and interpretations with participants (member checks), peer debriefing and using multiple theoretical lenses. Therefore, in this study, the researcher employed semi-structured interview and document content analysis in order to study the problem in depth and also to share data and interpretations with participants.

Furthermore, there are four types of validity in qualitative research (Pickard, 2007:139). According to Herr and Anderson (Pickard, 2007:139), validity and trustworthiness of data can be divided into four sections which are:

(a) Democratic validity

Democratic validity involves the establishment of collaboration between researcher and participants. This study ensured the involvement and collaboration between the researcher and the knowledge workers at NM-AIST before, during and after data collection.

(b) Outcome validity

Outcome validity is used to ensure that the outcome of the study answers and solves the main research question and sub-questions as addressed in the study. This study ensured that the main research question and sub-questions were asked and addressed the problem properly.

(c) Process validity

Process validity is used to ensure the degree to which the process relates to the outcome; therefore, this study ensured that, all the collected data were used as the basis upon which recommendations were made for the utilisation of social media tools to enhance knowledge sharing among knowledge workers at NM-AIST and in other academic institutions in Tanzania.

(d) Catalytic validity

This is the extent to which the study has an impact on the researcher and participants in terms of understanding the situation and changing it. Both research question and sub-questions focused on the challenges in utilising social media tools to enhance knowledge sharing among knowledge workers and how to overcome those challenges in the near future.

In addition to the above, research instruments were pre-tested in order to ensure the reliability and validity of data to be collected. The main purpose of the pre-testing is to increase the reliability, validity and practicability of the instrument (Ngulube, 2005; Cohen, Manion, & Morrison, 2007; Powell & Connaway, 2007).

Pre-testing gives the researcher an opportunity to identify questionnaire or interview items that tend to be misunderstood by the participants, which may inhibit one in obtaining the

needed information (Powell, 1985:103; Sekaran, 2003:249). Pre-testing involves the use of a smaller number of participants to examine the appropriateness of the questions and their comprehension (Sekaran, 2003:249).

Essentially, it is not necessary that the pre-test subjects comprise a representative sample, although the instrument used should at least be relevant to the respondents (Babbie & Mouton, 2001:244). Ideally, the use of a convenience sample to pre-test a questionnaire is the most utilised approach because of the members' proximity and willingness to participate (Powell, 1985:101). The interview guide was pre-tested at the Kilimanjaro Christian Medical University College (KCMUC) in Moshi, United Republic of Tanzania. The pre-testing of the instruments was conducted in May 2014 whereby two information and communication technologies (ICT) staff and two library staff were interviewed. All the participants were conveniently sampled.

3.10 Ethical issues

Ethics refer to a code of conduct or expected societal norm of behaviour when conducting research (Sekaran, 2003:17). Ethics define what is or is not legitimate to do, or what "moral" research procedure involves (Neuman, 2006:129). Ethical issues are of importance to all kinds of social and behavioural research and of particular importance when human subjects are involved (Merriam, 2009:233).

Ethics pervaded in each stage of the research process which include data collection, data analysis, reporting and dissemination of research results (Creswell, 2003:63; Sekaran, 2003:18; Ndunguru, 2007:59). According to Creswell (2003:63), ethical issues arise when specifying the research problem, purpose of the research statement and research questions, and collecting, analysing and writing up the results of data.

This study adhered to the University of Pretoria ethics policy (UP, 2009). The relevant ethical clearance form was completed and submitted. The research complied with the University's code of conduct throughout the study. The researcher ensured that relevant research permits were obtained before the commencement of data collection. Furthermore, all sources used in the study were acknowledged in order to avoid plagiarism.

The information provided about the study, gave participants adequate information to make an informed choice about whether to participate in the study or not. Participants who agreed to participate in this study were required to sign a statement which indicates their willingness to

participate in the study through the process known as informed consent. In other words, an informed consent form was used to facilitate voluntary participation in this study.

The researcher was also ensured confidentiality and privacy whereby each participant were informed what happens to data collected from them and being ensured that all data were held in confidence. Recorded data were protected by using passwords and stored in a variety of electronic devices (external hard drive, flash disk, and computer) in order to provide backups for the collected data.

3.11 Conclusion

Chapter three provided the research methodology of the study. The chapter discussed various issues including the research design, study population, sampling procedure, data collection procedure and instruments, data analysis, validity, reliability and research ethics. Validity and reliability were including because they are important in ensuring the credibility and trustworthiness of the research findings. It was also important for the research to adhere to and address research ethical guidelines. The data that was collected in the study addressed the research question and sub-questions.

CHAPTER FOUR: PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents and discusses the key finding of the study. The findings of the study were obtained by use of qualitative research approach with research methods deemed appropriate for qualitative studies. The data collection methods employed in the study were face to face interviews and document content analysis. The interviews were conducted and presented according to research sub-questions under different themes. Similar findings from both library and ICT-RC respondents were discussed together while different findings were discussed separately under library respondents and ICT-RC respondents respectively. Most of the data were presented qualitatively; however demographic information obtained in this study was presented into quantitative counts by determining the percentages of respondents. Moreover, italics were used to represent the direct quotes from both library and ICT-RC respondents.

4.2 Description of the respondents

This section provides an understanding of the characteristics of the respondents. The study interviewed twelve respondents from both the library and ICT-RC. Of the twelve respondents, six were library staff and six were ICT-RC staff at the NM-AIST. However, this section comprised two sections which are the response rate of the respondents and the characteristics of respondents as explained below:

4.2.1 Response rate of respondents

Response rate refers to the percentage of all the respondents who are successfully take part in the study as expected by the study (Stangor, 2011:109). Thus, this study expected to interview twelve respondents from both the library and ICT-RC. All respondents were employees of NM-AIST in 2014 and each had an institution e-mail address. They all had computer and internet access at the time of this study. On examining responses, 12 (100%) respondents participated fully in this study. This was due to the time used by a researcher to conduct a study that is from 08:00 am to 05:00 pm on working days. The researcher also sent an interview guide two days before the interview date.

4.2.2 Characteristics of respondents

The study presents demographic information of respondents in order to better understand respondents involved in this study. The main purpose of this study was to establish the position of respondents in providing valid data for the study as well as to attain important information for the follow up so as to clarify on certain issues after the interviews. This study comprised two categories of knowledge workers; that is, the library staff and ICT-RC staff at NM-AIST. The categories of staff were further discussed based on the current position on their respective section, years of NM-AIST service and section of operation in the respective section.

4.2.3 Current position

Respondents from both the library and the ICT-RC were required to specify their current position. The main reason for asking both library and ICT-RC staff about their position at the NM-AIST was to establish whether the respondents were in the right position to understand about the utilisation of social media tools to enhance knowledge sharing practices at the NM-AIST. Among the six interviewed library staff, four of the library staff were in the position of library assistants; while two of the librarians were in the position of librarian. NM-AIST ranked library staff according to their level of education which means that; library staffs with bachelor's degree are in the position a librarian while library staffs with diploma in library services are in the position of library assistant.

Moreover, library staff with master's degree is in the position of senior librarian II (NM-AIST, 2013:9). On the other side, the current position for ICT-RC staff states that, one of the staff was identified as the head of the ICT-RC; three ICT-RC staffs were identified as the IT specialist and three ICT-RC staff were identified as networking specialist. This means that the ICT-RC staffs provide IT support services under the leadership of the head of the ICT-RC who coordinates and supervises all the activities performed by the ICT-RC. The qualification for the ICT-RC staff at the NM-AIST is not well identified at the NM-AIST staff manual even on NM-AIST IRC policy.

4.2.3.1 Years of services

Years of services varied among respondents from both the library and ICT-RC. Thus, their years of NM-AIST for library staff are as illustrated in the Table 1 below:

Table 1: Years of services for library staff

Year(s) of services	Number	Percentages (%)
3	4	66
2	1	17
1	1	17
Total	6	100

On the other hand, years of NM-AIST service for ICT-RC staff are as illustrated in Table 2.

Table 2: Years of service for ICT-RC staff

Year(s) of services	Number	Percentages (%)
3	1	17
2	2	33
1	3	50
Total	6	100

The study revealed that, library staffs four (33%) is more experienced in the number of years of services compared to IRC staffs one (8%).

4.2.3.2 Section of operation

Respondents required to mention their sections of operation within their departments at the NM-AIST in order for researcher to establish whether their work relates to the utilisation of social media tools to enhance knowledge sharing at NM-AIST. Therefore, section of operation for library staff illustrated in Table 3.

Table 3: Section of operation for library staff

Section	Number	Percentages (%)
Electronic resources and databases	2	33
General circulation	2	33
Technical section	1	17
Reference section	1	17
Total	6	100

Section of operation for ICT-RC staff is as illustrated in Table 4.

Table 4: Section of operation for ICT-RC staff

Section	Number	Percentages (%)
Management and information systems	1	17
Data security	2	33
Networking	3	50
Total	6	100

4.3 Findings from the interview

The findings are presented and discussed in accordance to the research sub-questions as identified in *Chapter One under section 1.4 research question and sub-questions* as follows:

4.1.1 Knowledge sharing practices at the Nelson Mandela African Institution of Science and Technology

Q 1: What knowledge is shared at the NM-AIST?

Library respondents reported to share knowledge for teaching and learning activities. This was well expressed by some of library respondents as reflected in their responses below:

“Actually, knowledge is shared for teaching and learning activities because this is higher learning institutions and most of workers are involved in teaching and learning activities” (Library respondent 1).

ICT-RC respondents reported to share knowledge for research and innovation. This was also evidenced by responses from ICT-RC respondents as reflected in their responses below:

“We are sharing knowledge purposely for research and innovation, most of workers here are doing research in order to develop their careers; in other end, most of universities are focusing on innovation especially in this age of science and technology” (ICT-RC respondent 2)

And

“This university employed technology to foster most of its activities, therefore the ICT-RC department needs to share knowledge for research and innovation in order to be able to gain more skills” (ICT-RC respondent 5).

Q 2: When do you share knowledge?

Similar findings were reported from both the library and ICT-RC respondents that, knowledge is shared when need arises. This was evidenced by responses from library and ICT-RC respondents which reported that:

“We are sharing knowledge when need arises: however, I am sure such knowledge which we are sharing is not has [sic] any benefit for the NM-AIST but for our own benefit” (Library respondent 2).

And

“Most of the knowledge workers are busy doing their developmental work; therefore we don’t have specific time for sharing knowledge” (Library respondent 4).

“We are usually share knowledge when a problem happens and we need a solution to solve it” (ICT-RC respondent 2)

And

“We are very busy in this department and sharing knowledge is a dream!, We only sit and share our experiences when something critical come up” (ICT-RC respondent 5).

Q: 3. What mechanisms are you using to facilitate knowledge sharing at NM-AIST?

Library respondents reported to share knowledge through face to face. However two of them reported to share knowledge during presentation. This was also evidenced by responses from the library respondent as follows:

“We are always share knowledge through face to face; this is because most of time our Internet is down or off, so we cannot use technological tools to share knowledge. I also think that, sharing knowledge through face to face is the very cheap as compared to the other means of knowledge sharing, besides no skills are needed” (Library respondent 1).

ICT-RC respondents reported to share knowledge by using institutional Google mail and Google drive.

Q. 4 Which plans does the library/ ICT-RC have to improve knowledge sharing practices among knowledge workers at NM-AIST?

Library respondents reported the following plans:

(a) Collection development of library materials

The library plans to increase the number of reading materials both printed and electronic in order for users to use such materials to create new knowledge hence knowledge sharing practices. One respondent reported that:

“We are planning to increase the number of reading materials both printed and electronic in order to make our users getting the right information at the right time and at the requested format” (Library respondent 4).

(b) Training of library users

The library plans to conduct training among library users at least twice per year in order for library user to be able to use the library effectively.

(c) Opening and closing hours

The library plans to increase the number of working hours in order to give more time for library users to use the library effectively.

ICT-RC respondents reported that, the ICT-RC has no any plan in order to facilitate effective knowledge sharing practices at NM-AIST. This is well expressed as by some respondents as reflected in their responses below:

“As ICT-RC department, we do not have any plan in order to facilitate knowledge sharing practices among knowledge workers at the NM-AIST” (ICT-RC respondent 6).

Q 5: What is the ICT-RC/library’s role in facilitating knowledge sharing practices at NM-AIST?

Library respondents reported to on conduct user training twice per year in order to provide users with a variety of library services and resources. This was also evidenced by responses from library respondent as reflected in their responses below:

“We are also using KOHA library system to facilitate the access, retrieve and use of library reading materials” (Library respondent 6).

ICT-RC respondents reported that, the ICT-RC ensures internet connection is available especially in the library department in order to ensure accessibility and usability of learning materials for users.

Q. 6. Why do you think knowledge sharing is important?

Similar findings were reported by both the library and ICT-RC on why knowledge sharing is important.

(a)Effective communication

Both library and ICT-RC respondents reported that, knowledge sharing is very important for effective communication because can help knowledge workers to participate in discussions in order to present and exchange views, experiences and information.

(b)Timely decision making

Both respondents reported that, knowledge sharing helps to enhance timely decision making within the institution because employees can get chance to present their views, opinions and skills and therefore to come to agreed conclusion; and

(c)Organisational goals

Both respondents reported that, knowledge workers need to share their knowledge in order for an organisation to achieve its intended goals.

Q. 7: Which initiatives do you think can be employed in order to facilitate knowledge sharing at NM-AIST?

Similar findings were reported from both library and ICT-RC respondents on initiatives which they think could be employed to facilitate knowledge sharing as follows:

(a)Motivation

Both respondents reported that, motivation is very important to enhance knowledge sharing at NM-AIST. Respondents mentioned motivations such as rewards, training and promotion must be employed. Two respondents reported that:

“I suggest that, motivations such as training, promotion and rewards are very important to encourage workers to share their knowledge” (Library respondent 4).

And

“The institution needs to provide various supports such as training, recognition and promotion in order to encourage its knowledge workers to share knowledge” (Library respondent 1).

(a) Institutional support

Both respondents reported that, organisational support such as to provide resources and conducive environment could encourage employees to share knowledge. Both respondents also reported that, human resource department which deals with employees’ affair must be the one to implement policies and strategies on how the institution can support and foster knowledge sharing within the institution. In addition, respondents reported lack of dedicated time from the institution which employees could use to share knowledge for the development of the institution. Two respondents reported that:

“The issue here is not the institution but human resource department which is not playing its duties properly, human resource personnel are always discouraging people for their rights. I think our human resource department here, must be the first to implement this strategy seriously” (Library respondent 3).

And

“The institution needs to set specific time at least twice per week for knowledge workers to meet and share knowledge for the development of this institution” (Library respondent 3).

(b) Organisational/Institutional structure

Both respondents reported about organisational structure they want the institution to have a structure which shows knowledge sharing practices. One respondent reported that:

“Organisational structure must implement knowledge sharing practices in order to let the NM-AIST community aware with knowledge sharing practices” (ICT-RC respondent 3).

4.1.2 Social media tools utilisation among knowledge workers at the NM-AIST

Q.1. Do you use social media tools in your daily work activities? If yes, please mention the social media which you are using and for what purposes. If no, please explain why not.

Most of library and ICT-RC respondents agreed to use social media tools in their daily work activities: however one respondent from the library reported not to use any social media tool in his daily activities. Moreover, both library and ICT-RC respondents mentioned social media tools which they are using in their daily work activities which are: Facebook, LinkedIn, Wikis, Tagging, Blogs and Twitter. The findings from both departments showed similar explanations about the reasons for using social media tools in their daily work activities as follows:

(a) Social networking tools

Both library and ICT-RC respondents reported to use Facebook to chat with friends and colleagues; however they reported that, they can also use Facebook to read various posts from other universities. For instance two respondents reported that:

“ I am using the library Facebook to provide services, marketing, promote, branding and communicate with library users and also to create groups within the library Facebook based on users’ specialities within the university which encourage library users not only to join the main library Facebook but also to join their specific groups in order to foster sharing, collaborating and communicating information based on their specialities and to familiarise with other members taking the same subjects/specialities. I believe that, groups might convey library users’ feelings about a particular topic” (Library respondent 1).

And

“I use Facebook to enable library users to search the library’s catalogue since the catalogue is a place which is mostly visited with many library users especially lectures, researchers and last year students in order to find out what is new in the library collection. This is also because the library catalogue is updated daily to reflect new materials or resources added recently and which are most useful in various studies and researches development” (Library respondent 3).

(b) Wikis

Both library and ICT-RC respondents admitted to use Wikis to read and edit various works/posts posted by students and other co-workers. Both respondents reported to deal with posts which relate to work; however one respondent reported to deal with posts which coming from his friends. This respondent reported that:

“I use Wikis to edit most of the posts which are posted with my friends. Example; yesterday I was editing the invitation card which was posted by my friend who wants to invite people to the mass” (Library respondent 2).

(c) Professional networks

Both library and ICT-RC reported to use professional networks such as LinkedIn and academia.edu in order to be connected to other people within and outside the institution not only to share professional information and knowledge; but also to share experiences, ideas and views.

(d) Blogs

Both library and ICT-RC respondents reported to use blogs to provide useful information to the university. For instance one respondent said that:

“I use blog to provide information to library users and act as a library promoter and advertiser to enhance library users to use blog as a means of online communication” (Library respondent 6).

(e) Tagging

Both library and ICT-RC respondents reported that, tagging is among the useful social media tools which can be integrated at the NM-AIST in order to tag various library materials. For instance one respondent said that:

“I use tagging to tag the library's collection stored in the library and thereby to participate in the cataloguing process and therefore to enable users to follow both standardized and user-tagged subjects” (Library respondent 3).

Q. 2. What types of social media tools do you think need to be integrated at NM-AIST and why?

Similar findings were reported by both the library and ICT-RC respondents about social media tools which they think could be integrated at the NM-AIST and why they need to be integrated as follows:

(a) Social networking tools

Both respondents reported social networking sites such as Facebook and MySpace are very useful social media tools which can be integrated at the NM-AIST to in order to facilitate online communication among the NM-AIST community. Two respondents reported that:

“Facebook can be employed to put information about the community since the motto of the NM-AIST is academia for industries and societies, hence it is better to read about communities surrounding the NM-AIST and for the communities to know what we are doing so far” (ICT-RC respondent 1).

And

“I think if the NM-AIST can employ Facebook, it might be easy to use among employees because I think most of people are using Facebook for communication and chatting” (ICT-RC respondent 4).

(b) Professional networks

Both library and ICT-RC respondents reported that, professional networks such as LinkedIn are very important to be integrated at the NM-AIST because they provide link people within and outside the institution and can enhance online collaboration, exchange and share professional information and knowledge among people. For instance, one respondent said that:

“I think LinkedIn is very important to be integrated within academic institutions like NM-AIST because it provides a chance which people can meet and discuss academic issues” (Library respondent 1).

(c) Wikis

Respondents from the library and ICT-RC respondents reported that, Wikis are also among important social media tools which need to be integrated at the NM-AIST. Wikis can enhance communication and sharing of information and people can be able to edit, comment and add updates to various posts/works posted. For instance, one respondent said that:

“I think, the institution needs to create wikis because every member will be given a chance to add, edit and comment various works which will be posted by employees for the development of the institution” (Library respondent 3).

And

“The institution can create a social interaction via Wikis where by knowledge workers at the NM-AIST can share information by asking questions and answering questions in various subject specialities” (ICT-RC respondent 2).

(d) Social Tagging

Both library and ICT-RC respondents reported that, social book marking tools such as Tagging can help the NM-AIST to tag various articles in order to be shared among members.

(e) Blogs:

Both library and ICT-RC respondents mentioned Blogs because people can use the established Blogs to post and to read other posts respectively. For example, one respondent said that:

“I prefer blog because the NM-AIST community will get a chance to view different posts posted among employees” (Library respondent 3).

And

“Blogs can also be used in the multimedia room which is available in the library in order to enhance online sharing and collaborating videos, images and photos which contain academic information. Blogs can also be used to contact with various information consumers worldwide which make to become co-producers themselves” (Library respondent 6).

Q.3: How do you assist the integration and utilisation of social media tools at the NM-AIST?

This question was only asked for ICT-RC respondents. The ICT-RC respondents reported that, the ICT-RC can assist the utilisation of social media tools at the NM-AIST through training and providing support on how to install, to register and to use various social media tools.

The ICT-RC also reported to ensure the NM-AIST community acquire the required skills on how to utilise social media tools in order not only to share knowledge but also foster their daily work activities. The ICT-RC reported to collaborate with the management in order to ensure all resources and facilities are available for the proper utilisation of social media tools; example to make sure that enough Internet facilities, computers and printers are purchased, installed and maintained properly.

Q. 4. What is the library's and the ICT-RC'S roles in facilitating the utilisation of social media tools at NM-AIST?

Library respondents reported the following library's roles in facilitating the utilisation of social media tools at NM-AIST:

(a) Training

The library respondent reported to train users on how to join, register and use social media tools especially for those which provide direct links to the library. Example; the library can help its users on how to tag various articles. For instance, one respondent said that:

“I train users on how to display map of their current location on their profile so that they can be easily reached. I also encourage library users to post pictures and send virtual gifts to their fellows and librarians for what they are doing to make them happy and to build trust and good relationship” (Library respondent 3).

(b) Facilitation

Library respondents reported to facilitate various activities facilitated by social media in order to help users to use and apply social media more effectively. For instance two respondents said that:

“I facilitate library users to use the Facebook to talk to their friends, play games and share information about them and their particular interests such maps of various places within the town, and I also facilitate scholarly communication conducted by using the library through the Facebook” (Library respondent 5).

And

“I facilitate and promote teaching and learning activities conducted within the institution; and I also created a repository of shared valuable knowledge for the benefit of the library and the university. Library users share information and ask questions, answer questions, and as a librarian I do the same within Wikis, a record of these transactions is archived perhaps for perpetuity. And these transcripts are in turn resources for the library to provide as reference” (Library respondent 1).

(c)Recommendation

The library respondents reported to recommend useful social media tools which can help both library users and librarian to conduct their work. For instance one respondent reported that:

“I can recommend that, our users to use Tagging in order to be able to customise and to share various articles and reviews with other users, to add recommendations, annotations, and to provide list of library resources which are more useful according to their specialities. Tagging can also be used to enhance the production and publication and acquisition of library resources which are current and relevant to library users” (Library respondent 3).

(d)Installation and registration

Library respondents reported to assist and sometimes to do the installation and registration of various social media tools which are currently employed to the library. For instance one respondent reported that:

“The library helps users to tag pages for their important information, to communicate with its users about library news such as new arrival and to market and promote library services” (Library respondent 6).

ICT-RC respondents reported that the ICT-RC can facilitate the utilisation of social media tools at NM-AIST by ensure that, the institution secure enough bandwidth for internet connection and to make sure that, all IT equipment which stored within knowledge workers' offices are working properly. This is well expressed as by some respondents as reflected in their responses below:

“The main role of the ICT-RC to facilitate the utilisation of social media tool is to make sure that internet is available all the time and ICT facilities are there and they are working properly” (ICT-RC respondent 4).

And

“The ICT-RC’s role is to monitor the usage of social media tools; this is because most of the knowledge workers are utilising social media tools for their own benefits; such as downloading movies and chatting with their friends; instead of using them for academic purposes such as sharing of information” (ICT respondent 5).

Q. 5. What are the enablers to participation in using social media in the library/ICT-RC?

Similar findings were reported by both the library and ICT-RC on the main enabler to the participation of using social media tools is skills. They also reported that, some of the social media tools need technical and communication skills on how to install, to register and to use them.

4.1.3 Utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST

Q. 1: Which social media tools have been deployed for knowledge sharing practices by the library/ICT-RC?

Both library and ICT-RC respondents reported that, there is no social media tool which is current available or employed either to the library or to the ICT-RC to enhance knowledge sharing practices. Furthermore, both library and ICT-RC respondents agreed that social media tools are useful to enhance knowledge sharing practices at the NM-AIST.

Q. 2: How is social media tools being utilised for knowledge sharing?

Both library and ICT-RC respondents agreed that social media tools can be utilised to enhance knowledge sharing practices at the NM-AIST. Respondents supported their arguments as follow:

“Social media tools such as YouTube is very important to enhance knowledge sharing because people can be able to watch how other people share knowledge and how other people are participating in knowledge sharing practices; and therefore be motivated to utilise YouTube for sharing knowledge among others” (ICT-RC respondent 3).

And

“Through social media utilisation; professionals can create individual profiles in order to facilitate knowledge sharing; this can help such an individual to know who knows what; and therefore to hold such information in order for other users to update their understanding on such information” (Library respondent 1).

And

“Social media tools such as Facebook and Twitter can facilitate knowledge sharing practices within academic community by connecting people within their departments and at the institution, enhance individual to search related knowledge for the department or for the institution and provide links which assist individual to retrieve, access and use information” (Library respondent 5).

Q.3: To what extent does the ICT-RC support the integration and utilisation of social media tools to enhance knowledge sharing?

Only ICT-RC respondents were required to answer this question. Therefore, ICT-RC respondents reported various supports which the department provides so far in order to help the utilisation of social media tools at the NM-AIST which include: to install and to support the utilisation social media tools, to support online communication via various social media tools, to exchange ideas, experiences and information with other departments concerning the

use of various social media tools and to solve individual problems concerning social media tools utilisation at the NM-AIST, to help and assist co-workers to create departmental and individual accounts to various social media tools such as Facebook and LinkedIn and to train them on how to use such social media tools. Lastly is to ensure internet connection throughout the time.

Q.4: Which skills do you think knowledge workers may need in order to utilise social media to enhance knowledge sharing?

Library respondents mentioned the combination of technological skills and communication skills are very important for an individual to utilise social media tools to enhance knowledge sharing practices; however one library respondent reported no skills which he thinks someone need to have in order to be able to utilise social media tools for knowledge sharing practices. The response of such a library respondent is as presented below:

“I don’t think if people needs skills in order to utilising social media tools because the more you use social media tools, the more skills you get” (Library respondent 4).

ICT-RC respondents mentioned the combination of technological skills and communication skills are very important for someone to utilise social media tools; however one respondent mentioned leadership skills. For instance one respondent reported that:

“I think the combination of technological skills and communication skills are very important for utilising social media tools in order to enhance knowledge sharing practices because an individual need to be able to create, install, implement and sometimes joining a group in social media tools need some technological skills; on the other side, utilising social media tools especially within academic environment need someone to have communication skills, so that he/she can be able to communicate, participate and share knowledge effectively” (ICT-RC respondent 2).

Q. 5. Do you think social media tools can be utilised to enhance knowledge sharing practices at the NM-IST? If yes, please explain. If no, please explain why not.

Both library and ICT-RC respondents agreed that social media tools can be used to enhance knowledge sharing practices at the NM-AIST. Respondents reported the following:

(a)Online communication

Both library and ICT-RC respondents reported that, social media tools can foster online communication among knowledge workers whereby each one can easily share, contribute and add information.

(b)Knowledge flow

Both library and ICT-RC respondents reported that, the utilisation of social media tools can facilitate knowledge sharing practices by allowing knowledge to flow online and reach many people who can easily share, comments and suggest in various issues.

(c)Social network

Both library and ICT-RC respondents reported that, utilisation of social media tools to enhance knowledge sharing practices can create social connection/network among people within a group, so that such group can easily communicate and share knowledge.

(d)Up to date information

Both library and ICT-RC respondents reported that, people always post up to date information about a certain issue with social media such as Blogs, so that people can be attracted and start to contribute and share to the post and this leads to the creation of new knowledge and hence knowledge sharing practices.

4.1.4 Challenges which prohibit knowledge workers in utilizing social media tools to enhance knowledge sharing practices at the NM-AIST

Q.1: What do you think are challenges of utilising social media to enhance knowledge sharing practices at the NM-IST?

Similar findings were reported by both the library and ICT-RC respondents on the challenges which prohibit the utilisation of social media tools to enhance knowledge sharing practices at NM-AIST. Below are challenges which discussed under three major groups which are institutional challenges, individual challenges and technological/technical challenges:

4.1.4.1 Institutional challenges

Both library and ICT-RC respondents provided information about the institutional challenges on the utilisation of social media tools to enhance knowledge sharing practices at the NM-AIST as follows:

(a) Inadequate resources and infrastructure

Both library and ICT-RC respondents reported inadequate resources and infrastructure to support the utilisation of social media to enhance knowledge sharing practices. They reported that, however most of knowledge workers provided with desktop computers which connected to the internet but not all of the computers are functioning properly and internet connection is always unavailable.

(b) Lack of motivation

Both library and ICT-RC respondents reported lack of motivation to make employees to utilise social media tools to share knowledge. Respondents reported that, the institution is not encouraging and supporting its workers to utilise social media tools to share knowledge. For instance, two respondents reported that:

“We are not motivated real, so how can we utilise social media tools to enhance knowledge sharing instead of using them for other benefits such as communicating with friends and applying for training and workshops” (ICT-RC respondent 2).

And

“The institution needs to motivate its workers through motivational things such as training, recognition and rewards so that to encourage workers to utilise social media tools and to share their knowledge” (Library respondent 3).

(c) Lack of institutional and HRM policies

Both library and ICT-RC respondents reported lack of policy to support and guide the utilisation of social media tools in order to enhance knowledge sharing practices at the NM-AIST. Respondents also reported lack of HRM policy to enhance and encourage knowledge sharing among knowledge workers at NM-AIST. Two respondents reported that:

“It is very difficult to control and monitor the usage of social media tools at the NM-AIST due to lack of clear policy which can define clearly how knowledge workers can utilise social media. For example, there are people who are busy downloading and watching movies via social media but you cannot do anything because there is no policy and guidelines to prohibit” (ICT-RC respondent).

And

“The institution lacks clear and written policy and guidelines which explain the utilisation of social media tools to enhance knowledge sharing practices” (Library respondent 5).

(d)Lack of institutional structure and culture

Both library and ICT-RC respondents reported lack of institutional structure and institutional culture which states knowledge sharing practices and the application and utilisation of social media tools at the NM-AIST. One respondent said that:

“The institution needs to have an institutional structure and institutional culture which can support the utilisation of social media tools to enhance knowledge sharing practices” (Library respondent 6).

(e)Lack of skilled and experienced staff

Both library and ICT-RC respondents reported lack of skilled and experienced staff especially within the library. One of the library staff reported that:

“The library needs to employ a technical to handle all the work of implementing social media tools within the library instead of depending on the normal library staff who I think they do not have technical (IT) skills” (Library respondent 3).

4.1.4.2 Individual challenges

Both library and ICT-RC respondents provided information about the individual challenges on the utilisation of social media tools to enhance knowledge sharing practices at the NM-AIST as follows:

(a) Lack of training

Both library and ICT-RC respondents reported lack of training on how to utilise social media tools and knowledge sharing practices. Respondents reported that, they need more training on how to utilise social media tools especially to enhance knowledge sharing.

(b) Lack of awareness

Both library and ICT-RC respondents reported lack of awareness on the proper usage of social media tools and how such tools can be employed in order to enhance knowledge sharing practices at the NM-AIST. They also reported that, they need more information on how social media tools could be utilised to enhance knowledge sharing practices.

(c) Lack of trust

Both library and ICT-RC respondents reported lack of trust towards the utilisation of social media tools to enhance knowledge sharing practices. Two respondents reported that:

“How can I trust social media tools in sharing knowledge? I think we need more information about this otherwise I will never use social media tools to share knowledge” (Library respondent 3).

And

“Social media tools allow the public to read what you posted and sometimes people can use your information and knowledge anywhere and present as his/hers....no I cannot trust these social media tools ever” (Library respondent 5).

(d) Lack of motivation

Both library and ICT-RC respondents reported that they need to be motivated in order to utilise social media tools to share knowledge. Respondents also reported that they are using a lot of time creating new knowledge and make the use of available knowledge for the development of the institution but they insisted to be motivated to share knowledge for the benefit of the institution. One respondent reported that:

“I think these people (management) they do not know if we are doing all these for the benefit of the institution....no appreciation at all” (Library respondent 1).

(e)Ignorance

Both library and ICT-RC staff reported ignorance among employees as among the most individual challenges in utilising social media tools to enhance knowledge sharing. They also reported that, most people still believing that social media tools can only be used by young generation to chat and communicate with their friends and not for academic issues such as knowledge sharing.

(f)Lack of time

Both library and ICT-RC respondents reported lack of time to utilise social media tools to share knowledge. Most of respondents reported that, their works are too demanding and they can never have time to utilise social media tools for knowledge sharing.

(g)Lack of skills

Both library and ICT-RC respondents admitted that they lack skills on how to utilise social media tools to enhance knowledge sharing practices.

(h)Lack of resources

Both library and ICT-RC respondents reported lack of resources such as mobile devices such as laptops, Smartphone and tablets which they can use while they are out of their offices to share knowledge. They also reported that, most of mobile devices have social media tools such as Facebook, Google Drive and Dropbox which can be downloaded and used to exchange ideas, views and opinions among them.

4.1.4.3 Technological/technical challenges

Both library and ICT-RC respondents provided information about the institutional challenges on the utilisation of social media tools to enhance knowledge sharing practices at the NM-AIST as follows:

(a)Lack of technical skills

Both library and ICT-RC respondents reported lack of technical skills which can help them to fix and configure some of the technical issues which might happen.

(b)Lack of privacy and security

Both library and ICT-RC respondents reported that, most of social media tools are open to the public, thus information which can be shared by anyone with or without knowledge and distort the meaning of the whole article.

(c)Technophobia

Both library and ICT-RC respondents also reported that, there are some knowledge workers who are afraid of the technology and they don't think and believe if technology can help them.

Q. 2: What plans does the library/ICT-RC department have in terms of addressing the mentioned challenges?

Library respondents reported the following plans:

(a)Information Literacy Programme (ILL)

Library respondents reported to introduce the information literacy programme whereby NM-AIST community will be trained on how to use social media tools especially for academic activities such as knowledge sharing practices.

(b)Integrated Library Systems (ILSs)

Library respondents reported that, the library plans to employ another integrated library system known as ABCD under VLIR project which the library believes that it can implement some of the social media tools in order to provide more chance for library users to use social media tools more effectively. The library is currently using KOHA management system.

(c)Institutional repository (IR)

Library respondents also reported that, the library under VLIR project is also planning to integrate institutional repository to help the institution to receive more information and knowledge to share.

(d)Collection development of library materials

Library respondents reported that, the library plans to increase the number of its resources both printed and electronic in order to equip users with enough reading material for them to contribute to knowledge sharing.

ICT-RC reported the following plans:

(a) Training

ICT-RC respondents reported that, the department plans to conduct training on how to use social media tools for various activities including knowledge sharing.

(b) Bandwidth

ICT-RC respondents reported that, the department also plans to increase the bandwidth so as to make the NM-AIST to use various social media tools and also to be able to enhance online communication, participation and sharing of information and knowledge within the institution.

(c) Increase IT facilities

The ICT-RC respondents also reported that, the department plans to increase a number of IT facilities including to service and to repair the old ones in order to increase the usage of IT facilities within the institution.

Q.3: Which recommendations/opinions/views do you think are of importance and may influence the utilisation of social media to enhance knowledge sharing at the NM-IST and in academic institutions in Tanzania in general?

Similar findings were reported by both the library and ICT-RC respondents about the recommendations/opinions/views as follows:

(a) Organisational support

Both library and ICT-RC respondents reported that, the institution need to support the whole process of utilisation of social media tools to enhance knowledge sharing practices through the following initiatives:

- i. Provision of support in terms of resources and financial support to the library and ICT-RC;
- ii. Employing experienced staff and provide professional training for existing staff working in the library and ICT-RC in order to equip them with enough skills on utilisation of social media tools to enhance knowledge sharing practices;

- iii. Encouraging staff to attend meetings, seminars and workshops on the utilisation of social media tools to enhance knowledge sharing practices;
- iv. To have institutional and HRM policies which support and guide the utilisation of social media tools in order to enhance knowledge sharing practices at NM-AIST;
- v. Motivate knowledge workers in terms of rewards, promotion and recognition in order for knowledge workers to utilise social media tools to enhance knowledge sharing practices more effectively; and
- vi. To introduce knowledge sharing culture within the institution; including the policy and guidelines which will specify in details about the utilisation of social media tools to enhance knowledge sharing practices.

(b) Technical support

Both respondents suggest that, the ICT-RC to assist and provide good technical support for the whole process of employing social media tools to enhance knowledge sharing practices at NM-AIST. They also suggest that, employees especially from the library and ICT-RC should be trained on how to integrate and utilise social media tools. They insisted on both practical and hands on trainings.

4.2 Findings from document content analysis guide

The institutional documents studied included: NM-AIST Corporate Strategic Plan 2013-2027, NM-AIST monitoring and evaluation report plan 2013, ICT-RC Policy 2013, Library annual report 2013 and NM-AIST staff training and development manual 2014. Therefore, document content analysis revealed the following:

4.2.1 Knowledge sharing practices at the NM-AIST

Document content analysis revealed that; NM-AIST encourages its knowledge workers to share knowledge however it is only theoretically and in practical. As it is reported that, “Tanzania and indeed Africa is challenged to cope with the fast trend in globalisation and the rapid changes in global science and technology which are having a dramatic impact on the creation of knowledge, access to knowledge and application of knowledge” (NM-AIST, 2013b). This shows that, knowledge workers at the NM-AIST are given enough time to create more knowledge in order to share knowledge to enhance various activities which are: teaching, learning, research and innovation for the development of the institution; however the study finds out that, there is lack of institutional culture and structure to support knowledge sharing practices at NM-AIST. The NM-AIST defines the long-term vision,

mission, core values, core business functions and main target groups of the institution based on three key operational areas of teaching and learning, research and innovation, and public services and outreach (NM-AIST, 2013b). Moreover, knowledge sharing practices such as knowledge flow, transfer and exchange are encouraged at the NM-AIST; this is because the institution is employing knowledge workers from all parts in the world (NM-AIST, 2013b). This shows that, knowledge workers at the NM-AIST need to share knowledge in order to improve the mission, vision and the core value of the institution. It is also reported that, “The institute has a policy of recruiting from the region, indeed internationally, which is very well received. This is important given the regional nature of the Institute” (NM-AIST, 2013b). This helps the institution to gain new knowledge from its knowledge workers and to enhance knowledge to flow and exchange for the development of the institution.

The study also noted that, knowledge workers at the NM-AIST are not well motivated and therefore, this make difficult for them to share their knowledge instead they are hoarding such knowledge for their own benefits. Documents analysis also reported the challenges of motivating knowledge workers at the NM-AIST which hinders them to perform their duties clearly including utilising social media tools to enhance knowledge sharing practices. According to NM-AIST (2013b) “Staff retention and motivation have remained critical challenges; however, the institution is still finding new ways to enhance human resources management capacity, to recruit more staff, to improve staff motivation and remuneration, to establish a competent HRM department, to develop an appropriate HRM management and performance management systems and processes”.

Furthermore, from readings obtained at NM-AIST documents, it was not clear if the management of NM-AIST is formally considered knowledge as a strategic asset; however, among the main aim of the NM-AIST is to create the so-called knowledge society/economy (NM-AIST, 2013b).

4.2.2 Social media tools utilisation at NM-AIST

NM-AIST is mainly focusing on Science, Engineering and Technology (SET) subjects (NM-AIST, 2009). According to NM-AIST (2013b), “Tanzania as other SSAs is still suffering with limited ICT infrastructures and applications; the institution is seriously committed to employ and utilise ICT facilities in order to enhance various institutional activities”. For example, the institution is already employed four video conference facilities and it is already connected to the national broadband for Internet services (NM-AIST ICT IRC, 2013:16).

Moreover, the NM-AIST has a role and is keen to make a strategic contribution towards building national capacity to apply ICT for socio-economic development through facilitating ICT application and integration within the institution as ICT is redefining the way people communicate, sharing, collaborating, work and even play; including changing the way of teaching and learning especially in higher learning institutions (NM-AIST ICT IRC, 2013:16).

Thus, the institution integrated social media tools such as Facebook, blog and group mail (Google) in order to enhance various institutional activities such as knowledge sharing practices. Furthermore, through the use of Facebook, Twitter, and YouTube, it was evident that NM-AIST encouraged and supported the utilisation of social media tools. The NM-AIST Library (2013:2) “To enhance collaboration, participation and communication through the application of different social media and Web 2.0 tools”.

4.2.3 The library role to support knowledge sharing practices at the NM-AIST

The library stores about 1200 copies of printed books which are only represent 20% of the library holdings; the remaining 80% of the library holding are made up of electronic materials which comprise electronic books and journals. The library is also subscribed to various database providers in order to support the virtual learning environment. The NM-AIST library was subscribing to 1000 e-books, 10,000 e-journal titles, and 5 online databases (NM-AIST Library, 2013). The NM-AIST Library (2013) explains that the NM-AIST library end users can be able to access, locate and retrieve information for academic purposes including knowledge sharing; however, most of users still need significant guidance in using electronic resources available in the library.

The library must also put much effort in utilising technological tools available such as Google group; Facebook, Blog and Koha library system in order to expand improve the quality of its services and to reach many users. This indicated that the work of librarians has had to change too to effectively serve the users. The library annual report also mentioned that “all staff members receive additional training/professional development throughout the year, as well as assist in training other staff members including work-study students” (NM-AIST, 2009:3). This practice enhanced the knowledge base of the library.

From institutional documents readily available, the researcher found that knowledge sharing practices awareness was lacking as there did not appear to be a documented inventory of the

institution's skills base, or evident records of succession planning (NM-AIST Library, 2013:10). This would have made it possible to anticipate remedial action if there was a threat of loss of staff and their tacit knowledge. On the other side, the library became relevant in support of research and scholarship that could result in innovative ways of teaching and research at the NM-AIST. This statement complies with the Association of College and Research Libraries (ACRL) strategic plan 2020 which envisioned an environment where higher education institutions recognized their librarians as authorities on knowledge management activities.

Thus, the intention to have NM-AIST librarians who were capable of fitting into that role was implied by adhering to the ACRL strategic plan. The process of keeping useful knowledge inside the institution and avoiding its loss was its retention and also through the building of organizational corporate memory.

4.3 Discussion

This study gives an insight on the current situation on the utilisation of social media tools to enhance knowledge sharing practices among knowledge workers. From the above findings, it revealed that, reasons for knowledge sharing differ between the library and ICT-RC. The reported reasons for knowledge sharing at the NM-AIST are useful. These findings are in line with the NM-AIST's mission on teaching, learning, research and innovation and public services and outreach are important aspects (NM-AIST, 2013b). Moreover, in academic institutions, knowledge workers share knowledge for innovation in order to overcome the challenges of keeping pace in this age of science and technology and also to enhance research and entrepreneurship capabilities. According to Singh and Chandwani (2014:2) add that "In this economy, knowledge workers are responsible for driving innovation and growth."

Knowledge sharing culture is not available among NM-AIST staff; this is because the institution did not set free time when knowledge workers can practice knowledge sharing practices. Lack of experienced and skilled staff to integrate knowledge sharing practices is among the reasons which make knowledge workers not practising knowledge sharing activities. Both departments suffered with unskilled personnel and lack of enough staff to enhance knowledge sharing practices at the NM-AIST.

The mechanisms of knowledge sharing as presented by respondents differ between the two departments. It showed that, library department is using face to face mechanism and ICT-RC department is using departmental Google mail and Google Drive. Generally, the institutional

is using Google mail to enhance communication among employees within the institution (NM-AIST ICT IRC, 2013:13). The established Google mail among knowledge workers at the NM-AIST was viewed as the most used means of communication at NM-AIST and has the potential for extensive knowledge sharing possibilities; however face to face mechanism was accepted as knowledge sharing mechanism especially within the library.

The advantages of knowledge sharing revealed that, Knowledge sharing is very important at NM-AIST. The study also revealed that beside the good and well equipped ICT-RC; the problem is not so much the technology infrastructure; lack of factors which can enhance knowledge sharing practices at the NM-AIST (NM-AIST ICT IRC, 2013:10). Factors which enhance knowledge sharing within the institution are mentioned on *Chapter Two Section 2.4*. Besides the factors which enhance knowledge sharing, knowledge workers need to be motivated to share knowledge. This is in line with what was reported under literature review *Chapter Two Section 2.4*.

Social media tools are very useful in today's learning environment therefore, most of academic institutions employed and utilising social media tools for their daily work activities. Therefore, most of knowledge workers are encouraged to utilise social media in order to improve the quality of their services through online participation, communication, collaboration and share of information and knowledge with other knowledge workers worldwide. According to Benin and McLouglin (2013) mention the benefits of integrating social media tools within academic institutions which include the increased engagement with users and transition from one-directional communication to more collaborative user engagement.

Factors such as personalisation, ease of use, completeness, accessibility, security, trust and compatibility in the conceptual framework will encourage knowledge workers to use social media tools in their daily work activities. Various factors which can motivate knowledge workers to use social media tools for their daily work activities mentioned on *Chapter Two Section 2:5*. Social media tools functionalities such as content editing and co-development can provide platforms for co-creation among participants, enable knowledge internalisation through reflection on what has been taught and encourage knowledge flow and exchange among knowledge workers (Shang, et al. 2011:179). However, the study findings revealed that, the utilisation of social media tools among knowledge workers within academic

institutions is still very low. This argument is also supported by Singh and Chandwani (2014) that, knowledge workers are still reluctant to utilise social media tools in their daily activities despite the advantages of these tools within academic institutions. Knowledge workers need to have skills in order to utilise social media tools more effectively.

The NM-AIST environment was very useful for the utilisation of social media; however no social media tool which was employed to enhance knowledge sharing practices. The library plays major role to ensure users acquire new techniques to foster knowledge practices. The role of academic libraries to support the utilisation of social media tools to enhance knowledge sharing practices is clearly explained in *Chapter Two Section 2.8*; and *Document Content Analysis Section 4.4.3*. Most of respondents reported that, the utilisation of social media tools to enhance knowledge sharing can help knowledge exchange among knowledge workers because people can easily contribute their knowledge and hence provide a chance for other people to comment, edit and recommend online. Social media tools can also enhance knowledge flow and transfer among knowledge workers very quickly. There are various categories of social media tools which enhance knowledge sharing practices as reported in *Chapter Two Section 2.7*.

The problems of underutilisation of social media tools to enhance knowledge sharing practices among knowledge workers within academic institution in Tanzania are the biggest drawback to country's development. Many challenges which prohibit the utilisation of social media tools to enhance knowledge sharing are explained in *Chapter Two Section 2.9*

4.4 Conclusion

Presumably these findings reflects that underutilisation of social media tools within academic institutions which can be associated with lack of social interaction among members within and outside academic institutions. Social media tools provide social connection and interaction and also help people to build strong network, team works and trust, not only within the institution but also in other academic institutions within and outside the country. In addition, in order to seek, to sense and share knowledge properly, we need to become skilled at filtering information as well as determining when and with whom to share knowledge. It is also believed that; in order for team works to share complex knowledge tighter social bonds are highly encouraged. Sharing includes exchanging resources, ideas, and experiences with our networks as well as collaborating with our colleagues.

The interviews and document content analysis showed that, very few knowledge workers understood knowledge sharing clearly and there were “neutral” responses that indicated that some knowledge workers were not sure about the knowledge sharing concept; however knowledge is not openly shared. On the other hand, social media tools integrated are not for knowledge sharing but were for other activities such as updates and communication. Furthermore, KOHA library management system was used to retrieve library information in order to equip knowledge workers of more knowledge.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

*Blessed be to God, even the father of our Lord Jesus Christ, the Father of mercies, and the
God of all comfort. 2 Corinthians 1:3*

5.1 Introduction

This is the final chapter of the mini-dissertation and it presents the summary of major findings of in accordance with the research sub-questions as presented and discussed in chapter four. This chapter further presents summary of the findings, conclusions, recommendations and areas for further research.

5.2 Summary of the major findings

This section presents a summary of the research findings in accordance to the research sub-questions of the study as presented on *Chapter One, Section 1.4*.

5.1.1 Summary of the characteristics of the respondents

- (a)Twelve knowledge workers from the library and ICT-RC interviewed;
- (b)Six library staff worked at the library and six ICT-RC staff worked at ICT-RC were interviewed;
- (c)Four library staffs were library assistant and two were librarians; and
- (d)Three ICT-RC staffs were IT specialist and three were networking specialist.

5.1.2 Summary on knowledge sharing practices at the Nelson Mandela African Institution of Science and Technology

- (a)There was no clear knowledge sharing practices guideline mentioned in the interview or document content analysis;
- (b)Document reviewed reported that, NM-AIST recognises knowledge sharing practices as an important aspect to the fulfilment of the institution's vision, mission and values;
- (c)Both respondents showed the existence of computers in their offices and in their workplaces;
- (d)Face-to-face communication was the dominant mechanism for knowledge sharing by library respondents; while the departmental Google mail and Google drive reported as dominant mechanisms for knowledge sharing as reported by ICT-RC respondents;
- (e)Both library and ICT-RC respondents reported to share knowledge when needs arises;

- (f) Library respondents reported to share knowledge for teaching and learning activities; while ICT-RC respondents reported to share knowledge for research and innovation;
- (g) The library plans to improve knowledge sharing practices include: to increase the collection of library materials, to train library users on knowledge sharing practices and to increase opening and closing hours in the library. On the other side, no plan(s) reported by ICT-RC department in order to facilitate knowledge sharing practices;
- (h) The library's roles in facilitating knowledge sharing practices include: to conduct user training on knowledge sharing practices and to assist on how to utilise library materials more effectively. The ICT-RC's roles in facilitating knowledge sharing include: to ensure Internet connection and to provide training on how to utilise social media tools;
- (i) Library respondents suggested that, KOHA library management system can facilitate knowledge sharing practices if proper training on its usage could be provided;
- (j) Both library and ICT-RC respondents reported knowledge sharing is important for effective communication, timely decision making and for an institution to achieve its intended goals; and
- (k) Both library and ICT-RC respondents reported that, institutional support such as motivation to staff and institutional structure are important to enhance knowledge sharing practices.

5.1.3 Summary on social media tools utilisation among knowledge workers at the NM-AIST

- (a) Most of library and ICT-RC respondents reported to use social media tools in their daily work activities, except one respondent from the library;
- (b) Respondents mentioned reasons for utilising social media tools in their daily work activities which include: to enhance online communication, participation, collaboration and sharing of information within and outside their departments, to provide feedback to users and to promote and marketing various services conducting within their departments to the community;
- (c) Both library and ICT-RC respondents suggested various social media tools to be integrated at the NM-AIST in order to enhance online communication, participation, collaboration and exchange of ideas, information and experiences. For example; social networking tools (Facebook), Professional networks (LinkedIn), Wikis, Blogs and Tagging;

- (d)The library and ICT-RC can facilitate the integration of social media tools at the NM-AIST through suggesting and recommending useful social media tools, providing training to users, ensure internet connection, facilitation, installation and registration of social media tools; and
- (e)Both library and ICT-RC respondents reported to have computers connected to the internet in their offices and in their workplaces; and
- (f)Both library and ICT-RC respondents reported social media tools application skills is the main enabler for the participation in using social media tools.

5.1.4 Summary on the utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST

- (a)Most of library and ICT-RC respondents agreed that, social media tools can be utilised to enhance knowledge sharing practices;
- (b)Both library and ICT-RC respondents mentioned various categories of social media tools which can be utilised to enhance knowledge sharing practices which include: video/photos sharing tools (YouTube), social networking tools (Facebook), professional networks (LinkedIn and Academia.edu), Wikis, Tagging and Blogs;
- (c)Library's plans to facilitate utilisation of social media tools include: to provide training, to facilitate, to recommend and to install various social media tools in order to enhance knowledge sharing practices; while, ICT-RC department plans include: to ensure reliable internet connection and availability of IT resources; and
- (d)Both library and ICT-RC respondents recommend various types of social media to be integrated at the NM-AIST in order to ensure online communication, participation, collaboration and sharing of knowledge among knowledge workers.

5.1.5 Summary on the challenges which prohibit knowledge workers in utilizing social media tools to enhance knowledge sharing practices at the NM-AIST

- (a)Lack of knowledge sharing structure and culture, institutional/HRM policy and guidelines, lack of institutional culture/structure to support utilisation of social media tools, lack of facilities, inadequate funds and lack of proper training on utilisation of social media and sharing of knowledge processes;
- (b)Lack of skilled and experienced staff to enhance the utilisation of social media tools in order to enhance knowledge sharing practices;
- (c)Lack of motivational factors such as rewards, training and recognition in order to encourage knowledge workers to utilise social media tools to share knowledge;

- (d) Lack of basic skills, training and awareness in utilising social media tools to enhance knowledge sharing practices; and
- (e) To overcome the challenges, library plans to utilise the existing integrated library systems (KOHA) to enhance retrieval, access and use of information, to conduct information literacy learning (ILL) twice per year in order to equip users on how to utilise library materials, to implement institution repository for the storage of institutional materials and to increase the library collection both printed and online. On the other hand, ICT-RC department plans to conduct regular training on utilising social media tools, to ensure reliable Internet connection and to purchase modern and portable IT facilities such as iPods and laptop in order to enhance the utilisation of social media tools to enhance knowledge sharing even after working hours or during weekends and public holidays.

5.3 Conclusion

The conclusions of the study were derived from the research findings. The conclusions explained about concept on the utilisation of social media tools to enhance knowledge sharing practices and how various categories of social media tools can be utilised to improve the situation. Conclusions about each research sub-question under themes are as presented below:

5.1.6 Conclusions on the knowledge sharing practices at the Nelson Mandela African Institution of Science and Technology

Knowledge sharing practices among knowledge workers at NM-AIST was fairly new. This showed that, knowledge workers need to be trained and motivated to share knowledge for the development of the institution. An understanding of knowledge sharing itself is not sufficient. This study revealed lack of important factors to support knowledge sharing practices. The study also concluded that, knowledge at the NM-AIST was not properly managed which could hinder knowledge sharing to take place properly.

Therefore, despite the ambiguousness of knowledge management and sharing practices at the NM-AIST, this research concluded that, factors which can enhance knowledge sharing practices need to be documented and implemented. The study also concluded that, knowledge workers are very committed to their daily duties; however they admitted on the importance of

knowledge sharing practices. Additionally, there are various challenges which prohibit knowledge sharing practices such as lack of institutional support, financial constraints, lack of skills, lack of institutional/HRM policies and lack of dedicated time for knowledge sharing and lack of knowledge sharing culture at the NM-AIST.

5.1.7 Conclusion on social media tools utilisation among knowledge workers at the NM-AIST

This study concluded that, most knowledge workers are using more than one type of social media tools in their daily work activities. The study also concluded that, the utilisation of social media tools within the library can provide link to the other already existing technologies (ILSs) in order to share and use library resources more effectively. Academic institutions can employ social media tools in order to discover and improve service problems that can cause gaps between the institutions' targets and achievements.

The utilisation of social media tools offers various advantages within academic institutions; for example, to enhance discussion forum within various groups. The utilisation of social media tools within academic institutions can also facilitate easy access to the institutional resources, enhance teaching, learning, research and innovation in order to improve information and knowledge dissemination and other similar services. Academic institutions are therefore needed to adopt and utilise various types of social media tools in order to deliver more effective and accessible services to their clients.

5.1.8 Conclusion on the utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST

This study concluded that, social media tools can enhance knowledge sharing practices among knowledge workers within academic institutions; therefore where knowledge sharing and social media tools merge are to facilitate knowledge flow, dissemination, retrieved and used among users. The study also concluded that, discussion which relate to knowledge sharing practices, cannot be complete without acknowledging the presence and impact of social media tools.

The study also concluded that various factors which could prohibit knowledge workers to utilise social media tools to enhance knowledge sharing practices such as lack of basic skills, lack of motivation and lack of social media tools policy and guidelines at the NM-AIST must

be overcome in order to allow knowledge sharing practices to take place. Social media tools are currently used as mediums (information systems) which allow knowledge to flow and transfers to people who are physically dispersed and also allow people to search for and identify other people with expertise that they are looking for.

5.1.9 Conclusion on the challenges which prohibit knowledge workers in utilising social media tools to enhance knowledge sharing practices at the NM-AIST

Adequate recognition of knowledge sharing and knowledge sharing culture are the main challenges which need to be evaluated and maintained among most of academic institutions worldwide. The utilisation of social media tools is another challenge which facing most of academic institutions to date. This study concluded that, knowledge workers need to be trained in order to be able to utilise social media tools to enhance knowledge sharing practices. Knowledge sharing practices need to be integrated for the development of the institution. The emergence of social media tools can simplify the sharing of knowledge within and outside the institution.

Hislop (2013:209) reported that, “Knowledge is shared via interpersonal communication and interaction, which can occur once someone is looking for a particular type of expertise has found someone who possesses it”. This can easily simplified by the utilisation of social media tools. Thus, challenges which prohibit the utilisation of social media tools to enhance knowledge sharing practices must be overcome not only within institutions but also among knowledge workers.

5.2 Recommendation

This study identified various challenges which affected the proper utilisation of social media tools to enhance knowledge sharing practices among knowledge workers. The study therefore makes recommendations in order to address the challenges. The recommendations made address each of the research sub-questions as included in this study as follows:

5.2.1 Recommendations on the knowledge sharing practices

- (a) Staff training and development are very critical for knowledge sharing practices;
- (b) Knowledge workers need to be motivated in order to share knowledge for the development of the institution. Academic institutions need to employ different types of

motivations such as rewards and recognition in order to make encourage knowledge workers to share their knowledge. There are variety of rewards systems which can be implemented to enhance knowledge workers to share knowledge such as sending knowledge workers for trainings, attending seminars and workshops, promotion and recognition, therefore management must see knowledge as an important asset and must provide incentives and support for knowledge sharing practices;

- (c) Communication between knowledge workers either through face to face or through technological means (social media tools) could provide more chance for knowledge workers to talk, express their feelings and share ideas and knowledge more easily;
- (d) Academic institution must consider and implement knowledge sharing factors such as technological tools, institutional structure, HRM policies and knowledge sharing culture in order to enhance knowledge sharing practices among knowledge workers
- (e) Mechanisms for knowledge sharing practices must be clearly defined and recommended in order to enhance the flow, dissemination, retrieve and use of knowledge among users;
- (f) Academic institutions must create various groups among their knowledge workers for easily knowledge sharing practices;
- (g) Knowledge must be made accessible to everyone who can contribute to it or use it;
- (h) Academic institutions can establish departmental knowledge portals in order to encourage knowledge workers in each department to create and collect guides that relate to their job functions, sharing of expertise as well as cross training;
- (i) Academic institutions need to establish strong relationship between the management and knowledge workers along with expressing the importance of utilising social media tools to enhance knowledge sharing practices; and
- (j) Managers could design and implement reliable mechanisms to change tacit knowledge into explicit knowledge in order to make knowledge to be easily shared and to allow the institution to achieve and store institutional memory which makes efficiency over time possible, even if employees retire or resign from the institution.

5.2.2 Recommendations on social media tools utilisation among knowledge workers at the NM-AIST

- (a) Knowledge workers must learn the advantages and disadvantages of the various types of social media tools to be integrated;

- (b) Social media tools can be used within academic institution in order to complement the already existing services;
- (c) The library in collaboration with other academic departments must guide and assist the utilisation of social media tools;
- (d) The management and the ICT-RC should consider providing broader Internet bandwidth to the institution especially in the library in order to support the utilisation of social media tools; and
- (e) The library and ICT-RC should consider recruiting skilled and experienced staff who can be able to facilitate the integration of social media tools.

5.2.3 Recommendations on the utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST

- (a) Academic institutions can create a cloud computing which knowledge user can easily communicate and share knowledge. The study done by Scale (2009:10) adds that cloud computing “The sharing and use of application and resources of a network environment to get work done without concern about ownership and management of the network’s resources and applications...data are no longer stored on one’s personal computer, but are hosted elsewhere to be made accessible in any location and at any time”. Also Mavodza (2010:306) asserts that by using social media tool such as delicious.com that allows cloud computing within the library; therefore, library staff can easily invite each other into a specific closed network, add useful resources to it in a non-formal but productive way and in the process of accumulating knowledge for practical use as well as inherently tapping the knowledge in the heads of individuals; this can help to bridge the knowledge gap and create more environment for knowledge sharing; and
- (b) Providing adequate social media tools to share knowledge in order to facilitate knowledge diffusion among departments.

5.2.4 Recommendation on the challenges which prohibit knowledge workers in utilizing social media tools to enhance knowledge sharing practices at the NM-AIST

The country is still in early stages of utilising social media tools to enhance knowledge sharing practices especially in academic institutions, more training and awareness are encouraged. Underutilisation of social media tools to support knowledge sharing was relatively high, thus academic institutions should put more effort in preventing the risk of

losing valuable knowledge which could not be shared for the development of the country. The Ministry of Communication, Science and Technology through the Tanzania Commissions Regulatory Authority (TCRA) should work in collaboration with academic institutions within the country in order to find effective strategies to utilise social media tools to enhance knowledge sharing practices. Academic institutions must employ policies and procedure manual in order to guide the integration and utilisation of social media tools.

Academic institutions need also to integrate institutional culture which will support the knowledge sharing practices. Keeler (1999:22) recommends that key characteristics of a knowledge sharing culture within institution which are: top leadership must recognise knowledge as a strategic asset and provides incentives and support for knowledge management processes; institution focuses on the development and exploitation of its knowledge assets, tools and processes for managing knowledge must be clearly defined; knowledge creation, sharing and use are a natural and recognised part of the institutions' processes, not separate from normal work processes; groups within institutions must cooperate instead of contest with each other, knowledge must be made accessible to everyone who can contribute to it or use it, rewards and performance evaluations specifically recognise contributions to, and use of, the institutions' knowledge and communication channels and common technology infrastructures that enable and enhance knowledge management and sharing practices.

Academic libraries are important within academic institution in order to facilitate social media tools and knowledge sharing practices. Dempsey (2006:7) adds that "Libraries, and libraries acting collectively, are thinking about how best to allocate resources, how to source new solutions collaboratively, and how to look for system-wide efficiencies". Thus, this study recommends that, the ultimate place of academic libraries can be a blending of a well-managed resource environment and a user environment (Dempsey, 2006:7). This explanation can also be supported by the model which was proposed by Habib (2006) as shown in the figure below:

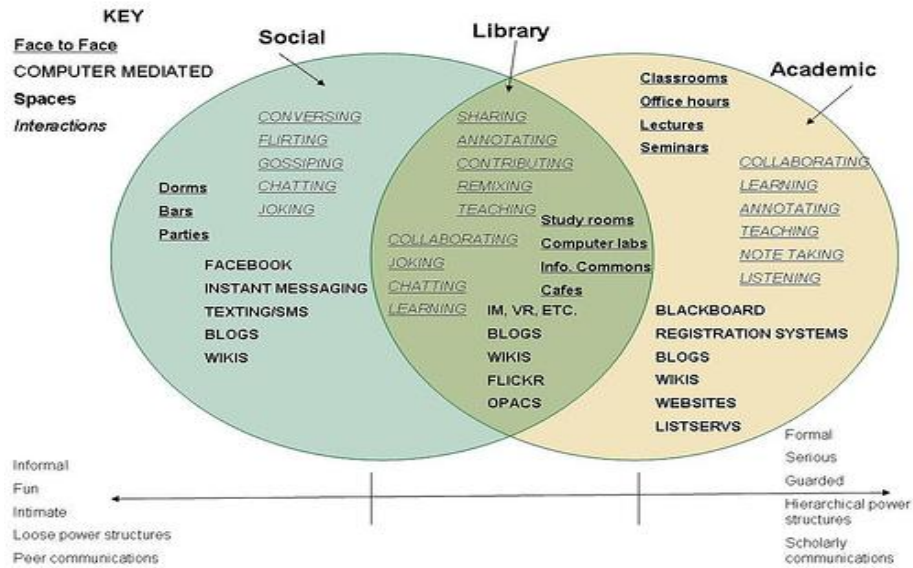


Figure 1 : Academic Library 2.0 concept model as adapted from Habib (2006:35)

The figure above explains that, the library comprises both physical place in student life and then draws parallels with the library's place online (Habib, 2006:35). Habib (2006:35) states that "Model is based on the idea that most of student life is divided between the social and the academic and that physical libraries have traditionally provided a unique location that mixes the two. The bottom of the model displays various spectra between social and academic places with libraries falling near the middle". According to this study, academic library can both store learning materials for users to create new knowledge in order to be shared and can also support the utilisation of social media tools to be used to support and facilitate the flow of knowledge in order to be shared easily.

5.3 Suggestion for further research

The utilisation of social media tools to enhance knowledge sharing practices among knowledge workers is well acknowledged as used in this study. Questions still remain about how these social media tools could be employed to improve other services offered within many academic institutions which are teaching, learning, research and innovation. Utilisation of social media tools to support creation of new knowledge among knowledge workers within academic institutions also need to be investigated. Knowledge creation and knowledge sharing are one coin with two sides; therefore, this study investigates only one side of knowledge sharing with the help of social media tools. It was also pointed out that, social media can also help people to create knowledge but how?. The area of using incentives to

encourage knowledge workers to share knowledge is also requires further investigations. Incentives cannot only foster knowledge workers to share knowledge but can also foster knowledge workers to utilise social media tools to enhance knowledge sharing practices. The use of theories to support the utilisation of social media tools to enhance knowledge sharing among knowledge workers also need to be investigated. Social media policies to assist various activities within academic institutions also need further investigations.

5.4 Final conclusion

Knowledge sharing is one of the important aspects in knowledge management activities which can be linked to individual (awareness, trust, training, willingness, personality and job satisfaction), institutional support (structure, culture, rewards, recognition, promotion and job design) and mechanisms (Face-to-face, Internet, ICT tools and social media tools). In this study, social media tools such as social networking tools (Facebook and MySpace), Wikis, Blogs, video sharing tools (YouTube) and professional networking tools (Linkeldn and Academia.edu) can be utilised to facilitate knowledge sharing practice. Understanding knowledge sharing principles itself is not sufficient, it takes research and detailed assessment for an institution to determine which factors can also be implemented in order for knowledge sharing practices to occur.

The advantages of utilising social media tools are well acknowledged as important tools to enhance knowledge flow and transfer, enhance discussion forum among groups within organisation and enhance online communication, collaboration and participation of knowledge sharing. Academic libraries are considered as knowledge sharing centre which allow the creation, retrieve and use of information in order to enhance knowledge sharing practices. Integrated Library Systems (ILSs) such as KOHA within academic libraries can be integrated with social media tools to enable online access, retrieve and use information among users.

ICT-RC within academic institutions are also important for facilitating the utilisation of social media tools activities such as: to ensure internet connectivity, to assist and train institution members on how to install and register to various social media tools for knowledge sharing. Moreover, knowledge workers need to be motivated and encouraged not only to share knowledge but also to utilise social media to enhance knowledge sharing practices.

Many academic institutions are taking advantage of social media tools to deliver enhance various services to their users; however in most African universities and libraries, the development and utilisation of social media tools to enhance and improve various services have been slow and unplanned. Among the challenges which prohibit the utilisation of social media tools to enhance knowledge sharing are such as lack of enough and experienced staff, lack of resources, financial constraints and lack of awareness and training.

Additionally, the study findings reported lack of knowledge retention policy for the management of institutional memory, which was likely to happen in an environment conducive for knowledge sharing. Generally, this study concluded that Tanzania is still in transitioning period from traditional means of sharing knowledge (Face to face, storytelling etc.) to technological means of sharing knowledge (Social media tools, Web 2.0 tools), therefore people needs more knowledge and skills on how to utilise social media tools to enhance knowledge sharing practices.

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5.6 Appendices

Interview questions related to research sub-questions

Appendix A: Informed consent for library staff

Informed consent form for collecting data from knowledge workers at the Nelson Mandela Institution of Science and Technology (NM-AIST), Arusha, United Republic of Tanzania.

Dear participant,

My name is Neema Florence Mosha. I am a Master of Information Technology (MIT) student at the University of Pretoria, South Africa. I am conducting a study titled “Utilisation of social media to enhance knowledge sharing practices among knowledge workers at the Nelson Mandela African Institution of Science and Technology (NM-AIST) in Arusha, Tanzania”.

The study seeks to examine the extent to which the utilisation of social media can facilitate knowledge sharing practices among knowledge workers within academic institutions. Participation is voluntary and you may withdraw from participating in the interview at any time during the process. Your responses to this interview will be used for academic purposes only. The interview is going to take approximately 45 minutes of your time. The interviews will be subject to the rigorous privacy and ethics policies of the University of Pretoria, South Africa.

Confidentiality:

After consenting, you will be asked to participate in a face-to-face discussion with an interviewer. Every effort will be made to keep your information private; therefore, your information will be identified only by a number and not by your name. Upon your agreement, the interview will also be audio recorded to help in transcribing the conversation, and then the recordings will be destroyed after being used for writing a mini-dissertation. The information recorded will not be shared with anyone except authorised person(s) in this study. The recorded conversations will be destroyed after fifteen years.

Questions and persons to contact:

The interviewer will answer all questions that you may have to clear your doubts. If you have any questions, please send them to the researcher, Ms.Neema Florence Mosha – florenceneema@gmail.com or floraneema2@yahoo.com . Mobile: +255 754285601

Consent:

- 1.I have read the information sheet concerning this study.
- 2.I confirm that I have had the opportunity to ask questions about this study.
- 3.I confirm/not confirm that the conversations can be recorded
- 4.I have been given enough time and opportunity to decide whether I want to take part in this study.
- 5.I understand that at any time I may withdraw from this study.
- 6.I agree to take part in this study.

Participant's

signature:.....Date:.....

Researcher's

signature:.....

Date:.....

Appendix B: Interview guide for knowledge workers (library staff)

SECTION A: Scope of the interview

The questions asked will be correlated with the research sub-questions, which are:

1. What knowledge sharing practices are supported and how are they applied at the NM-AIST?
2. To what extent do knowledge workers at the NM-AIST use social media?
3. How can social media support knowledge sharing among knowledge workers at the NM-AIST?
4. What challenges prohibit knowledge workers in utilising social media to enhance knowledge sharing practices at the NM-AIST?

SECTION B: Demographic information

1. What is your current position at the library?
2. For how long have you worked at the library?
(a) 0-2 years (b) 3-5 years (c) 6-8 years (d) 9 years or more.
3. In which section are you working at the library?

SECTION C: Knowledge sharing practices at the Nelson Mandela African Institution of Science and Technology

1. What knowledge is shared among knowledge workers (library staff) at the NM-AIST?
(Probes: research, projects, innovation)
2. When do you share knowledge? (Probes: during meetings, free time, any time, when the need arises)
3. What mechanisms are you using to facilitate knowledge sharing at NM-AIST? (Probes: technological tools, social media tools, documents, face-to-face meetings, presentations).
4. Which plans does the library have to improve knowledge sharing among knowledge workers at NM-AIST?
5. What is the library's role in facilitating knowledge sharing practices at NM-AIST?

6. Why do you think sharing knowledge is important? (Probes: organisation's corporate memory, timely decision making, effective communication with users and colleagues, achievement of organisational goals)
7. Which initiatives do you think can be employed in order to facilitate knowledge sharing at NM-AIST? (Probes: rewards, organisational support).

SECTION D: Social media tools utilisation among knowledge workers at the NM-AIST

1. Do you use social media in your daily work activities? If yes, please mention the social media which you are using and for what purposes. If no, please explain why not.
2. What types of social media tools do you think need to be integrated at NM-AIST and why?
3. What is the library's role in facilitating the utilisation of social media tools at NM-AIST? (Probes: tag pages, access library catalogue)
4. What are the enablers to participation in using social media in the library? (Probes: skills, knowledge and attitude needed, service used)

SECTION E: Utilisation of social media to enhance knowledge sharing practices among knowledge workers at the NM-AIST

1. Which social media have been deployed for knowledge sharing practices by the library?
2. How is social media being utilised for knowledge sharing? (Probes: knowledge exchange, knowledge flow and transfer, edit and comment on knowledge).
3. Which skills do you think knowledge workers (library staff) may need in order to utilise social media to enhance knowledge sharing?
4. Do you think social media tools can be utilised to enhance knowledge sharing practices at the NM-IST? If yes, please explain. If no, please explain why not.

SECTION F: Challenges which prohibit knowledge workers in utilising social media tools to enhance knowledge sharing practices at the NM-AIST

1. What do you think are challenges of utilising social media to enhance knowledge sharing practices at the NM-IST?
2. What plans does the library have in terms of addressing the mentioned challenges?

3. Which recommendations/opinions/views do you think are of importance and may influence the utilisation of social media to enhance knowledge sharing at the NM-IST and in academic institutions in Tanzania in general

Appendix C: Interview guide for knowledge workers (ICT-RC staff)

Interview guide for knowledge workers [Information and Communication Technologies Resource Centre (ICT-RC)] staff at the Nelson Mandela African Institution of Science and Technology

SECTION A: Scope of the interview

The questions asked will be correlated with the research sub-questions which are:

1. What knowledge sharing practices are supported and how are they applied at the NM-AIST?
2. To what extent do knowledge workers at the NM-AIST use social media?
3. How can social media support knowledge sharing among knowledge workers at the NM-AIST?
4. What challenges prohibit knowledge workers in utilising social media to enhance knowledge sharing practices at the NM-AIST?

SECTION B: Demographic information

1. What is your current position at the ICT-RC?
2. For how long have you worked at the ICT-RC?
(a) 0-2 years (b) 3-5 years (c) 6-8 years (d) 9 years or more.
3. In which section are you working at the ICT-RC?

SECTION C: Knowledge sharing practices at the Nelson Mandela African Institution of Science and Technology

1. What knowledge is shared among knowledge workers (IRC staff) at the NM-AIST?
(Probes: research, project, innovation)
2. When do you share knowledge? (Probes: during meetings, free time, any time, when the need arises)
3. What mechanisms are you using to facilitate knowledge sharing at NM-AIST? (Probes: technological tools, social media tools, documents, face-to-face meetings, presentations).

4. Which plans does the ICT-RC department have to improve knowledge sharing among knowledge workers at NM-AIST?
5. What is the ICT-RC's role in facilitating knowledge sharing practices at NM-AIST?
6. Why do you think sharing knowledge is important? (Probes: organisation's corporate memory, timely decision making, easy communication with users and colleagues, achievement of organisational goals).
7. Which initiatives do you think can facilitate knowledge sharing at NM-AIST? (Probes: rewards, organisational support)

SECTION D: Social media utilisation among knowledge workers at the NM-AIST

1. Do you use social media in your daily work activities? If yes, please mention which social media you are using and for what purposes. If no, please explain why not.
2. What types of social media do you think need to be integrated at NM-AIST and why?
3. How do you assist the integration and utilisation of social media at the NM-AIST?
4. What is the ICT-RC's role in facilitating the utilisation of social media at NM-AIST?
5. What social media skills do you think NM-AIST knowledge workers are required to have in order to utilise social media?

SECTION E: Utilisation of social media to enhance knowledge sharing practices amongst knowledge workers at the NM-AIST

1. Which social media are currently deployed at the NM-AIST to facilitate knowledge sharing practices?
2. How is social media being applied for knowledge sharing?
3. To what extent does the ICT-RC support the integration and utilisation of social media tools to enhance knowledge sharing?
4. What skills do you think ICT-RC staff requires in order to facilitate the integration and utilisation of social media to enhance knowledge sharing?
5. Do you think social media can be utilised to enhance knowledge sharing practices at the NM-IST? If yes, please explain why. If no, please explain why not.

SECTION F: Challenges which prohibit knowledge workers in utilising social media to enhance knowledge sharing practices at the NM-AIST

1. What do you think are challenges of utilising social media to enhance knowledge sharing practices at the NM-IST?
2. What strategies are currently deployed by the ICT-RC and the institution in general addressing the mentioned challenges?
3. Which recommendations/opinions/views do you think are of importance and may influence the utilisation of social media to enhance knowledge sharing at the NM-IST and in academic institutions in Tanzania in general?

Appendix D: Document content analysis guide

Below is the list of documents that will be used in order to obtain additional data for the study:

- 1.Nelson Mandela African Institution of Science and Technology (NM-AIST) Corporate Strategic Plan 2013-2027
- 2.Information and Communication Technology Resource Centre (ICT-RC) Policy 2013
- 3.Library annual report 2013
- 4.Nelson Mandela African Institution of Science and Technology (NM-AIST) staff manual 2013