

**KNOWLEDGE AND INFORMATION SHARING THROUGH SOCIAL
NETWORKING SITES AMONG POSTGRADUATE STUDENTS AT
SELECTED UNIVERSITIES IN TANZANIA**

By

MSAFIRI JAFFAR PONERA
(STUDENT NO. 67117449)

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ABSTRACT

The study investigated the use of social networking sites (SNSs) in knowledge and information sharing among postgraduate students at selected universities in Tanzania. The uses of SNSs are known to have potential to contribute to knowledge and information sharing. This study adopted the pragmatism paradigm and used mixed methods research (MMR) employing a convergent research design that allowed the collection of both quantitative and qualitative data concurrently. Questionnaires, structured interviews and document review were used to collect data for the study. The population of the study comprised of 633 postgraduate students from four selected universities for the study. The response rate was 71.5% which was deemed to be very good for concluding findings from the mailed questionnaires. Eight interviews sessions were conducted for the qualitative component of the study. Statistical Package for Social Science (SPSS) version 24 was used to analyse quantitative data that were collected while qualitative data were organised and analysed thematically using Atlasi.ti version 7 and wordArt software. Finally, the findings were integrated to enhance the rigour of the study.

The study established that, postgraduate students at the selected universities for the study preferred to share various types of knowledge and information through SNSs including procedural, conceptual, declarative, explicit, tacit and metacognitive knowledge. The study established that there was an absence of stand-alone policies to guide the use of SNSs for knowledge and information sharing in the selected universities for the study. This study noted that various factors influenced postgraduate students to use SNSs for sharing knowledge and information. They include educational compatibility, access to knowledge and information, enhancement of student's academic performance, quality of student's academic works. This study established that, postgraduate students had perceived the use of SNSs to be very useful for their academic purposes. Various challenges faced postgraduate students in their use of SNSs in knowledge and information sharing were identified including lack of reliable internet connectivity, lack of trust and insecurity, and lack of enough ICT facilities. The study recommended a framework for the implementation of SNSs in knowledge and information sharing in the selected universities for the study.

Keywords: knowledge sharing, information sharing, declarative knowledge, procedural knowledge, conceptual knowledge, metacognitive knowledge, explicit knowledge, social networking sites, postgraduate students, Universities in Tanzania.

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May God bless you all!

DEDICATION

I dedicate this thesis to my lovely late parents Mr Jaffar Idd Ponera, and Antonia Raphael Gulokota, and my uncle Materine Raphael Gulokota who could not witness the fruits of their own hands.

May their souls rest in eternal peace. Amen!

DECLARATION

Name: Msafiri Jaffar Ponera

Student No: 67117449

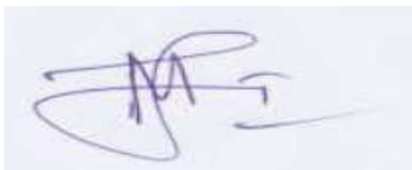
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Furthermore, I declare that this work or part of it has never been submitted for examination at UNISA for another qualification or at any institution of higher education.



19-09-2022

Mr. Msafiri Jaffar Ponera

Date:

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LIST OF ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
CDC	Centre for Disease Control and Prevention
CIPESA	Information and Communication Technology Policy Centre for Eastern and Southern Africa
COSTECH	Tanzania Commission for Science and Technology
EAC	East African Community
EOU	Ease of Use
EASSy	Eastern Africa Submarine Cable System
ESRF	Economic Social and Research Foundation
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FYDP III	Five Year Development Plan Three
GDP	Growth Domestic Product
HEAC	Higher Education Accreditation Council
IAA	Institute of Accountancy Arusha
ICTs	Information and Communication Technologies
IT	Information Technology
JoKUCo	Josiah Kibira University College
KCMUCo	Kilimanjaro Christian Medical University College
KM	Knowledge Management
Km ²	Kilometre square
KS	Knowledge Sharing
LION 2	Lower Indian Ocean Network 2
LIS	Library and Information Science
LCD	Liquid Crystal Displays
M	Mitre
MENA	Middle East and Northern Africa
Mm	Millimetre
MMR	Mixed methods Research
MoCU	Moshi Co-operative University
MoEVT	Ministry of Education Vocational and Training

MUCCoBS	Moshi University College of Co-operative and Business Studies
MWECAU	Mwenge Catholic University
MWUCE	Mwenge University College of Education
NBS	National Bureau of Statistics
NICTBB	National Information Communication Technology Broadband Backbone
NICTP	National Information and Communication Technology Policy
NM-AIST	Nelson Mandela African Institute of Science and Technology
ODI	Overseas Development Institute
OFC	Optical Fibre Cable
PhD	Doctor of Philosophy
PGD	Postgraduate Studies
PU	Perceived Usefulness
QDAS	Qualitative Data Analysis Software
SA	South Africa
SADC	Southern African Development Community
SAS/STAT	Statistical Analysis Software
SDGs	Sustainable Development Goals
SEACOM	The Sea Cable System
SECI	Socialisation Externalisation Combination and Internalisation
SET	Science Engineering and Technology
SMMUCo	Stephano Moshi Memorial University College
SNSs	Social Networking Sites
SPSS	Statistical Package for Social Sciences
STATA	Software for Statistics and Data Science
STATS	Statistics
SUA	Sokoine University of Agriculture
SYSTAT	Statistics and Statistical Graphics Software Package
TAM	Technology Acceptance Model
TEAMS	Tanzania East African Marine System
TCRA	Tanzania Communication Regulatory Authority
TCU	Tanzania Commission for Universities
TDV	Tanzania Development Vision

TEC	Tanzania Episcopal Conference
TRA	Theory of Reasoned Action
TTCL	Tanzania Telecommunication Company Limited
TV	Television
UN	United Nation
UNDP	United Nation Development Programme
UNISA	University of South Africa
URT	United Republic of Tanzania
USA	United States of America
US \$	United State Dollar
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

Social networking tools are useful for knowledge and information sharing, since they can be downloaded freely, and they are easy to use. They can also enhance the flow of knowledge and its dissemination resulting in improved utilisation of tacit and explicit knowledge (Muneja and Abungu 2012:5). Knowledge and information sharing are some of the aspects of knowledge management which is a broader subject area on its own. Knowledge management (KM) refers to:

the process of capitalizing on the knowledge capital of organization. Therefore, it can lead to competitive advantage if organizations utilize their knowledge to improve the effectiveness of its core processes, increase value of its business through improved knowledge of suppliers and customers, and ultimately differentiate the organization from its competitors (Diab 2021:92).

Thus, knowledge and information must be shared among human beings for them to make progress (Iwata and Hoskins 2018:3). Knowledge and information sharing as one of the important aspects of knowledge management is the process of exchanging knowledge and information between individuals and within teams, departments and the organisation through the human-based mechanism and technologically driven process. Knowledge and information sharing can be done in both formal and informal ways. Formal ways include official meetings, training sessions, and conferences while informal ways can be sharing knowledge and information with a colleague during teatime (Paulin and Suneson 2012:83; Zaffar and Ghazawneh 2012:5).

Universities put in place knowledge and information sharing practices to ensure that the created knowledge and information is shared by their staff and students using various platforms such as social networking sites to produce the desired outcomes. Knowledge sharing involves three processes including internalization, externalization, and objectification (Zaffar and Ghazawneh 2012:5). Contrary to Zaffar and Ghazawneh (2012:5), Nonaka and Takeuchi (1995:62) identify four modes of knowledge conversion which includes socialization, externalization, combination and internalization. However,

this study was guided by knowledge creation theory by Nonaka and Takeuchi (1995) in examining how knowledge is created, combined, converted and the way tacit and explicit knowledge is shared in selected universities for the study. Other types of knowledge that can be shared among human beings such as declarative, procedural, conceptual and metacognitive were also discussed in this study to deepen our understanding of the types of knowledge that postgraduate students prefer to share through SNSs technology.

Knowledge and information sharing practices allow academic staff, groups of students, and the overall university together and in a very logical way to generate, process, codify, own, store, share and utilise knowledge and information to achieve their academic goals (Cetin and Kinik 2017:27). Knowledge and information are regarded to be useful once they are shared from people who own it to those who need it within and outside of Universities. Once knowledge and information are shared, they may enhance the generation of the new facts and enable Universities to achieve their objectives (Mtega *et al.*, 2014:2).

Knowledge and information sharing in Universities may have multiplying effects because it may enhance informed decision making among staff, improve efficiency and effectiveness in performing academic work. It may lead to the generation of new knowledge among students and ensure the sustainability of the university in a competitive environment (Raguz, Zekan and Peronja 2017:540). Therefore, knowledge and information sharing are regarded as one of the most important aspects of helping Universities in achieving their mission, vision, and objectives (Ahmed *et al.*, 2016:487). In today's society and knowledge economy Universities should play a significant role in the areas of knowledge and information generation, management, storage, provision and authorization (Charles and Nawe 2013:49).

The growth of information and communication technologies (ICTs); and mobile computing has completely changed the way students choose to learn and interact with faculty staff and peers (Agarwal and Marouf 2014:69). The fast-changing and continuous advancement in technology have created a demand for the adoption of modern techniques and practices to maximize the advantages that technology offers in areas of research, teaching, and learning (Snellman 2015:96). In responding to the

current changes in the use of technology in education, Tanzania National Information and Communication Technology Policy (2016:17) intends to:

Create ICT professional recognition and develop a framework for promoting a human resource base in the country which is ethical and capable of championing ICT initiatives towards the creation of knowledge society.

The Tanzania ICT Policy 2016 underscores the role played by ICTs in the transfer of knowledge and information in Universities and therefore it emphasises the utilisation of new technologies to ensure quality education is provided to the students including the utilisation of SNSs technologies as spaces for knowledge and information sharing (Mwantimwa 2019; URT 2016; Sife 2013; Twaakyondo 2011). The emergence of Web 2.0 technologies such as social networking sites (SNSs), like Facebook, social bookmarking, Wikis (Wikipedia, Seed wiki), YouTube, Microblogging (Twitter), and Podcasts as platforms for knowledge and information sharing has created an opportunity for Universities to practice knowledge and information sharing using smartphones and tablets (Abraham *et al.*, 2018:1).

The history of social networking sites dates back to 1997 with SixDegrees.Com. This site was essentially designed to facilitate connections and sharing among people. SixDegrees.Com enabled individuals to form their profile, list their friends and surf friend lists (Shah and Khandelwal 2016:22). Nowadays, there are social networking sites that are meant to be used in a particular field. Some of these include religious (MyChurch), education (Classmates), Academia.edu, writers (MycreativityCommunity), travel (TravBuddy), research (ResearchGate), LiveJournal, books (Shelfari), Friendster, and LinkedIn (Hussain, Loan and Yaseen 2017:73).

Universities, like any other organisations in the world, have realized the importance of knowledge and information sharing towards achieving excellence. Therefore, many of them are undergoing rapid changes to keep pace with the technological advancements which have raised new demands from both academia and students (Jain 2013:2). The world has witnessed a drastic change in technological advancement in all spheres of human lives, including the education system. This has significantly changed how education is delivered in Universities from the traditional face to face to a virtual

platform where students and academic staff can actively participate in creating and sharing knowledge and information. Social networking sites (SNSs) have enabled Universities to integrate students in a collaborating space to generate and share knowledge and information to enhance their competence, skills, experience and their academic performance (Harbes *et al.*, 2018:12; Salloum *et al.*, 2018:91; Gupta 2014:237; Arif and Kanwal 2016:26; Asterhan and Bouton 2017:3; Balakrishnan 2014:601 and Alqahtani 2016:292). In the same light, Kolan and Dzanza (2018) affirm that university learners in Ghana accept that the utilisation of technologies has enhanced their academic work and their academic performance, respectively.

The use of SNSs can foster the generation of facts and sharing practices and in turn resolve challenges imposed by distance among the students and academic staff. SNSs could be deployed in the whole process of transforming both explicit and implicit knowledge that individuals have acquired through experiences and education (Mtega, Dulle and Benard 2013:209). Social networking sites can improve knowledge and information sharing practices and involvement among the marginalized, can make marginalized societies powerful, and alleviate economic and social marginalization (Mtega *et al.*, 2014:3). The use of social networking sites for knowledge and information sharing in Universities is determined by the following important factors: the presence of network and internet issues, security and privacy, and finally hardware and software (Arthur, Adu-Manu, and Yeboah 2013:72). "Knowledge sharing intends to reduce the cost, to improve efficiency in the use of knowledge and to maximize on productivity" (Yang 2013:300).

Knowledge and information sharing are very vital to Universities where the production of new knowledge, its provision, and utilisation form an important part of problem-solving in Universities (Islam, Norwin and Mostafa 2017:243). In acknowledging the role of knowledge and information sharing in Universities, Ngulube and Mavodza (2012:2) observed that for a university to improve its performance, it has to put in place knowledge and information sharing practices; and people of the organisation must appreciate that knowledge is formed by both staff and information. Also, knowledge as an institutional resource has to be preserved by some institutional policies and guidelines formulated within the institutions. On the other hand, Gulbahar (2013:23) avers that Universities should continue to integrate and use social networking sites to

enhance students' communication during and after they leave the university. In the same light, Alhawary *et al.*, (2017) affirm that Universities should continue to embrace the culture of knowledge and information sharing to produce competent graduates, who may, in turn, enhance economic prosperity through the new knowledge that is generated by both academic staff and students.

Leon-Abao, Boholano and Dayagbil (2015:174) assert that in the Philippines for example, teaching staff and students use social networking sites in accessing educational materials, sharing knowledge and information among classmates, colleagues and friends both at a national and international level. Al-Rahmi, Othman and Yusuf (2015:178) argue that Malaysia is one of the countries with many social networking users. In Africa, Egypt is one of the countries with many social networking users with 1.28 billion Facebook accounts holders; and 255 million Twitter account holders 55 million of the Facebook account holders are among Arabs (Mchome 2017:4). Nigeria, like other countries, has witnessed the increase of social networking sites usage in academic activities among the students. Many Universities and higher education institutions have integrated Facebook into their websites to allow easy access to information and invite comments from potential customers and students (Amukune 2013; Oyetunde 2017:77).

In the Tanzania context, Shembilu (2013:7) claims that there is an increase of SNSs users. The majority of people utilize SNSs for various reasons such as communicating with colleagues, generation of new knowledge and knowledge and information sharing. Statistics of SNSs usage indicate that 13.8% of internet users in Tanzania engage actively with SNSs. The number of Facebook users has reached 682,000 and grew by greater than 56,580 in a six-month period in 2012 (Pfeiffer *et al.*, 2014:179). Social media network usage statistics show that Tanzania had 17 million internet users by December 2015 who actively participated in social media networks (Mushi 2016:7). As of November 2015, there are 14.9% users of social media networks like Facebook (Liang 2017:2). Statistics show that by January 2020, Tanzania from its population had 28.17% of people with Facebook accounts, 22.98% with Twitter accounts, 21.31% holders of Pinterest accounts, 20.26% owners of Instagram accounts, 6.95% holders of YouTube accounts and 0.12% people with LinkedIn accounts (Social Media Stats 2020).

Although the use of SNSs in Universities has been accelerating throughout the world, Tanzania is still lagging as pointed out by Maiga (2017); Lubua, Semlambo and Pretorius (2017); Mchome (2017); Shembilu (2013); Mosha (2014); Katambara (2014); Mtega (2014); Lwoga (2012); Lwoga and Chilimo (2008); and Muneja and Abungu (2012). Despite the number of studies conducted on SNSs usage in Tanzania, the problem seems to persist. Probably, previous studies have failed to address some of the issues about the use of SNSs in Universities. This situation continues to hamper the utilisation of SNSs for exchanging knowledge and information in the Universities in Tanzania. Thus, this indicates the need for this study to be conducted to examine the usage of social networking sites in knowledge sharing among postgraduate students in Universities in Tanzania to uncover the existing knowledge gap.

1.2 Problem statement

As technological innovations are speeding up, social media platforms have proven to be very instrumental in providing access to new knowledge and information among researchers, academic staff and scholars. However, access to and usage of social media platforms for knowledge and information sharing among scholars are limited (Maiga 2017). Social media platforms such as Facebook, Flickr, Twitter, YouTube, MySpace, Pinterest, Google+ and others create a collaborating space that enables people to get involved much easier and quicker than ever before (Velmurugan and Natarajan 2015:1).

In the past, researchers depended on accessing scientific publications in libraries or meetings and conferences to keep themselves abreast in their areas of specialization, but the emergence of social networking sites, have enabled timely interaction and sharing of knowledge and information (Neylon and Wu 2009; Zhu and Procter 2015:29). Therefore, social networking tools can serve as a platform for scholars to form groups for academic discussion and knowledge and information sharing (Mosha, Holmner and Penzhorn 2015:2). There is an increase in the utilisation of SNSs in the Universities in other parts of the world as a result of the number of benefits that it offers as pointed out by different scholars such as (Amukune 2013; Oyetunde 2017; Gómez, Roses and Farias 2012; Sutherland 2018).

Many Universities in Tanzania still prefer to use traditional face to face knowledge and information sharing mechanisms such as through information literacy programmes,

workshops, conferences, seminars and academic forums because they have not been able to put in place effective knowledge and information sharing practices as a result of financial constraints (Maiga 2017:3). Thus, the current knowledge and information exchange mechanisms that are used in Universities in Tanzania seem not provide effective means of knowledge and information sharing among postgraduate students because it limits the quick flow of knowledge and information from those who own it to those who need it.

A study conducted by Maiga (2017:167), found that Universities in Tanzania had a limited budget to fund and ensure the sustainability of knowledge and information sharing practices. Even though the use of social networking technologies has been accelerated in Tanzania, their use in learning is not well known (Lubua, Semlambo, and Pretorius 2017:2; Mega *et al.*, 2014). Studies were conducted to examine the usage of SNSs however, their recommendations on the usage of SNSs in Universities in Tanzania were not feasible. That being the case, usage of SNSs in knowledge and information exchange in Universities in Tanzania has not been effective.

Thus, continuing using traditional knowledge and information sharing mechanisms without deploying technologically driven mechanisms such as SNSs may affect timely access to knowledge and information among postgraduate students, marginalize students who are separated by distance, deny their rights of access to knowledge and information, and affect their academic performance respectively. Thus, if this problem is not addressed it will also affect policymakers and the country because policymakers aim to ensure national developmental plans are achieved promptly through knowledgeable and well-informed employees of whom the majority are expected to be graduates of postgraduate studies. Therefore, this study examines the usage of SNSs for knowledge and information sharing among postgraduate students in Universities in Tanzania to deepen our understanding of this emerging phenomenon in higher education in context.

1.3 Purpose of the study

The study investigates the use of social networking sites for knowledge and information sharing among postgraduate students in the selected universities in Tanzania.

1.3.1 Objectives of the study

This study was guided by the following specific objectives:

1. To identify types of knowledge and information that is shared through SNSs among postgraduate students in the Universities in Tanzania.
2. To examine existing policies guiding knowledge and information sharing practices among postgraduate students in Universities in Tanzania.
3. To determine the level of skills of postgraduate students on the use of SNSs for knowledge and information sharing in Universities in Tanzania.
4. To assess factors influencing the use of social networking sites for knowledge and information sharing among students pursuing postgraduate studies in Universities in Tanzania.
5. To determine the level of usage of social networking sites for knowledge and information sharing among postgraduate students in Universities in Tanzania.
6. To propose strategies that could enhance the use of social networking sites for knowledge and information sharing among postgraduate students in the Universities in Tanzania.

1.3.2 Research questions

The above research objectives were guided by the following research questions: -

1. What types of knowledge and information do postgraduate students share through SNSs in the Universities in Tanzania?
2. How does the knowledge and information policy guide the use of social networking sites for knowledge and information sharing among postgraduate students in the Universities in Tanzania?
3. What is the skills level of postgraduate students on the use of SNSs for knowledge and information sharing in Universities in Tanzania?
4. What are the determining factors for the usage of social networking sites for knowledge and information sharing among postgraduate students in Universities in Tanzania?
5. To what extent do postgraduate students use social networking sites for knowledge and information sharing in Universities in Tanzania?
6. What should be done to enhance the use of social networking sites for knowledge and information sharing among postgraduate students in the Universities in Tanzania?

1.3.3 Research dashboard

A dashboard is a visual representation that guides and provides direction to the researcher on where different types of information can be available (Damyanov and Tsankove 2019:424). The explosion of data brings the need for modern methods of formulating research questions and availing researchers with diverse ways of collecting, managing and analyzing large-sized datasets through the use of research dashboards (Daniel 2018:3). On the other hand, Abduldaem and Gravell (2019:1310) aver that with the increased amount of data that is available in the world today and its possibility of inconsistency or reliability, the researcher may not be able to collect the required data easily therefore, a research dashboard may help researchers in achieving their objectives.

Ocholla (2021:2) highlighted that linking components of research methodology in proposal, theses and dissertations such as the title, problem statement, objectives, research questions, conceptual or theoretical framework, review of the literature, methodology, research findings, discussions and recommendations enable researchers in achieving coherence, harmony, consistency, readability and better quality of scholarship. Thus, the use of a research dashboard in this study enabled the researcher to formulate the research questions based on the objectives of the study, to identify theories that operationalized the study, to choose the methodology to be deployed, and to identify data collection methods.

1.3.3.1 Research dashboard

Table 1: Research Dashboard

Objectives	Research questions	Theory/Concept	Research methods	Data collection methods
Identify types of knowledge and information that is shared through SNSs among	What types of knowledge and information do postgraduate students share through SNSs	Externalization Combination Internalization (SECI)	Quantitative method and Qualitative method Descriptive and	Questionnaire (Open and closed ended questions) Key informant

postgraduate students			interpretive	interview
Examine existing policies guiding knowledge and information sharing practices among postgraduate students in Universities in Tanzania	How does the knowledge and information policy guide the use of social networking sites for knowledge and information sharing among postgraduate students in Universities in Tanzania?	External and Internal environmental factors (TRA) Culture and experience (TAM 2)	Quantitative method and Qualitative method Descriptive and interpretive	Questionnaire (Open and closed ended questions) and Documentary Review (Policies) Key informant interview
Determine the level of skills of postgraduate students on the use of SNSs for knowledge and information sharing	What is level of skills of postgraduate students on the use of SNSs for knowledge and information?	Control beliefs and perceived behavioural control (TRA) Cultural factors and Experience (TAM)	Quantitative method and Qualitative method Descriptive and interpretive	Questionnaire (Open and closed ended questions) and Key informant interview

<p>Assess factors influencing the use of social networking sites for knowledge and information sharing among students pursuing postgraduate studies in Universities in Tanzania</p>	<p>What are the determining factors for the usage of social networking sites for knowledge and information sharing among students pursuing postgraduate studies?</p>	<p>Behavioural beliefs and attitudes Normative beliefs and subjective norms Control beliefs and perceived behavioural control (TRA) Externalization Combination Internalization (SECI) Cultural Social factors Perception Perceived usefulness Perceived ease of use (TAM)</p>	<p>Quantitative method and Qualitative method Descriptive and interpretive</p>	<p>Questionnaire (Open and closed-ended questions) Key informant interview</p>
<p>Determine the level of usage of social networking sites for knowledge and</p>	<p>To what extent postgraduate students use social networking sites for knowledge and information sharing?</p>	<p>External and Internal environment factors Behavioural beliefs and attitudes</p>	<p>Quantitative method</p>	<p>Questionnaire (Open and closed-ended questions)</p>

information sharing among postgraduate students in Universities in Tanzania		Control beliefs and perceived behavioural control (TRA) Cultural Social factors Perceived ease of use Perceived usefulness Attitudes (TAM)		
Recommend strategies that could enhance the use of social networking sites for knowledge and information sharing among postgraduate students in Universities in Tanzania	What should be done to enhance the use of social networking sites for knowledge and information sharing among postgraduate students in Universities in Tanzania?		Qualitative method Descriptive and interpretive	Questionnaire (Open/closed ended questions) and Key informant interview

1.4 Justification for the study

Mugenda and Mugenda (1999:214) affirm that justification of the study aims at answering the following questions:

- (a) What gaps in knowledge will the study address?
- (b) Why is the study important?

On the other hand, Fisher and Foreit (2002:17) list a set of questions that researchers should put into consideration while addressing the justification of the study. The questions include:

- (a) How widespread is the problem? Are many areas and many people affected by the problem?
- (b) Does the problem relate to ongoing program activities?
- (c) Does the problem relate to broad social, economic, and health issues, such as unemployment, income distribution, poverty, the status of women, or education?
- (d) Who else is concerned about the problem? Are the top management officials concerned? Are media doctors or other professionals concerned?

This study investigated knowledge and information sharing through social networking sites among postgraduate students at selected universities in Tanzania. Beneficiaries from this study include policymakers, Management of universities and students.

Policymakers are the ones responsible for formulating various policies in the country, therefore, the findings of this study highlight some of the important policy issues that need to be incorporated into the existing policies, findings also propose the formulation of a new policy that will govern the use of social networking sites for knowledge and information sharing in Universities in Tanzania with the view of enhancing students' academic performance and producing knowledgeable and competent graduates.

The study highlights the importance of integrating SNSs in Universities in Tanzania with the view to producing knowledgeable and competent graduates that will take assignments in various sectors of the economy in Tanzania. Thus, the study will provide the opportunity for the top management of the university to rethink how social networking sites can be integrated with learning to enable Universities to gain a competitive advantage in the current free-market economy.

To the students, the findings of the study reveal how best social networking sites can expand their knowledge base, serve their academic purposes including improving their

class assignments, theses, class test, and their academic performance. Hence, this has set a starting point for postgraduate students to start utilizing social networking sites in academic-related matters with the view of enriching their knowledge and enhancing their academic performance respectively. In line with this, Tanzania Development Vision 2025 item 1.2.4 states that:

Tanzania visualizes to be a country whose citizens are imbued with a competitive spirit both at a national and international level. To achieve this, education and knowledge are essential in ensuring the available national resources are properly exploited using the knowledge that its people own towards providing people's basic needs (URT 1999:4).

Thus, this study provides an insight into Universities in Tanzania on the importance of inculcating the culture of knowledge and information sharing through SNSs to the current and future postgraduate students towards achieving national and international development targets such as Tanzania Development Vision by 2025, National Five-Year Development Plan (FYDP III) 2021/22-2025/26 and the sustainable development goals (SDGs) by 2030. Finally, the findings of this research are also going to add to the body of knowledge in the field of information studies because it enables information science professionals from Tanzania and other parts of the world to understand how knowledge and information sharing through social networking sites is practised in Universities in Tanzania, the existing challenges, the prospects and hence provide areas of further research in other different contexts.

1.5 Originality of the study

Finn (2005:15) asserts that "when doctoral research is aimed at either extending the boundaries of knowledge through broadening of the scope of the discipline (new knowledge through new investigation) or a reorganization of understanding associated with the existing discipline (new knowledge through critical evaluation that leads to a modified/improved interpretation of previous knowledge), then the mutual dependence between "originality" and the "contribution to knowledge" quickly becomes evident". Pugh and Phillips (2010:69) list fifteen (15) different definitions of originality of the study. Six definitions of originality that were accepted for this study include the following:

- i. Setting down a major piece of new information in writing for the first time;
- ii. Continuing a previous original piece of work;
- iii. Carrying out original work designed by the supervisor;
- iv. Providing a single original technique, observation, or result in an otherwise unoriginal but competent piece of research;
- v. Having many original ideas, methods, and interpretations all performed by others under the direction of the postgraduate;
- vi. Showing originality in testing somebody else's idea.

Kearns and Finn (2017:167) opinion that an original contribution to knowledge is what is expected from any doctoral research supports this. In the same light, Baptista *et al.*, (2015:57) posit that originality is not only related to the outcome of the research but, the overall process of coming up with the findings. The determination of the originality of the study is the contribution to the knowledge of facts to the particular discipline and researching the area which had not been investigated before in the context in Tanzania.

Some studies have been conducted on knowledge sharing in the Universities in Tanzania. Most of the available scholarly publications and empirical studies have investigated knowledge sharing in other different aspects. This study concentrates on "knowledge and information sharing through social networking sites among postgraduate students at selected universities in Tanzania". This is the area that has not been investigated before in the field of information studies in Tanzania, Therefore, the study is original in the discipline of library and information studies and provides an original contribution to the existing body of knowledge because it highlights other information professions in Tanzania and other parts of the world on how knowledge and information sharing practices are conducted within Universities in Tanzania.

1.6 Scope and limitation of the study

The researcher is required to point out the limitation of the study and acknowledge the extent of the generalisability of the research findings to enable the reader to be informed when extending the application in another setting (Darlington and Scott 2002:17). This study investigates knowledge and information sharing through social networking sites among students pursuing postgraduate studies in the selected universities in Tanzania. Only Universities which offered postgraduate studies located in the northern zone in

Tanzania were studied. The findings cannot be generalised to other Universities in Tanzania where the situation may differ.

1.7 Definition of key terms

In this part, the researcher provides definitions of terms that were used in this study. This serves as a signpost to the reader of the entire content of the document.

Knowledge

The term knowledge has variously been defined by different scholars. For example, Knowledge refers to the information that people have. Knowledge can be obtained through studying or can be obtained through experience and can be applied in running an organisation more effectively (Sharp 2008). Knowledge is an important resource that an organisation delivers to its customers, also is a very crucial asset that is required by the organisation to gain its competitive advantage (UNDP 2014).

Tacit knowledge

Tacit knowledge is individual knowledge acquired through experiences. It is difficult to articulate tacit knowledge using formal language/words and therefore, it is difficult to share tacit knowledge with other people. Examples of tacit knowledge may include insights, intuitions, and hunches (Nonaka and Takeuchi 1995:8).

Explicit knowledge

Explicit knowledge refers to the knowledge that can be easily articulated using formal language and figures, and with no difficulty be presented and shared to others in different formats including codified procedures, or universal principles scientific formulae or in the form of hard data (Nonaka and Takeuchi 1995:8).

Declarative knowledge

This refers to the knowledge of something described by an individual from memory, it can be in the form of words or writing and is explained with no fear (Untu *et al.*, 2020:229).

Conceptual knowledge

This is known as the awareness of the definition, rules and principles in a specific knowledge context (VanScoy 2019:168).

Procedural knowledge

Procedural knowledge refers to the steps that can be deployed to complete any given task and achieve the desired goals (VanScoy 2019:168).

Metacognitive Knowledge

Metacognitive knowledge refers to the understanding of an individual or learner including techniques that can be applied in learning, their weaknesses, the cognitive strength and other related factors that may hinder an individual learner in attaining better academic performance (Smith *et al.*, 2017:3).

Knowledge Management (KM)

Knowledge management is referred to as a series of activities that are carried out to enable a university to achieve improved teaching, research and administrative functions and promote the utilisation and sharing of knowledge in all decision-making processes (King 2009). Knowledge management involves the sharing of information and experiences among people in a similar organisation rather than the normal understanding that KM is the process of managing the knowledge objects for the required users and retrieving these from them (Mcinerney and Koenig 2011:1).

Knowledge Sharing

Knowledge sharing refers to the act of substituting knowledge, skills, and experiences among students, academic staff, administrators, and information service providers to increase understanding (Tsui *et al.*, 2006). Knowledge is one of the organisational assets and has to be used once it is generated; it has to be utilized by colleagues and staff within an organisation to produce the desired outcomes. It is the role of all staff to ensure that the knowledge they possess is shared for the sustainability of the organisation (Omotayo 2015:8).

Information Sharing

Information sharing entails the process of giving information to those in need whether on anticipation or on-demand. It is also, referred to as the process of receiving information from the giver. This term is more common in the field of Library and Information Science (Savolainen 2017). In the context of this study, information sharing can be regarded as the process of exchanging information through the use of SNSs among postgraduate students. It can be on-demand or anticipation as earlier stated.

Social Networking Sites (SNSs)

"Social networking sites are defined as the activities, practices, and behaviours among communities of people who gather online to share information, knowledge, and opinions using conversational sites" (Mushonga 2014:29). This study confined itself to SNSs which can be utilised for educational purposes such as Wikis, classroom (Classmates), WhatsApp, research (ResearchGate), writers (My creativity Community), Moodle, Microsoft Teams, YouTube, books (Shelfari), Google+, Facebook, to mention a few.

Universities

According to Merriam-Webster Dictionary (2019), "a university is a higher learning institution responsible for teaching, research and community services and authorized to offer degrees. Categories of higher academic institutions are presented by both Universities and non-Universities that offer bachelor degree programmes and above at the top level and the next level are represented by polytechnic institutions that offer bachelor degrees or below especially in vocational subjects (URT 1999:3).

1.8 Conceptual framework

The theory of reasoned action (TRA) by Fishbein and Ajzen (1975), organisational knowledge creation theory by Nonaka and Takeuchi (1995), Technology Acceptance Model (TAM 2) by Davis (1989), and some of the concepts drawn from the literature that was reviewed, and contextual knowledge formed the conceptual framework of the study as suggested by Ngulube (2020b:29). TRA is one of the best models that have been originated from learning theory that assumes behaviour towards a particular object is the major determinant factor that determines how an individual behaves. In TRA theory, two factors that determine intention include an opinion of the person's social

environment that is known as subjective norms and the individual's attitude toward the outcome of the behaviour.

The theory was chosen as a basis of the conceptual framework for the study in reviewing variables such as perception and attitude of postgraduate students on the use of SNSs for knowledge and information sharing, and external factors such as the presence of knowledge sharing policies, infrastructures such as internet connection, power supply, security, training, and presence of hardware and software and its influence on the use of SNSs for knowledge sharing among postgraduate students. Therefore, the theory was useful in assessing why postgraduate students utilise or do not utilise SNSs for knowledge and information sharing. Another theory that was selected by the researcher to guide the study is the organisational knowledge creation theory propounded by Nonaka and Takeuchi (1995). This theory has been selected to guide the study since it is in line with the topic under investigation and is the central focus of this study. The theory explains how knowledge is created in an organisation and the whole process that knowledge sharing occurs until the final stage where the new knowledge is created.

Nonaka and Takeuchi (1995:62) assert that knowledge is generated once there is an interaction of tacit and explicit knowledge. The interaction process occurs through the following modes: socialization, externalization, internalization and combination. Since the study investigates knowledge sharing through social networking sites, the knowledge conversion model was useful in examining how all these processes occur in Universities to ensure knowledge sharing happens and how new knowledge is generated. Finally, TAM 2 which was propounded by Davis in (1989) through its variables such as perceived ease of use, attitudes of the users towards the new technology, perceived usefulness of the new technology, cultural and social factors that were reviewed to determine their influence on the adoption and use of social networking technologies for knowledge and information sharing among postgraduate students. The conceptual framework is discussed in detail in Chapter Three.

1.9 Research methodology

Wilson (2014:7) lists six elements that form a research methodology as follows: (i) research design that guides the researcher in carrying out the study, (ii) research philosophy which shows the stance of the researcher, (iii) research approach whether the study is qualitative, quantitative or mixed-method (iv) research strategy that the researcher employed in the course of undertaking the research (v) data collection methods and (vi) analysis of the collected data. All techniques that are applied in conducting research may be understood as research methods (Kothari 2004:7). The research methodology used to conduct this study was mixed methods research (MMR) and is described in Chapter Four.

1.10 Ethical considerations

Sekaran and Bougie (2016:13) affirm that ethics is a set of favourites that attract the behaviour of a human being. This is because social researchers investigate the lives of other human beings. Thus, researchers must safeguard the rights, welfare, and privacy of individuals and communities that form the concentration of their studies (Denzin and Lincoln 2018:157). Information given by the respondents must be treated as confidential and their privacy should be safeguarded as one of the key roles of the researcher (Cassell, Cunliffe and Grandy 2018:24). Data that are collected from respondents must be properly stored to ensure respondents privacy is not compromised (Howitt 2016:456).

Research should adhere to the rights, privacy, and confidentiality of the research respondents throughout the research process (UNISA, 2013:9). Researchers must adhere to research ethics throughout the whole life of a research project and not just at the outset (Sekaran and Bougie 2010:405). The researcher also should acknowledge all the authors used in the work to avoid copyright violations (UNISA, 2005:2). The purpose and significance of the study were explained to the participants to seek their consent before they participated in the study. Participants were also allowed to withdraw at any time during the research process without giving reasons for their decisions. Thus, this study sought research approval from UNISA and the researcher complied with the university research policy throughout the study. Ethical considerations are further explicated in Chapter Four.

1.11 Organisation of the thesis

Chapter One: Introduction and background of the study

This chapter is comprised of the study context, problem statement, the purpose of the study, objectives of the study, research questions that guided the study, study justification, scope of the study, ethical considerations and study originality.

Chapter Two: Context of the study

This chapter provides an overview of the study and the rationale for choosing the area of the study. This chapter also provides the background of the academic institutions that have been selected for this study and the profile of the regions where the study was carried out.

Chapter Three: A literature review on knowledge sharing

This chapter covered a review of related literature which is in line with the study objectives. The literature reviewed was on knowledge sharing practices. The section is also comprised of the theoretical framework for the study.

Chapter Four: Research methodology and design

This chapter is comprised of the research methodology that was adopted, it also includes the research design, research approaches, research paradigms, ethical consideration, and validity and reliability of the study.

Chapter Five: Presentation of findings

This chapter presents the findings of the study based on the study objectives.

Chapter Six: Discussion of findings

This chapter presents a detailed discussion of the study findings based on the study objectives and theories that were chosen to guide the study.

Chapter Seven: Summary, Conclusion, and Recommendations of the study findings

In this chapter, the researcher synthesised, concluded and recommended further action to improve the current situation and proposed areas for further study.

1.12 Chapter summary

Chapter One presents the key issues relating to this study including the introduction and background to the study, problem statement, study objectives, and research questions. Aspects that have been included in this chapter are the rationale or justification of the study, originality of the study, scope and limitation of the study, the definition of operational terms, methodological issues, ethical issues relating to research, and the conceptual framework. The history of SNSs has been highlighted by looking at practices of SNSs and knowledge sharing in other parts of the world. The usage of SNSs for knowledge and information sharing in Universities in Tanzania is not well known, thus it was important to examine the usage of SNSs in Universities in Tanzania to deepen our understanding of this emerging phenomenon. The next chapter presents the context of the study which starts with the profile of the United Republic of Tanzania (URT).

CHAPTER TWO

CONTEXT OF THE STUDY

2.1 Introduction

This section presented the context of the study. The research problem, the research objectives, research questions, and justification for the study were presented in Chapter 1. Chapter 2 discusses the context of the study concentrating on a short profile of the United Republic of Tanzania (URT), the geographical location of the study, profiles of selected universities for the study, and finally, the information and communication technologies (ICTs) infrastructure in Tanzania. The purpose of discussing the state of the art of ICT infrastructure in Tanzania was to gain a better understanding of the efforts that were made by the government towards ensuring that ICT infrastructure was installed across the country to enable Universities to integrate and use SNSs in knowledge and information sharing with the view of enhancing learning among postgraduate students.

2.2 United Republic of Tanzania: country profile

Tanzania is one of the member states of the East African Community (EAC). Zanzibar which consists of Pemba and Unguja, and mainland were united to form The United Republic of Tanzania, it occupies 947,300km² total area (FAO 2016:1). Tanzania became independent in 1961 (Tanganyika become independent in 1961 and Zanzibar in 1963), the two countries were united in 1964 to form one country (ADB 2015:20). The population of Tanzania was 44,928,923 in 2012. The population of Tanzania increased by 30% from 34.4 million to 44 million at the growth rate of 2.9% a year and is expected to reach 64 million by 2025 and 83 million by 2035. At the moment the Tanzania population is expected to reach 67 million in 2025 and 89.2 million by 2035. The country is formed up by 30 regions, 5 in Zanzibar and 25 in mainland (UNDP 2018:5; URT 2013:1; ADB 2015:20). Figure 1 is representing the map of Tanzania.

The economy of Tanzania has been growing at the rate of 6.7% in the year 2000 and 2012 and the GDP reached 1379 from 868 (US\$ 2005, 999) in the same year. Agriculture is the backbone of Tanzania employed majority of its people (ADB 2015:21). The GDP has been growing at the rate of 7.1% in the year 2017 compared to the 7.0% growing rate attained in the year 2016. Several factors attributed to the growth rate including implementation of various government projects and the achievement in

the agricultural sector (URT 2018:3). The level of multidimensional poverty was high at the rate of 47.4% in the year 2015 from 64% in the year 2010 (UNDP 2018). The primary economic activity is agriculture which contributes 24.1% of the country GDP and 30% of export income which employs about 77.5% of economically active population (URT 2013:9). Although the government budget has been increasing, the allocation to the education sector has been declining from 19.5% in the year 2012/13 to 16.2% in the year 2016/17. This means that the budget directed to the education sector in Tanzania is below the SADC protocol of 25% of the total budget and 4.5% instead of 5% of the total GDP (URT 2018:9).



Figure 1: Map of Tanzania showing administrative regions

Source: <https://www.ontheworldmap.com>

Note: study areas are indicated using blue colour

2.3 Geographical location of the selected study areas

Tanzania is comprised of six zones namely Central Zone, Coastal Zone, Lake Zone, Southern Highlands Zone, and Northern Zone. The northern zone is made up of four regions including Tanga, Kilimanjaro, Arusha, and Manyara. Kilimanjaro and Arusha regions have ten (10) university and non university institutions offering various

programmes ranging from a certificate level to postgraduate studies. Only one university exists in the Tanga region, it is known as Sebastian Kolowa University. There is one campus in the Manyara region representing the Institute of Accountancy Arusha (IAA) which offers non -degree programmes. This study covers two administrative regions, Kilimanjaro and Arusha. The reason for choosing the two regions is that they host a large number of academic institutions when compared to any other region of the Northern Zone of Tanzania. The two selected regions have also attained a high level of socio-economic development resulting from tourism, mines and agricultural activities compared to the rest of the regions in the Northern Zone of Tanzania. Finally, the two regions are close together and more accessible than more distant regions hence this enabled the researcher to conduct the study conveniently.

2.3.1 Kilimanjaro region

Kilimanjaro region is geographically located between latitudes 20 20' and 40 30' South of the Equator and between longitudes 370 and 380 East of the Greenwich. Historically and geographically, the region is famous as part of it is occupied by the highest mountain in Africa which is also the highest freestanding mountain in the world, namely Kilimanjaro Mountain. The surface area of the region is 13209 km² and fertile for agricultural production. Kenya is at the North and East of the Kilimanjaro region, Tanga region to the South, Manyara to the South West and Arusha region to the West. Kilimanjaro region is comprised of seven districts namely Mwanga, Same, Moshi Rural, Moshi Urban, Rombo, Hai and Siha (Kilimanjaro Region Investment Guide 2017:7). Kilimanjaro region had a population of 1,640,087 with growth rate of 1.8% per annum by 2012 compared to the growth rate of 1.6% between 1988-2002 (URT 2012:2). The region is occupied by two main tribes known as Chagga and the Pare (Kilimanjaro Region Investment Guide 2017:7).

2.3.2 Arusha region

Arusha region is situated in the north-eastern part of the United Republic of Tanzania. Beside in its borders, there is the Kilimanjaro region in the north and the Tanga region in the east. Dodoma region is located on the southern end part of Arusha and Mara, Shinyanga, and Singida regions lie to the west. Arusha region consisted of seven districts, one of them being Arusha City (Overseas Development Institute 2016:6). Arusha Municipality extended its boundaries from 93 km² to 208 km² after officially

being upgraded by the government to become a city (Wenban-Smith 2015). National Bureau of Statistics (NBS 2012:26) shows that Arusha City had a population of 416,442 in the year 2012 of which the majority of people were from the urban areas (ODI 2016:6). Arusha region experiences three climatic seasons, including long rains that start from March to June, a dry season of July to September and lastly the short rains season which occurs between October to December (Hand in Hand in Eastern Africa 2017:22). The next section provides detailed information on the Universities located in Kilimanjaro and Arusha regions that were selected for the study.

2.4 The profile of selected universities in the study

Kilimanjaro region is partly occupied by Mount Kilimanjaro which lies between 1800 and 5895 metres above sea level with an annual rainfall of more than 2000mm (Kilimanjaro Region Investment Guide 2017:3). The region is home to several academic institutions such as Moshi Co-operative University (MoCU), Mwenge Catholic University (MWECAU), College of African Wildlife Management (CAWM), Kilimanjaro Christian Medical University College (KCMUCo), and the Tanzania Centre for Orthopaedic Technologists (TATCOT). Arusha region hosts several academic institutions such as the University of Arusha (UoA), Tumaia University Makumira (TUMA), Nelson Mandela African Institutions of Science and Technology (NM-AIST), Eastern and Southern African Institute of Management (ESAMI), Institute of Accountancy Arusha (IAA), Arusha Technical College and Patandi Teachers College. The selected institutions are explained below.

2.4.1 The Nelson Mandela African Institution of Science and Technology

The Nelson Mandela African Institution of Science and Technology (NM-AIST) located in Arusha is one among the Pan-African Institutions of Science and Technology networks existing in the continent. They originate from the idea of South Africa's first democratically elected president Nelson Mandela, who dreamed of training and building up the next generation of well-trained scientists and engineers who may apply the use of science, engineering and technology in attaining continental development. The NM-AIST is accredited by the Tanzania Commission for Universities (TCU) and is one of the current leading research-intensive institutions for postgraduate studies and research in science, engineering and technology (SET). SET training has integrated a significant number of pertinent humanities and business components. Strong academia-industry

relations are one of the NM-AIS's development agendas that are achieved through the integration of innovation and entrepreneurship features in its SET curricular (NM-AIST Prospectus 2016-2017). NM-AIST can be accessed through <https://www.nm-aist.ac.tz/>

2.4.2 Moshi Co-operative University

Moshi Co-operative University (MoCU) was established in 1963, it was formerly known as the Co-operative College Moshi. Then in the year 2004, the college was transformed into a constituent college of the Sokoine University of Agriculture (SUA) and its name changed to Moshi University College of Co-operative and Business Studies (MUCCoBS). The then MUCCoBS became a full flagged university in 2014 and was officially known as the Moshi Co-operative University (MoCU). The Moshi Co-operative University (MoCU) is situated in the Moshi Municipality along Sokoine Road. MoCU has one teaching centre at Kizumbi Shinyanga Municipality and 13 regional offices to cater for all regions in Tanzania. The regional offices are located in Kilimanjaro, Tanga, Shinyanga, Mwanza, Dodoma, Tabora, Kigoma, Mbeya, Iringa, Ruvuma, Coast, Mtwara and Singida regions. MoCU offers several academic programmes starting from Certificate to Postgraduate level. The University has several faculties, institute(s), bureau, directorates, centres and departments. (MoCU Prospectus 2017-2018) The University can be accessed through <https://www.mocu.ac.tz/>

2.4.3 Institute of Accountancy Arusha

The Institute of Accountancy Arusha (IAA) is a publicly-owned educational institution established through the IAA Act of 1990. The overall mandate of controlling and supervision of the IAA is under the Governing Council. Several academic programmes were developed by the institute including one-year Certificates programmes and Postgraduate programmes. The institute also conducts tailor-made programmes, seminars, research and consultancy activities as part and parcel of its mission. IAA aspires to develop long-lasting partnerships with government and non-governmental organisations through its interventions. Currently, IAA offers the following postgraduate programmes: Master in Software Engineering, Master in Computer Applications, Master in Information Security, Master in Business Administration specialising in (Information Technology Management, in Logistics Management, Procurement and Supplies Management) and Master in Finance and Investment, Postgraduate Diploma in Accountancy, Postgraduate Diploma in Banking and Finance,

Postgraduate Diploma in Supplies Management, Postgraduate Diploma in Computing, Postgraduate Diploma in Financial Management and Postgraduate Diploma in Strategic Studies (IAA Prospectus 2015/16-2017). The Institute of Accountancy Arusha can be accessed from <https://iaa.ac.tz>.

2.4.4 Mwenge Catholic University

Mwenge Catholic University (MWECAU) is a privately owned university that was established in 2005. Before becoming a full flagged university, MWECAU was known as Mwenge University College of Education (MWUCE). Firstly, MWECAU began as a teachers' College in 2001 at that time it was known as St. Joseph's Teachers Training College. Tanzania Episcopal Conference (TEC) is the official owner of the university. The university actively participates in academic activities such as teaching, research and community engagement as a means of achieving its mission and responding to the government education policies. The university has enough qualified teaching staff to ensure its academic integrity. Currently, the university has about 4919 students and about 180 both academic and administrative staff to serve its purpose.

The university offers several programmes ranging from Certificate to PhD levels. Programmes that are offered by the university include the following, PhD in Education, Master in Education, Master of Business Administration, Bachelor degree in Education, Business Administration, Mathematics and Statistics, Geography and Environmental Studies and Humanities. Non-degree programmes offered by the university include the following ICT, Laboratory Technology, Business Administrations, Library Records and Archives Management, Law and Humanities. (MWECAU Prospectus 2018-2019). Mwenge Catholic University can be accessed through (www.mwecau.ac.tz)

Therefore, four Universities from Kilimanjaro and Arusha regions were selected for the study. These include Moshi Co-operative University (MoCU), Nelson Mandela African Institution of Science and Technology (NM-AIST) and Institute of Accountancy Arusha (IAA) which are public Universities and one private university namely Mwenge Catholic University (MWECAU). IAA has not yet attained a university status but it is one of the tertiary institutions in Tanzania which offer postgraduate studies which follows guidelines set by the Tanzania Commission for Universities (TCU) and the National Accredited Council of Tanzania (NACTE). Hence, the institution met the

criteria of being included in the study. The choice of public and private Universities also enabled the researcher to gain rich information on the usage of SNSs for knowledge and information sharing among postgraduate students in both public and private Universities of Tanzania. This context is relevant to this study since Arusha and Kilimanjaro have a high number of Universities and university colleges offering postgraduate studies ranging from Postgraduate, Master to Doctoral studies and therefore, understanding the use of social networking sites for knowledge and information sharing among the postgraduate students becomes imperative.

2.5 Information and communication technologies infrastructure in Tanzania

The government of Tanzania like any other developing nation is recognizing the fundamental roles played by information and communication technologies (ICTs) and therefore, is providing various supports towards ensuring ICT is utilised in all sectors of the economy including the education sector (Angello and Wema 2010:53). ICTs play a significant role in the education system such as in research, teaching and learning because it allows academics and students to share knowledge and information through various platforms including social networking sites (Sife 2013:1; 2010). The emergence of ICTs has changed the economic and social lives of many people. ICTs have been regarded as the facilitator of services that have helped many countries to make several changes in their education systems including Tanzania (Ngeze 2017:424). Economic social and research foundation (ESRF) acknowledge that ICT has been regarded as a critical enabler in Tanzania specifically in facilitating poverty reduction, acting as a catalyst for socio-economic development, facilitating learning, knowledge sharing and information dissemination (Manda and Mkhai 2016:96).

Mwantimwa (2019:2) advances that the government of Tanzania realises the role played by ICT and therefore decided to put in place various strategies and reforms to support the efforts that are targeted towards enhancing the utilisation of these tools in diverse sectors of the economy including the formulation of ICT policy of 2003 which aimed to ensure ICT is deployed in all sectors of the economy in the country as the vehicle of achieving national development; ICT policy for basic education of 2007 aimed at ensuring that ICT is utilised from pre-primary, primary, secondary and teacher education as well as in non-formal and adult education and ICT policy of 2016 which aims at transforming Tanzanian into a rich knowledge based-society. The formulation of

the national information communication technology policy (NICTP) for Tanzania commenced in the year 2000 after it was realized that the use of ICT in the country was weak. In the year 2003, the policy was approved to guide the use and development of ICT in the country (Twaakyondo 2011:46).

Swarts and Wachira (2010:6), assert that the Ministry of Education Vocational and Training in Tanzania (MoEVT) recognises the central role played by ICT in improving the quality of education as articulated in various national policies and strategies and national development plans. Swarts and Wachira (2010:6) further hold that the national ICT policy of 2003 acknowledges that ICT provides various opportunities and act as the catalyst for the establishment of e-learning. Similarly, Ndaw and Welsien (2015:3) affirm that the growth and implementation of ICTs in Tanzania are guided by the national ICT policy of 2003 which aimed at putting in place a favourable environment for ICT utilisation in the country. On the contrary, Kafyulilo, Fisser and Voogt (2015:382), argue that the 2003 national ICT policy did not intentionally focus on the use of ICT in the education sector alone and did not have the purpose of concentrating on the integration of ICT in education. It guided the use of ICT in the country generally such as mobile phones, computers, the internet and other ICT related gadgets.

Similarly, Isote (2013:25) claims that lack of a clear focus from the 2003 national ICT policy has caused the adoption of different systems and standards in various sectors in the country which resulted in the duplication of efforts and wastage of resources. In responding to the identified weaknesses, the government of Tanzania decided to amend the 2003 national ICT policy and replace it with the national ICT policy of 2016 which acknowledge the potential role of education and research institutions in the development of ICT in the country. The policy states that "education and research institutions will be responsible for promoting ICT curriculae that shall be used in training, developing competent human capital and relevant research outputs for ICT development in Tanzania" (URT 2016:42).

The national ICT policy of 2016 is reflected in both the national and international development targets including the Tanzania development vision (TDV) 2025 which emphasises that "the new opportunities that ICT is opening up can be harnessed to meet the goals of the vision"; the national five-year development plan (FYDP) 2020/21-

2022/26 which acknowledges that ICT is the main facilitator of attaining national development and transformation and that of sustainable development goals (SDGs 2030) such as goal number one which aims at ending poverty in all its forms everywhere by 2030 and goal number four which aims at ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all including access to computer and internet. The national ICT policy 2016 realises the need for manpower development, knowledge creation and information sharing, ICT infrastructure and access for Tanzanians to fully participate in national development initiatives during this era of the knowledge economy (TDV 2025; Hamad 2018; Ngeze 2017:424; Kowero 2012:1; URT 2016:17; United Nations 2019).

Despite the positive statement of the national ICT policy 2016 on the use of ICT in attaining socio-economic development in the country, access to ICT remains a great challenge in Tanzania as Anatory (2017), affirms that the shortage of ICT based infrastructure in rural and urban areas which caused the limited access to ICT based-services necessitated telecommunication industries in Tanzania to undertake several changes in previous years. Anatory (2017), further avers that the government of Tanzania decided to start a national ICT broadband backbone (NICTBB) infrastructure project to solve the problem. On the other hand, Esselaar and Adam (2013:4), express the view that the plans for the implementation of NICTBB, which aimed at enhancing the adoption and utilisation of ICT in the country, started in 2006 with the usage of extra transmission capabilities that were already in place in areas like railway, electricity, and natural gas.

Similarly, Kowero (2012:7), affirms that the government of Tanzania started officially to build the NICTBB in 2009. The project of installing the national optic fibre cables necessitated the government of Tanzania to spend over 250 billion. Kowero (2012:7), further asserts that despite all initiatives done by the government of Tanzania the utilisation of the backbone was only 10% of the installed capacity by 2012 when the NICTBB project was completed and covered 25,954 kilometres of optic fibre cable (OFC) with the expansion from the Dar es Salaam region to the mainland (URT 2016:17). Now, the backbone has extended to 24 regions of mainland Tanzania with connection to the east African marine system (TEAMS), the eastern Africa submarine cable system (EASSy) with the capacity of 4.72T Terabits per second, the sea cable

system (SEACOM) with the capacity of 4.8 Terabits per second, and the lower Indian ocean network 2 (LION 2). The backbone has also extended beyond the border to other nearby countries like Kenya, Uganda, Rwanda, Malawi, Burundi, Zambia, South Africa, Madagascar and Mozambique (Anatory 2017; Byanyuma *et al.*, 2018:76; CIPESA 2015:4; URT 2016:4; Kowero 2012:15).

The expansion of broadband mobile internet coverage has enabled the connection of both rural and urban people. Although the number of mobile subscribers has been growing in Tanzania its utilisation in education is still low especially in rural areas and semi-urban areas as a result of the cost associated with the use of ICT, unreliable power supply and internet connectivity. Improved ICT infrastructure including the availability of a reliable power supply, transportation systems such as roads, internet connectivity is of the essential factors for enhancing access to ICT in both urban and rural areas in Tanzania.

It is estimated that 62% of people in Tanzania possess mobile phone access in their households, comprising 82% of the population living in urban areas and 54% in rural areas (Swarts and Wachira 2010:9; Isote 2013:23; Pfeiffer *et al.*, 2014:179). There has been acceleration in the use of ICT in Tanzania between 2001 and 2007 mainly of mobile technology which rose from 1% in the year 2001 to 25% in the year 2007, with over 2000% growth rate. The ownership of mobile phones grew to 61% by 2012. Despite the growth of mobile phone owners in Tanzania, the internet penetration rate was lower, rising from 4% in the year 2005 to 16.8% in 2012. The Internet Penetration rate in Tanzania reached 71% by 2015 with 11.36 million users of the internet. Vodacom, Tigo, Airtel, Zantel and Tanzania telecommunication company (TTCL) are the five companies that were operating. Vodacom, Tigo and Airtel were leading in market share (COSTECH 2015; CIPESA 2015:3).

In East Africa, Kenya is the leading mobile network operator followed by Tanzania. Data obtained from the Tanzania communications regulatory authority (TCRA) indicate that 86% of all subscriptions were accounted for by three mobile operators by March 2017 as follows Airtel 26%, Tigo 28% and Vodacom 32% of market share respectively (Mibei *et al.*, 2017:17). In Tanzania, 86% of the people living in rural areas remained with limited access to the internet compared to 44.4% of the people living in urban areas

(Mothobi, Chair and Rademan 2017:3). On the other hand, Byanyuma *et al.*, (2018:76), affirm that mobile phone companies are insisting on informing Tanzanians that they are connected in both urban and rural areas; however, the service remained with people staying near to a high networking environment while leaving those staying in remote areas unconnected.

Byanyuma *et al.*, (2018:76), further explain that it can be acknowledged that broadband connectivity in Tanzania is no longer a problem. This is due to the presence of internet connectivity available through submarine cables such as SEACOM, EASSy, and TEAMS therefore, problems associated with accessibility and expenses will immediately be resolved. However, when anyone moves away from district headquarters, they will realise this statement is not true. Statements from Byanyuma *et al.*, (2018:76) substantiate the persistence of internet connectivity problems in rural areas of Tanzania.

2.6 Chapter summary

This chapter started by providing a profile of the United Republic of Tanzania (URT) focusing on its historical background with Zanzibar, the country GDP and member states; the chapter further presented the geographical location of the study areas where Arusha and Kilimanjaro regions profiles were presented. Furthermore, the chapter presented the profile of selected universities for the study, and finally, the chapter highlighted the status of information and communication technologies (ICTs) infrastructure in Tanzania. The next chapter presents the review of literature on knowledge sharing information sharing and the conceptual framework that guided the study.

CHAPTER THREE

LITERATURE REVIEW ON THE USE OF SOCIAL NETWORKING SITES IN KNOWLEDGE AND INFORMATION SHARING

3.1 Introduction

As pointed out in Chapter 1, this study aimed to investigate the utilisation of social networking sites (SNSs) in knowledge and information sharing among postgraduate students in the selected universities in Tanzania. Chapter 2 presented the context of the study concentrating on the profile of the United Republic of Tanzania (URT), geographical location of the study areas where information on Kilimanjaro and Arusha regions was provided, the profile of each university selected for the study and finally, the status of ICT infrastructure in Tanzania was discussed. The purpose of Chapter 3 is to review the literature which relates to the topic under investigation and to provide a conceptual framework that guided the study.

The literature that was reviewed is pertinent to the objectives of the study such as types of knowledge and information that postgraduate students prefer to share through SNSs, policies guiding postgraduate students in using SNSs for knowledge and information sharing, level of skills of postgraduate students on the use of SNSs for knowledge and information sharing, factors influencing the use of SNSs for knowledge and information sharing, and factors determining the level of usage of SNSs. Variables such as organisational support, technology, self-efficacy, motivation, trust, and education and training which were derived from the concept map were also discussed in this chapter.

3.2 Purpose of the literature review

Different scholars have discussed the purpose of reviewing literature while conducting research, for example, Matthews and Ross (2010:93), identifies the following reasons for conducting an extensive literature review:

- (i) A literature review allows researchers to critically study the topics they wish to investigate; therefore, it helps researchers to identify the gap in knowledge they intend to fill.
- (ii) A literature review assists researchers to avoid duplication of similar studies that have already been done by others. Therefore, researchers are not expected to

conduct the same study that has been already carried out by others on the same topic, except the researcher intends to use the same data or the same topic by applying another technique

The intention of undertaking a literature review is to broaden the researcher's knowledge regarding the selected topic to be investigated, the choice of appropriate method to undertake research, and to identify data sources for the study. A literature review provides a better understanding to the researcher of what has been already done on related or similar topics and techniques that were deployed. A literature review can be guided by the theory in investigating how the available literature is directly connected to the available or anticipated theory or new thoughts and concepts might come out as a result of examining and synthesising other sources. It helps researchers in conceptualising and choosing a research design (Yin 2011:62; Wee and Banister 2016:278; Denney and Tewksbury 2012:2; Siddaway, Wood and Hedges 2019:750; Balnaves 2001:24). On the other hand, Mouton (2001:87), states that a well-planned literature review of already existing scholarly works helps researchers to avoid repeating mistakes that were done by previous researchers or duplication of similar research unnecessarily. Green, Johnson and Adams (2006:102), argue that an extensive literature review provides a base for confirmation of hypotheses and general understanding to the reader on the results of other studies and may provide detailed findings than one primary source.

Burns and Burns (2008:47) hold that:

A literature review is more than a descriptive annotated bibliography, summarising and listing each relevant finding. It is a critical review of what has been done, pulling disparate strands together, and identifying relationships and contradictions between previous research findings.

On the other hand, Jesson and Lacey (2006:140), suggest that when conducting a review of literature, the researcher should have a clear understanding of why the literature review is conducted and the anticipated outcomes from the consulted literature. In highlighting the role of the literature review in research Jones (2007:33), states that a review of literature will point out several approaches that were deployed in the course of undertaking research and provide critical reviews of their roles to understanding. A

review of literature forms a ground for strengthening findings of research within a particular discipline into organized articles that provide the latest development, drawbacks and the future focus of further research (Keary, Byrne and Lawton 2012:239; Knoll *et al.*, 2018:293).

As Levy and Ellis (2006:182) posit, that a sound literature review is characterized by the following:

Methodologically analysed and synthesised literature, b) provide a firm foundation to a research topic, c) provide a firm foundation for the selection of research methodology, and d) demonstrate that the proposed research contributes something new to the overall body of knowledge or advances the research field's knowledge-base.

Synder (2019:333) avers that literature reviews provide the best way of summarising findings of the study done by other researchers and provide evidence on a meta-level and highlights areas that require more research to bridge the existing knowledge gap. Conducting an extensive literature review helps researchers in identifying the knowledge gap and provides a focus for future research (Malek and Desai 2020:9). On the other hand, Sayfour (2014:1694) advances that a literature review in research is an area that demonstrates the competence of researchers in their discipline by showing the ability of their extensive reading and depth of their understanding. Mengist, Soromessa and Legese (2019:4) opine that a literature review of already published works enable researchers to map, evaluate and assess the knowledge gaps which form the basis for understanding particular phenomena.

On the other hand, Pelosi, Sandifer, and Sekaran (2001:321) state that a literature review aims at ensuring that all-important variables are not ignored in the course of examining the problem. Pelosi, Sandifer, and Sekaran (2001:322) further claim that a good literature review ensures that the study being conducted is perceived to be relevant and significant by the scientific community. A literature review helps researchers to become informed on how previous researchers have dealt with the topic under investigation, the knowledge that researchers have acquired and provides a direction for the new study on how data collection should be carried out (Walliman 2011:136).

There are different ways of conducting a literature review as pointed out by various scholars. For example, Yin (2011:64) identifies the following three ways of conducting a literature review:

The first way is to collect various qualitative studies that were previously done by other researchers and prepare a study bank, to help you to know the sources of data for a new study, consider the topic and method. The second is to conduct a literature review on studies that appear to be similar to the topic you want to study and help you to identify the position for the new study in a good manner. The third is to conduct an extensive literature review to make a summary of what is known in a given topic but it is not necessarily pertinent in enabling us to conduct any particular new study.

On the other hand, Siddaway, Wood and Hedges (2019:751) mention another way of conducting a literature review, known as systematic literature review (SLR). Siddaway, Wood and Hedges (2019:751), posit that SLR is composed of well-organised search procedures to identify and access pertinent published and unpublished documents that answer single or more research questions. Armitage and Keeble-Allen (2008:103) identify that process as a structured literature review (SLR), as they posit that SLR is regarded as a technique whereby any published or unpublished documents can be consulted when assessing studies done by others.

There are several reasons as to why researchers carry out a systematic review, Petersen, Vakkalanka and Kuzniarz (2015:1) state that a systematic review intends to summarise findings of the study done by others considering the rigour and strength of their research findings while systematic maps deal with the structuring of the topic under investigation. In recognizing the need for a thorough literature review in research, Petticrew (2001) and Petticrew and Roberts (2006) suggest how a systematic literature review should be conducted with the view of enhancing rigorous research findings compared with a traditional literature review as summarised in Table 2.

Table 2: Differences between systematic reviews and traditional reviews
(Petticrew 2001; Petticrew and Roberts 2006).

Issues to consider	Good quality systematic review	Traditional reviews
Deciding on the review	Start with clear question to be answered or hypothesis to be tested	May also start with clear question to be answered, but more often involve general discussion of subject with no stated hypothesis
Searching relevant studies	Strive to locate all relevant published and unpublished studies to limit impact of publication and other biases	Do not usually attempt to locate all relevant literature
Deciding which studies to include and exclude	Involve explicit description of what types of studies are to be included to limit selection bias on behalf of reviewer	Usually do not describe why certain studies are included and other excluded
Assessing study quality	Examine in systematic manner methods used in primary studies and investigate potential biases in those studies and sources of heterogeneity between study results	Often do not consider differences in study methods or study quality
Synthesising study results	Base their conclusions on those studies which are most methodologically sound	Often do not differentiate methodologically sound and unsound studies

Thus, in conducting a literature review, the researcher adopted a thematic approach in this study. Organising the literature review through a thematic approach enabled the researcher to address the research objectives and research questions of the study.

3.3 Mapping of literature review

Concept maps are pictorial diagrams formulated by Joseph D. Novak and his colleagues in the 1970's. These concept maps originated from Ausubel's theory. Concept maps facilitate the formation of ideas for the researcher and enhance creativity (Katagall *et al.*, 2015:639). A literature map is a pictorial representation of studies that have been carried out by others; it is normally represented using diagrams (Creswell 2014:36). Pictorial representation of the concept maps can be in the form of a hierarchy, cluster or chain format (Djanette and Fouad 2014:583). On the other hand, Cruz-Benito (2016) holds that literature mapping plays a significant role at the early stage of literature review as a thinking and scoping mechanism. Additionally, Alias and Suradi (2008), assert that the use of concept maps may facilitate the creation of a logical flow of the literature review. To form a concept map, the researcher creating the map should start with a broader topic and narrow them down into parts and find connected words to bind the concepts together (Daley *et al.*, 2010:358).

Silva, Vaz and Ferreira (2013:307) affirm that a concept map is the pictorial representation of the topic under investigation; it portrays the concepts reflecting the area of study and connection of the concepts. With the help of arrows or lines, boxes or circles are used to indicate the existing relationship between the concepts (Slack 2004:36). Grant and Osanloo (2014:20) state that "the construction of a concept map is an excellent way to offer a preliminary organisation of knowledge and to structure your understanding of how you will approach your dissertation topic".

Weinerth *et al.*, (2013:4) assert that the construction of the concept map is not an easy task because it requires the researcher to understand how the concepts should be framed to represent information content in a logical order during the literature review. Anohina-Naumecca (2014:105) states that concept mapping as a tool is used to help researchers in framing concepts and variables and to explain their relationship to generate understanding of a particular phenomenon. Buldu and Buldu (2010:2101) aver that concept maps are the effective instruments that assess how researchers understand their fields of study, organisation of their knowledge and their ability to link the related concepts in a study. Conceição, Samuel and Binieck (2017:3) affirm that concept maps can be created with the aid of computer programs and help researchers to demonstrate their understanding of the subject matter and the existing relation between concepts in a

given study. Likewise, Renfro (2017:1) affirms that with the use of concept maps, researchers' ability to match the relationship between the concepts in a study is enhanced and provides the basis of undertaking an investigation. Reiska (2015:354) points out that in formulating concept maps researchers use their prior knowledge and link it with the topic to be investigated.

Any misconception of the relationship between the concepts or variables of the study signifies a lack of understanding of the problem to be investigated on the part of the researcher. Concept maps enable researchers to demonstrate their understanding based on their prior knowledge and experiences in presenting ideas, concepts and their relationship in a study (Evrekli, Inel and Balim 2010:2330). In the same light Landreth and Silva (2013:411) state that the use of concept mapping in research allows researchers to elaborate what has been already done in a similar topic under investigation and serves in selecting what should be done in the next. The map of a literature review is presented in figure 2.

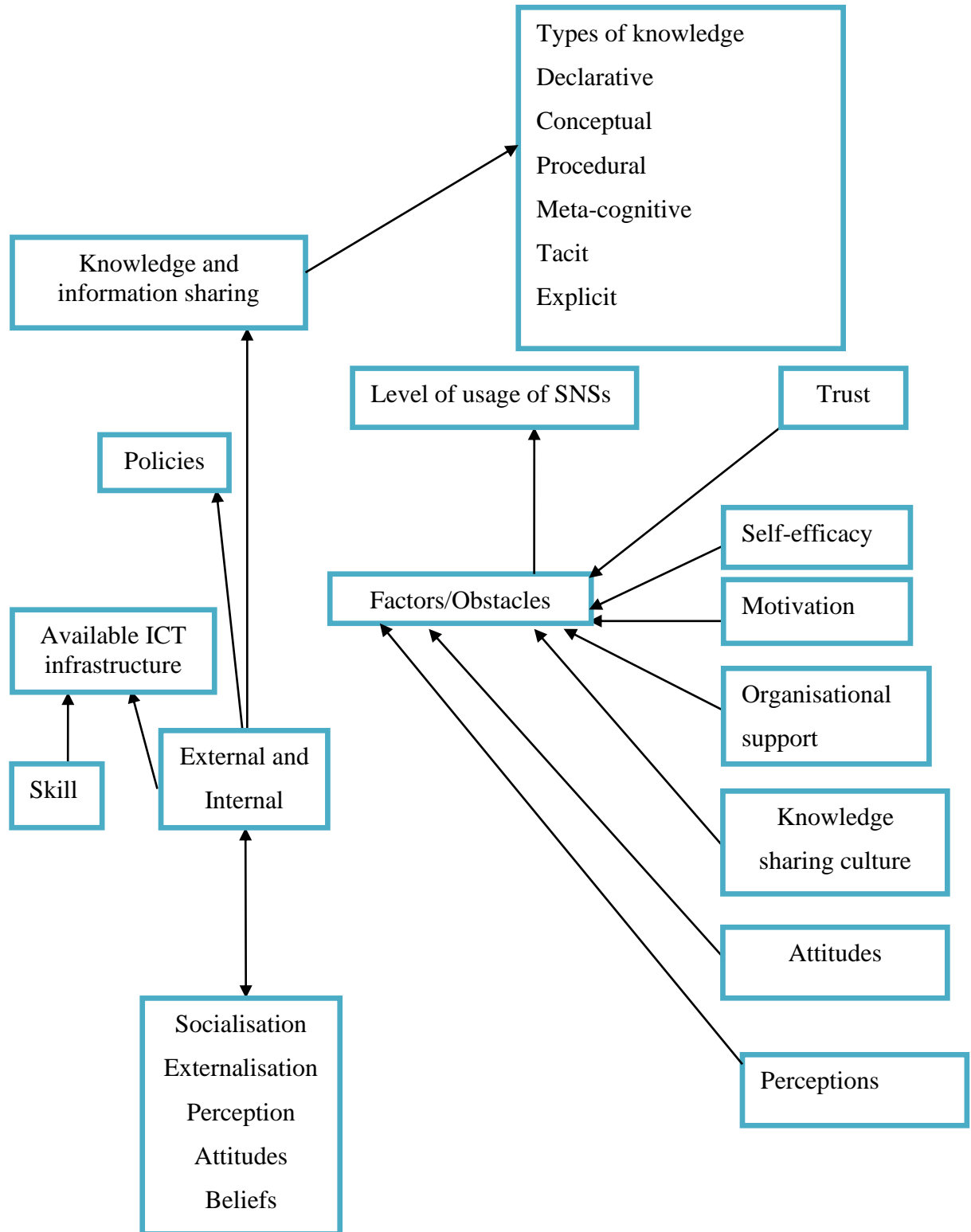


Figure 2: Map of literature review on the use of social networking sites
 Source: Researchers own construction (2022).

3.4 Conceptual framework versus theoretical framework

A theoretical framework consists of theories propounded by professionals in various disciplines, these theories were tested and validated and therefore, researchers select them as their guidance while conducting an investigation and in the communication of research findings (Kivunja 2018:46). Theoretical framework refers to the use of theory taken from one study and a similar theory used to explain a situation or events while a conceptual framework is derived from the concepts which are then connected to explain their probable relationship (Imenda 2017:189). A theory is a set of interrelated concepts that can be used to predict outcomes (Casanave and Li 2015:107). Models, concepts, constructs, and propositions are the building blocks of a theory (Ngulube, Mathipa and Gumbo 2015). On the other hand, Ngulube (2020b) affirms that quantitative or mixed methods research tests a theory after it has been developed by either qualitative or mixed methods research.

In most cases, the theory attempts to respond to why question (Rengasamy 2016; Ngulube 2020b). Theories may provide answers as to why something happens and anticipate what should happen in future (Rengasamy 2016:120). The theory which is selected to guide the study is regarded as a lens. Therefore, lenses are considered as analytical tools in the analysis and interpretation of research findings (Mkhomazi and Iyamu 2013). Yamauchi, Ponte and Ratliffe (2017:11) assert that failure of using theory in informing the study puts researchers at the risk of not being able to study the research questions thoroughly and present limited findings.

A theoretical framework enables researchers to understand the existing relationship between concepts, ideas, and knowledge (Svinicki 2010:5). While the conceptual framework might be a result of researchers own synthesis and thinking regarding the topic under investigation, the theoretical framework is a product of other experts theoretical perspectives that researchers may choose after recognising the theory matches with variables of the study and are useful in concluding (Kivunja 2018:47). On the other hand, Ngulube, Mathipa and Gumbo (2015) point out that some researchers are confused about what a theoretical framework is when conducting research. However, researchers use a theoretical framework or conceptual framework as their guides in examining a phenomenon.

Sekaran (2006) identifies the following five basic features that should be incorporated in any theoretical framework:

- (i) The variables deemed pertinent to the study should be properly acknowledged and labelled in the discussion
- (ii) The existing relationship among variables should be properly stated in the discussion. This should be done for the significant relationship that is theorised to exist among variables
- (iii) If the nature and direction of the relationships can be theorised based on the findings of previous research, then there should be an indication in the discussions as to whether the relationships would be positive or negative.
- (iv) Clear clarification is required as to why we would anticipate such relationships among variables to exist. Previous research findings could be used to draw the argument.
- (v) A diagrammatic representation of a theoretical framework has to be given to enable the reader to see and understand the theorised relationships.

On the other hand, Ngulube (2020b:28) states that:

Theoretical and conceptual frameworks are analytical tools used in the research process to guide the study, but they are conceptually different. Both analytical tools may provide a theoretical perspective or a theoretical rationale. That does not make them similar. The research questions and objectives of the study are both formulated from the theoretical and conceptual frameworks before they get operationalised. Although theoretical and conceptual frameworks share similar functions, each takes a research project in a different direction.

A theoretical framework is applied to a study in the event where all the concepts in the theory are used to explain phenomena. However, a conceptual framework can be based on theories, models and the literature (Ngulube 2020b). If a conceptual framework is based on a theory, only some aspects of the theory would be used as the theoretical foundation of the investigation.

Thus, in this study aspects of the theory of reasoned action (TRA) by Fishbein and Ajzen (1975), organisational knowledge creation theory by Nonaka and Takeuchi (1995) technology acceptance model (TAM 2) by Fred Davis (1989), concepts that were drawn from the review of literature and researchers personal experience were adopted to form the conceptual framework to inform the study. Ngulube (2020b) affirm that a conceptual framework may be constructed through a review of literature or a researcher's personal experience. Out of the two theories, TAM 2 was borrowed from the information system discipline while TRA theory was borrowed from the social psychology discipline. This is in agreement with Ngulube (2020b:26) who argues that as a result of the limited theories in Library and Information Science (LIS) discipline, LIS researchers can, therefore, borrow theories from other disciplines such as psychology, education and sociology as long as they are appropriate in addressing a particular LIS phenomenon. However, Ngulube (2020b:26) warn that although theory borrowing is allowed in research, researchers should focus much more on generating new theories because theory borrowing may impede the growth of a discipline. The two theories were borrowed to underpin the study since they address the objectives of the study and provide a better understanding of the phenomena under study. The next section presents the reviews of the selected theories concerning this study.

3.4.1 Theory of Reasoned Action

The theory of reasoned action (TRA) by Fishbein and Ajzen (1975) is derived from learning theory and assumes that the driving force towards certain behaviour is influenced by the intention toward that particular object of concern. The theory has been widely used by psychologists and is very popular in explaining human behaviour (Otieno *et al.*, 2016:2). In TRA theory intention is influenced by two main factors, one's feelings of the consequences of the behaviour and the social environment where one lives (Fishbein and Ajzen 1975). According to TRA, intention to perform certain behaviour is the most determinant factor of whether a person will perform that behaviour or not. Attitudes and subjective norms are the two determinants of intentions that is to say once the behaviour is deemed to be useful and positively perceived to the beneficiaries such as colleagues and the surrounding community the greater the intention to perform that particular behaviour (Otieno *et al.*, 2016:3). The theory can be utilised in conceptualising and explaining the behaviour of individuals towards the adoption and utilisation of the new technology or innovation (Otieno *et al.*, 2016).

Several studies on knowledge and information sharing have adopted TRA theory, for example, Goh and Sandhu (2014) adopted TRA theory in examining the role of trust on knowledge exchanging in Malaysian Universities, Abbas (2017) applied TRA theory in assessing knowledge donation and collection intentions of academics and their determinants in the Middle East and Northern Africa (MENA) region, Khalil *et al.*, (2014) applied TRA theory in examining the social and technical factors influencing school teachers knowledge sharing intentions in teachers online professional community, Aliakbar *et al.*, (2012) adopted TRA theory in investigating factors determining knowledge exchanging behaviour in Malaysia. The next section presents the relevance of TRA theory to this study.

3.4.1.1 Operationalisation of the TRA theory

Behavioural beliefs and attitudes: an individual begin to generate a belief about the result of a particular behaviour. Ugwu (2019) affirms that attitudes can be measured directly or indirectly. "Based on the past research, behavioural intention is a good indicator of the targeted behaviour" (Goh and Sandhu 2014:126.). On the other hand, Mi *et al.*, (2018) avers that knowing the behavioural intention is an important step towards ascertaining or clarifying behaviours of individuals and the reasons for them. Thus, in the context of this study these constructs, behavioural beliefs and attitudes were useful in explaining why postgraduate students utilise or do not utilise SNSs for sharing knowledge and information in the selected universities in Tanzania. The constructs were also useful in determining the positive and negative attitudes of postgraduate students towards the use of SNSs technologies. On the other hand, utilisation or underutilisation SNSs for knowledge and information sharing among postgraduate students in the selected universities in Tanzania is a result of the attitude they have towards the SNSs technologies.

Normative beliefs and subjective norms: How one perceives the anticipation of important others is referred to as subjective norms (Nguyen *et al.*, 2019:3). On the other hand, Abbas (2017:52) posits that a subjective norm (SN) is associated with how people feel the way they are supposed to behave in a certain environment and the way they are motivated to act on the perceived feelings of others. On the other hand, Khalil *et al.*, (2014:157) assert that attitude and subjective norms may affect the intention of an individual as to whether to share or not to share knowledge and information they

possess. Aliakbar *et al.*, (2012:209) hold that the behaviour of an individual is determined by his or her behavioural trend to fulfil the behaviour and an individual's attitudes and subjective norms are the major determinants of the behavioural intention. In the context of this study, normative and subjective norms constructs conceptualised from TRA theory were used to explain the reasons why postgraduate students in the selected universities in Tanzania utilise or do not utilise SNSs for knowledge and information sharing. The constructs were also useful in explaining the reasons for postgraduates to behave the way they behave towards utilising SNSs technologies for their academic purposes.

Control beliefs and perceived behavioural control: An individual generates beliefs on factors for success/failure while performing a given behaviour. These beliefs cause a perception of ease/difficulties in performing a certain action (Goh and Sandhu 2014). The constructs are useful in determining the ability of postgraduates in controlling their targeted behaviour towards using SNSs for knowledge and information sharing. Perceived behavioural control also integrates external/environment factors (example, time resources, and social support). In the context of this study, other external factors associated with the prediction of the behaviour include the presence of policies guiding the use of SNSs for knowledge and information sharing in the selected universities in Tanzania technological infrastructure that is in place and management support.

Policy requirement is one of the factors that may lead to the utilisation of SNSs for knowledge and information sharing among postgraduate students, it may also determine how they act upon and hence determine their action against the usage of SNSs. Social factors such as self-efficacy of individual postgraduate students and knowledge sharing culture have a direct effect on whether postgraduate students will engage in knowledge and information sharing behaviour or not. Also, management support may determine the actual use of the technology or innovation at the university because they are responsible for advocating for its utilization. Therefore, the two constructs (control beliefs and perceived behavioural control) and other external environment constructs were used in explaining the perception, the level of skills of postgraduate students in utilising SNSs for knowledge and information sharing, factors influencing postgraduate students to utilise SNSs for knowledge and information sharing purposes and factors determining the level of usage of SNSs.

The theoretical gap identified from the TRA theory is that the theory assumes that behaviour toward a particular object is influenced by an intention to perform that behaviour. However, a theory has not explained whether the strong external force itself without an individual intention or willingness may have an impact on individual behaviour, these include government policies and procedures that may be imposed and every individual may be required to abide by. Although the theory has not considered that the individual behaviour may be influenced only by external forces, the TRA theory is appropriate to this study because it enabled the researcher to address the objectives of the study by reviewing constructs that are found in the theory and explaining their existing relationship to the topic under investigation. Constructs that were reviewed include behavioural beliefs and attitudes, normative beliefs and subjective norms, control beliefs and perceived behavioural control and finally external and internal environment factors. Thus, this theory was deemed to be useful to a researcher in examining the intrinsic and extrinsic factors that attract students pursuing postgraduate studies in utilising SNSs for knowledge and information sharing in the selected universities in Tanzania.

3.4.2 Knowledge creation model

Nonaka and Takeuchi's (1995) organisation knowledge creation is a well-liked theory and is commonly used in KM studies (Iwata 2015:40). Nonaka and Takeuchi (1995) identify four different ways of creating, combining, converting, and sharing tacit and explicit knowledge in an organisation (Faith and Seeam 2018:54). On the other hand, Nonaka and Takeuchi (1995) advance that knowledge that is generated by individuals is associated with the existing interaction between tacit and explicit knowledge (Bratianu 2010:193). Nonaka and Takeuchi (1995) identify two chains of activities taking place in the knowledge amplification process. These are ontology and epistemology. The ontology dimension deals with the different levels of knowledge creation including from individual, group, organisational and inter-organisation.

Epistemology is associated with (1) knowledge conversion that is tacit knowledge is converted to a new tacit knowledge which is known as socialisation, (2) from tacit knowledge to explicit knowledge which is known as externalisation (3), from explicit knowledge to explicit knowledge which is known as combination, and (4) from explicit knowledge to tacit knowledge which is regarded as internalisation. This process is

abbreviated as the SECI model which stands for socialisation, externalisation, combination and internalisation (Faith and Seem 2018:54). Once tacit knowledge is shared and captured in SNSs it is no longer tacit knowledge and therefore the first process of socialisation does not apply in the context of this study. The remaining three elements are discussed in the next sections.

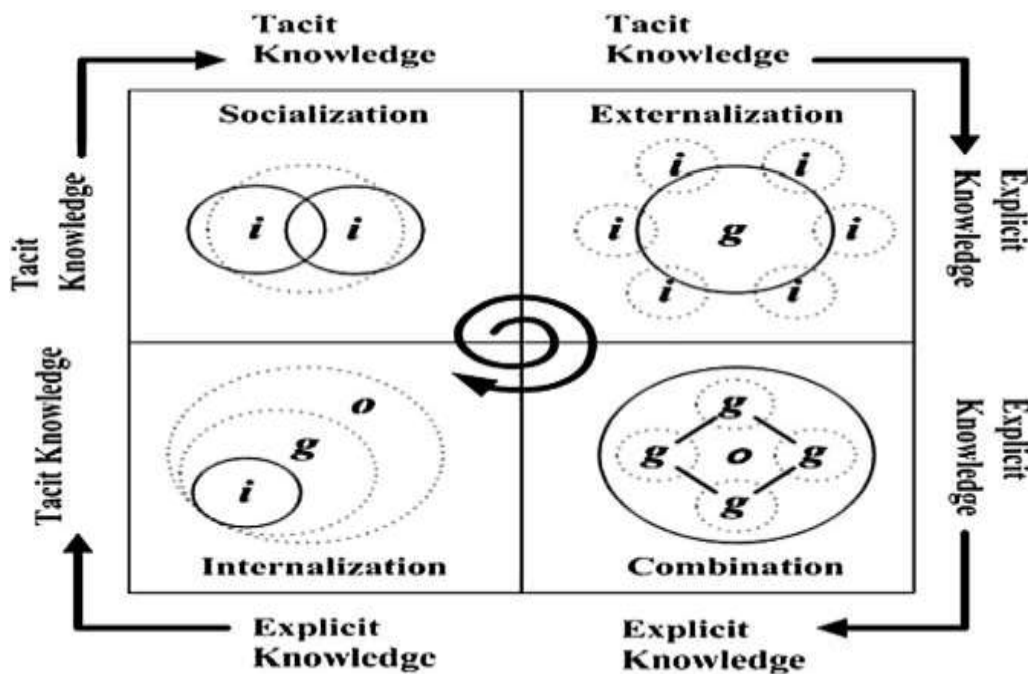


Figure 3: SECI/spiral model process

Source: Nonaka and Takeuchi (1995)

Key to the symbols:

- i = individual
- g = group
- o = organisation

3.4.2.2 Externalisation (from tacit knowledge to new explicit knowledge)

Externalisation is a process of converting tacit knowledge into explicit knowledge. In converting tacit knowledge into explicit knowledge, it normally takes the shapes of hypothesis or model, concepts or metaphor (Nonaka and Takeuchi 1995:64). Externalisation occurs when tacit knowledge is changed into implicit knowledge. Tacit knowledge is what people carry in their heads and is difficult to access, while explicit knowledge is the one that has been articulated in a written form or codified and can be shared with those in need with no difficulties (Faith and Seem 2018:54).

3.4.2.3 Combination (from explicit to new explicit knowledge)

This is a process whereby the new explicit knowledge is created by consulting other explicit knowledge from diversified sources such as documents, meetings, telephone conversations, or computerised communication networks (Nonaka and Takeuchi 1995:67). Nonaka and Takeuchi (1995:67) further associated this form of knowledge creation with the one taking place in training institutions such as schools. Combination refers to the combination of two or more sources of explicit knowledge in creating new knowledge. For example, several articles may be consulted and used in preparing a new policy or plan and can be preserved manually in files or electronically in repositories (Shahzad *et al.*, 2013:27).

3.4.2.4 Internalisation (from explicit to new tacit knowledge)

This is the process of converting explicit knowledge into new tacit knowledge. The experience acquired through socialisation, externalisation, and combination are strengthened into an individual's tacit knowledge base. Various ways are useful in converting explicit knowledge to become tacit; this can be done using verbal presentation, and pictorial representations in a document, manuals or through storytelling (Nonaka and Takeuchi 1995). In the internalisation process, explicit knowledge is changed into organisational knowledge to ensure it becomes an integral part of organisational procedures, routines and policies (Shahzad 2013:27).

3.4.3 Operationalisation of the Nonaka and Takeuchi's theory

Nonaka and Takeuchi theory (1995) explains how knowledge is created through the interaction of tacit and explicit knowledge. In their theory, Nonaka and Takeuchi (1995) outline four models of knowledge creation which include, from tacit to a new tacit knowledge (socialisation), from tacit knowledge to new explicit knowledge (externalisation), from explicit knowledge to new explicit knowledge (combination) and from explicit knowledge to new tacit knowledge (internalisation). Since the study investigates knowledge sharing through social networking sites, the knowledge creation theory of Nonaka and Takeuchi (1995) relates to this. Nonaka and Takeuchi (1995:62) assert that socialisation involves bringing people together to share tacit knowledge by sharing experience verbally, by observing, imitating and through practising. However, once tacit knowledge is captured in SNSs it is regarded as explicit knowledge therefore,

the first phase of SECI theory does not apply to this study. The rest of the SECI theory phases are discussed in the next subsection.

Externalisation is the process of converting tacit knowledge into explicit knowledge and it takes various shapes of hypothesis, concepts, model or metaphor (Nonaka and Takeuchi 1995:64). In the context of this study, the externalisation process among postgraduate students can be achieved through writing and posting messages which carries particular knowledge in SNSs as a means of transferring their tacit knowledge into explicit knowledge. Since this is electronic communications knowledge can be verbally presented through oral communication because SNSs allow the use of voice, text, picture, video and audio (Mosha 2017:64). SNSs are a powerful tool in communicating and enable timely communication among postgraduate students hence serving their time in accessing the knowledge and information they want.

Combination refers to the process of generating new explicit knowledge by consulting other explicit knowledge such as documents, meetings, telephone conversations or computerised communication networks (Nonaka and Takeuchi 1995:67). In the context of this study, the use of Web 2.0 technologies including social networking sites (SNSs) such as Facebook, Blogs, Wikis, WhatsApp, YouTube and others which are online and collaborative communication platforms may enable postgraduate students to access knowledge and information at any time and anywhere because SNSs are powerful tools in allowing individuals to create and share contents online and view contents created by others. SNSs allow users to browse, search, invite friends to join the group to share knowledge, comments, events, video, music and classified information (Aina, Babalola and Oduwoe 2019:3). Access to knowledge and information created from multiple sources of SNSs may enable postgraduate students to restructure or to reorganise and internalise their existing knowledge and, hence creating new explicit knowledge.

The internalisation process involves socialisation, externalisation and combination. In the context of this study, internalisation may occur once postgraduate students have acquired new tacit knowledge from the knowledge they would have acquired from others through SNSs platforms. Since SNSs have features that enable the users to create and edit the contents and continue to share and re-create new contents it also enables the internalisation of such knowledge. Mosha (2017:65) asserts that the internalisation of

tacit knowledge among individuals can be articulated through a mental model or technical know-how. Thus, internalisation involves strengthening the tacit knowledge base of an individual and this may be observed in how postgraduate students do their academic tasks such as class assignments, writing of scientific papers, public speaking, class presentations, writing academic articles such as journals articles, writing up of their theses and dissertations and the way they articulate their thoughts in various forms such as through the use of diagrams, pictorial representations, video and other techniques. Another area of knowledge where internalisation can be looked at is the factual knowledge that individual postgraduate students have acquired in a particular discipline they are studying (declarative knowledge), their abilities to relate various concepts and link them in solving various problems (conceptual knowledge), the skills or techniques they possess and their ability to use them when needed to do so (procedural knowledge) and finally, the strategic knowledge they have, their knowledge about the context and condition and their self-knowledge (cognitive knowledge).

3.4.4 Technology Acceptance Model

The technology acceptance model (TAM 2) which was pioneered by Fred Davis (1989) is one of the useful models in determining the adoption and utilisation of new technology by the users. The two factors that determine the adoption and use of new technology that is found in the TAM 2 model include perception of an individual on how easy the new technology is, and second, is how useful the new technology is to the user. Other factors associated with the TAM 2 model include attitudes of the users on the adoption and use of new technology. In Technology Acceptance Model 2 (TAM 2), there are additional social influence processes and cognitive instrumental processes; the use of a system is extended into cultural and social merits. Therefore, subjective norms, job relevance, output quality, experience and voluntariness have direct contributions to the perceived usefulness. TAM 2 is useful in assessing the reasons for individuals to utilise or not utilise the new technology or innovation in organisations (Otieno *et al.*, 2016:4).

In the context of this study, variables of the TAM 2 model were useful in relating the attitudes of postgraduate students on the use of SNSs for knowledge and information sharing, in examining the perception of postgraduate students on the use of SNSs for knowledge and information sharing, in assessing factors influencing the use of SNSs for

knowledge and information sharing, and finally in determining the level of usage of SNSs among postgraduate students. Variables such as culture and experience from the TAM 2 model can be used to determine the level of skills that postgraduate students possess which may, in turn, influence their use of SNSs for knowledge and information sharing. Thus, variables such as cultural, social factors, perception, perceived usefulness, and perceived ease of use that were conceptualised from the TAM 2 model were used to address objectives number two, three, four, and five of this study.

3.5 Review of related studies

This section presents a review of literature based on the previous findings relating to the topic under investigation. The discussion presented in this chapter includes the general overview of knowledge sharing, types of knowledge that students prefer to share through SNSs, policies on the use of SNSs, level of skills of students and the use of SNSs for KS, factors influencing the use of SNSs with a subsection of the following factors, organisational support, technology, self-efficacy, motivation, trust and training, and factors affecting the usage of SNSs in Universities. Objective five assessed the level of usage of SNSs whereas attitudes and the use of SNSs, perception and its influence in the use of SNSs were also discussed under the same objective. The discussion started with broad topics related to specific issues. The next section presents the general overview of knowledge sharing.

3.5.1 Knowledge and information sharing: the general overview

Knowledge and information sharing (KS) refers to collaboration where staff in an organisation shares with others explicit knowledge as well as tacit knowledge through processes and outlines and experiences and know-how. KS aims at passing knowledge and information from one person to another or between friends, families and communities through experience sharing and skills. It is one of the very important aspects of knowledge management (KM) (Smaliukiene *et al.*, 2017:759; Omotayo 2015:65; Bekele and Abebe 2011:20). Tacit knowledge interacts with explicit knowledge through four processes namely, socialisation, externalisation, combination and internalisation (Nonaka and Takeuchi 1995:57). KS involves several factors such as what type of knowledge and information is exchanged, means of exchanging and with whom the knowledge and information are exchanged. For example, it could be at individual, group or organisational level (Njiraine 2019:84).

On the other hand, Solek-Borowska (2015:135) argues that effective knowledge and information exchanging activities depends on key issues such as the ability to communicate, how deeply knowledgeable an individual is, knowledge documentation and preservation methods, means through which the knowledge and information are transmitted whether it is face to face or through the use of technology, and finally the organisational setting. In the light of the above literature, Universities are expected to put in place all necessary mechanisms to ensure knowledge and information that is generated by members of the university community is captured, codified and disseminated to other people within the university community to ensure institutions are gaining competitive advantages. Ajie (2019) affirms that there is no proper mechanism for attaining effective KS in an organisation; KS should consider the conditions and the organisation's context.

On the other hand, Chungh, Wibowo and Grandhi (2015:3) assert that KS can be done through both formal and informal ways. Informal ways include tea break conversation with a colleague providing an opportunity for exchanging tacit knowledge, and after working hours, while formal ways include workshops, on job training sessions, attending conferences, and seminars. Chikono (2018:15) opines that knowledge and information are shared voluntarily although there are external factors such as institutional reward and motivations, individual image and reciprocity and inborn factors such as knowledge self-efficacy and pleasure of helping others which may influence an individual to share knowledge.

Similarly, Areekkuzhiyil (2016:24) affirms that it is voluntary because people decide to make their knowledge and information available to others even if they are not forced to share their knowledge or information. Since knowledge and information are recognized as an important resource in organisations, Minwalkulet and Assef (2018:1) assert that managing knowledge that is created by staff and institutions is imperative to both academic and business organisations to ensure its survival. Thus, individual self-efficacy on knowledge interchange may influence postgraduate students to exchange knowledge with others to help others to fulfil their knowledge and information gaps. Although knowledge and information sharing is done voluntarily, some people within the university are reluctant to share knowledge and information they possess because they fear losing their power. Thus, Universities top administrators are required to

sensitise their staff and students on the importance of knowledge and information exchange which may, in turn, enable other staff and students to improve their performance as a result of acquiring new knowledge from those who possess it.

Shafique (2015:176) argues that many Universities worldwide have realised the roles played by knowledge and information in making an informed decision, improving academic activities and minimising the expenditure and therefore, are adopting KM practices with the view of practising knowledge and information sharing activities. Similarly, Odunewu and Haliso (2019) hold that academic functions such as teaching, research and community engagement produce enormous amounts of knowledge and information that call for appropriate KM practices to facilitate its access and utilisation by the current and prospective members of the academic community.

Therefore, KM refers to the methodical procedures that help organisations like Universities in the generation of knowledge and information, exchanges, codification, dissemination, and its application (Kumaravel and Vikkraman 2018). It is therefore acknowledged that national developments depend heavily on the innovations, new technology and quality of graduates produced by Universities as a result of integrating knowledge and information sharing practices (Ojo 2016:331). The coming of SNSs technologies has enabled communication and interaction among learners. It has enabled the learners to utilise the platform for knowledge and information sharing, accessing information, handling their academic-related problems and promoting learning (Mohammad and Tamimi 2017:13).

Thus, Universities are expected to integrate and utilise the advantages that SNSs offer in academic activities including enhancing students' involvement in-class activities, online discussion, timely access to knowledge and information, and creation of students' teachers' relationships which may in turn help students to enhance their academic performance. Various studies were carried out on the use of SNSs for knowledge sharing among postgraduate students in Universities of developing nations. Eid and Al-Jabri (2016) conducted a study to examine how undergraduate and postgraduate students utilise SNSs for knowledge sharing in one of Saudi Arabia's Universities. They found that SNSs which provide options for an online discussion and chatting, and file sharing encourage knowledge and information sharing and enhance learning.

Their findings concur with the study conducted in Kenya by Khamali, Thairu and Wanja (2018) which found that SNSs such as Facebook, WhatsApp, Twitter and blogs which provide an opportunity for online discussion and chatting, and file-sharing have improved communication and interaction among students and hence improved knowledge and information sharing. Similarly, a study done in India by Hussain, Loan and Yaseen (2017) found that most postgraduate students prefer to use Facebook, Google+, YouTube and Twitter for knowledge sharing and keeping close with their family and friends. Miss, Omekwu and Miss (2014) examined the use of SNSs by Nigerian undergraduate students. Their study found that students use SNSs for keeping in touch and for online learning. Hassan and Landani (2015) investigated the exploitation of SNSs among Malaysian university students. Their study found that students possess skills of using SNSs tools for sharing knowledge and information among themselves and their lecturers.

Other studies that are of importance to this study include the study done in Tanzania by Shao and Seif (2014) which investigated the use of SNSs among university students. Seif and Shao study (2014) failed to specify the methodology that was deployed in the course of undertaking their study. Also, their study used questionnaires only as data collection techniques which resulted in the limitation of their study findings. Their study was also limited to the University of Dodoma undergraduate students and not postgraduate students, not only that but the study also excluded private Universities.

Liang (2017) compared the exploitation of SNSs by African college students in Tanzania and the US. He combined both quantitative as well as qualitative data in his study however; he failed to identify the research design that underpinned his study. Another study that was done in Tanzania by Jagero and Muriithi (2013) investigated the utilisation of SNSs by undergraduate and postgraduate students of private Universities. They used simple random sampling techniques in selecting the sample of the study however, how simple random sampling was achieved was not stated. Their study was not guided by any theory or conceptual framework hence it was difficult to properly address the objectives of the study. Although Jagero and Muriithi (2013) used cross-sectional descriptive design they did not indicate the epistemology and ontology stance that guided their study. In contrast, Ndaba (2015) examined factors affecting the usage of SNSs technologies for knowledge sharing in Universities in Tanzania generally. He

deployed mixed methods research in his study. However, Ndaba (2015) did not explain how a mixed method was achieved in his study.

In some of the studies that were reviewed researchers have failed to explain which methodologies were deployed in the course of conducting their studies, other studies lack theoretical and conceptual frameworks while other studies deployed only a single technique of data collection which resulted in the weak presentation of their study findings. Previously reviewed studies are contrary to this study because this study specifically examines knowledge and information sharing through social networking sites among postgraduate students by combining both public and private Universities in Tanzania to gain a better understanding. Also, this study deployed mixed methods research and adopted a convergent design to obtain multiple views and ensure the rigour of the research findings. With convergent mixed methods research design researchers collected both quantitative and qualitative data at the same time. The study was also guided by the conceptual framework of Nonaka and Takeuchi (1995), TAM 2 model by Davis (1989), and TRA theory by Fishbein and Ajzen (1975) which informs objectives of the study. Data collection methods were triangulated to increase the reliability of the study findings and pre-testing was done to ensure the validity of research findings therefore, the methodology deployed provides a richer understanding of the phenomenon under study compared to previously reviewed studies.

3.5.2 Types of knowledge and information shared through SNSs

Gaál *et al.*, (2015:185) affirm that knowledge is an important asset for the survival of any organisation. It is directly associated with people's abilities to understand and do things properly in an organisation. OECD (2019:4) identifies four types of knowledge that can be shared by human beings such as disciplinary knowledge, interdisciplinary knowledge, epistemic knowledge and procedural knowledge. In contrast to OECD, Sugiharto *et al.*, (2018) mention three types of knowledge namely metacognition knowledge, procedural knowledge, and declarative knowledge. Berge and Hezewijk (1996:607) advance that procedural knowledge is concerned with the system that comprises knowledge of how things are to be done. Series of trials are required for an individual to acquire procedural knowledge. Though, one trial may work out. On the other hand, Kump *et al.*, (2015:3) aver that declarative knowledge is looking at the ability of an individual to collect facts and events in a particular discipline and the

ability to establish similarities and differences of the acquired knowledge. Vukič, Martinčić-Ipšić and Meštrović (2021:1) hold that conceptual knowledge can be articulated in explicit form for example, through the use of a concept map (diagram) or network and the concepts can be interconnected to form a complete system. This provides more of an understanding of the existing relationships and functions of the concepts/elements that form a system (Krathwohl 2002).

Metacognition knowledge refers to the individual's ability to control the cognition process, it comprises two types of components known as knowledge of cognition and control of cognition (Sugiharto *et al.*, 2018). It is also regarded as strategic, contextual, conditional and self-knowledge (Krathwohl 2002). A study carried out by Ahmed *et al.*, (2019) on SNS for knowledge exchange found that SNSs provides three services to the people as they search for new knowledge, knowledge donating, and social interaction. Their study also found that SNSs are used for sharing knowledge in various disciplines such as in education, business, health sector, and other professional disciplines. A study conducted by Aillerie and McNicol (2016) found that students use SNSs to seek information regarding education and vocational guidance.

Another study done in South Africa by Dlamini and Siphamandla (2020) on the utilisation of SNSs to support scholarly knowledge among students found that students utilise SNSs for sharing scholarly knowledge among them as a result of the benefits they gain including enhancing their academic performance. A study conducted in Morocco by Faizi and Elfkihi (2018) shows that SNSs such as Facebook are not only utilised for sharing social issues but for sharing educational information also. Another study carried out in the Czech Republic by Mladenović and Krajina (2020:54) reveals that both tacit and explicit knowledge which are in various forms are managed and exchanged via SNSs technologies. In a study done by Boukes (2019:12) on how SNSs are used in acquiring knowledge, they found that citizens utilise SNSs such as Facebook for seeking and acquiring both current affairs and political knowledge.

A study conducted in South Africa (SA) by Gwena, Chinyamurindi and Marange (2018) on utilisation of SNSs found that international students use SNSs technologies for seeking academic-related information to fill their knowledge gap. On the other hand, Omini and Ayanlade (2019) carried out a study to examine the usage of SNSs by library

and information professionals in Nigeria their study recommended that library professionals should develop positive attitudes towards SNSs and utilise such a technology to encourage sharing of knowledge relating to teaching and learning. A study by Brocca (2020) revealed that SNSs can facilitate language teaching processes in Universities. Another study done in China by Anwar and Zhiwet (2019) realised that librarians utilise SNSs for creating awareness to their patrons about the services and products they offer in their libraries. In such a context SNSs are used to share marketing information by librarians. Thus, the above explanations from various scholars demonstrate the need to understand the kind of knowledge and information that postgraduate students prefer to share through SNSs in the selected universities in Tanzania and the reasons behind their decision.

3.5.3 Policies and the use of social networking sites

Merriam-Webster Dictionary defines a policy as "a definite course or method of action selected from among alternatives and in light of given conditions to guide and determine present and future decisions". Policies are focused and purposive plans of action to address a particular problem (Cochran and Malone 2014:3). These policies contain information relating to user privacy, rights on their data and obligations of SNSs providers on user's data (Johani 2016:3). Policies should be written to avoid misinterpretation by the users during its implementation. The behaviour of using online SNSs should be similar to the offline behaviour as stipulated in the institutional procedures and guidelines (Adzharuddin and Kander 2018:676).

However, some of the mission and vision statements of organisations lack policy on knowledge sharing (Ajie 2019). On the other hand, Willem *et al.*, (2018:14) claim that some Universities do not have a single policy on SNSs usage; they include the guidelines in other university documents such as student guide books. Willem *et al.*, further affirm that although some institutions do not have a policy or well-articulated policies that govern the usage of SNSs, other institutions are putting efforts to revise their SNSs policies to accommodate the changes that are currently taking place in the world.

On the other hand, Chen and DiVall (2018:360) affirm that for an organisation like a university to achieve effective usage of SNSs there should be in place clear procedures on how SNSs will be utilised, and how information on the platform is going to be managed. Chen and DiVall (2018:360) further argue that other issues that need to be considered include training on the use of SNSs and the overall management of the SNSs. Thus, utilisation of SNSs by postgraduate students can be guided by SNSs policies since it sets the proper guidelines on the usage of SNSs for group discussion, and other online communication among students and academics. Policies enable students to perceive that their information shared in SNSs is safe hence attracting them to utilising the platform for knowledge exchange. Hoih (2017:13) avers that one of the bad sides of SNSs is that young people are open when online and the majority do not go through privacy policies and therefore are uninformed if the information, picture and video they post can be used by other people for different purposes.

Similarly, Abdulahi, Samadi and Gharleghi (2014:137) assert that some SNSs users are not informed if their personal information can be used by strangers as a result of their ignorance. This is because some of the SNSs users are reluctant to read the privacy policy and terms before proceeding with the registration process on the SNSs platforms (Chewae *et al.*, 2015:4). On the other hand, Rathor and Mishra (2013:60) advance that since SNSs are increasingly utilised by the majority of people their danger has also been on the increase, this is caused by a lack of understanding from the users that their private information may be at risk because they can be used by hackers or strangers for other reasons. Therefore, there is a need of formulating SNSs policies to alert the users on not accepting online requests from online friends before making the required verification process to protect their information (Silic and Back 2016). Thus, the policy on the usage of SNSs usage is expected to inform students on the do and don'ts while utilising the network to guide them from misusing the platform.

Akakandelwa and Walubita (2018:12) state that it has now become necessary for the management of Universities to formulate policies that support innovative utilisation of the SNSs for educational activities and reduce its negative impact during the learning process. These policies should clearly state the penalties to the users upon the violations (Ventola 2014:498). "Policy implementation on the use of SNSs in Universities has three main purposes (i) protecting the image of the university (ii) keeping confidential

information safe (iii) protecting the professional and personal image of academics and students" (Stoessel 2016:15). Thus, once the policies have stated clearly the consequences of misusing the SNSs, it is expected to guide students in proper utilisation of the platform for their academic purposes. Since policies on SNSs set guidelines for the students, it can attract postgraduate students in exchanging knowledge and attain better academic performance.

Several studies were conducted to examine how the policies influence the use of SNSs for knowledge sharing. A study carried out in India by Dhami *et al.*, (2013) found that students are willing to exchange knowledge through SNSs once their privacy is ensured by SNSs policies. A study conducted in Malaysia by Ghazali *et al.*, (2016) suggests that ICT policy should be utilised to ensure it facilitates the integration of SNSs in Universities with a view of enhancing communication among the academic community. A study carried out in Pakistan by Abbas *et al.*, (2019) found that SNSs can affect the majority of people in a community by violating people's privacy as a result of the absence of guiding policies.

A study that was done in Zambia by Akakandelwa and Walubita, (2018) claim that there is a need of formulating policies that will promote the use of SNSs at the Universities. Another study conducted in Malaysia by Chewae *et al.*, (2015) found that risks may occur to the users while using SNSs and therefore policies have to be in place to protect users from strangers or hackers. Since policies provide guidelines on the proper usage of SNSs, it also influences students who fear risk when engaging in SNSs usage with the assurance that information which they share in the platform is safe and secure. Thus, there is a need to investigate if there are national or institutional policies in place that require Universities in Tanzania to integrate and use SNSs to enhance knowledge and information exchange among students or not. The presence or absence of policies on the use of SNSs for knowledge and information sharing in Universities may have implications on the utilisation of SNSs among students and academics as well.

3.5.4 Level of skills and its influence on the use of SNSs

Digital literacy should not only be focused on technical skills but the ability of an individual to work and live in digital surroundings. Thus, one should be able to search, locate and communicate with family, friends and other people using new emerging technologies including SNSs (UN 2018:4). A study conducted in Nigeria by Semode, Ejitagha, and Baro (2017) on utilisation of SNSs by librarians in higher education institutions found that the skills that librarians possess such as the ability to search, navigate and interact with colleagues and relatives enable them to use SNSs effectively. The study also found that the mentioned skills were acquired by librarians through consulting friends in case of difficulties in using the technology, at conferences and workshops and through self-practising. Another study conducted in Nigeria by Ajegbomogun and Oduwale (2018) on SNSs and their utilisation in collaborative learning among postgraduate students found that low level of ICT skills among postgraduate students affect the effective utilisation of SNSs for academic purposes. Aillerie and McNicol (2016) conducted a study to examine if SNSs are regarded as information sources among high school students and found that although students may be skilled in using both traditional information resources and online resources, they may not possess enough competencies in searching information in a wide range of the available SNSs.

A study carried out by Hou *et al.*, (2017) in China on the excessive use of WeChat in social interaction among higher education students found that social interaction competencies lead to excessive utilisation of SNSs among students. Hussain, Loan and Yaseen (2017:82) state factors that affect postgraduate students in utilising SNSs such as lack of skills, unwillingness to join SNSs, and the tendency of hoarding knowledge. Thus, it is evident that skills are a prerequisite factor in the effective utilisation of SNSs among students. Although other factors are associated with effective utilisation of SNSs among students such as trust, attitudes, perception, self-efficacy, training, motivation, and KS culture, the level of skills that students possess and their ability to navigate various SNSs may determine their actual use of SNSs technology. Lack of skills in using SNSs technologies may pose challenges to students such as technophobia, underutilisation of the technology, lack of trust, and being marginalised by colleagues who are on the platform. Thus, it becomes important to determine the level of skills of

postgraduate students in the Universities in Tanzania to gain an understanding of their ability to utilise SNSs for knowledge and information exchange purposes.

3.5.5 Factors influencing the use of social networking sites

There are several factors that influence students to engage in the use of SNSs for knowledge and information exchange in Universities because of its ability in connecting students and academics (Miss and Omekwu 2014). These factors include the culture of exchanging knowledge, motivation and technology (Njiraine 2019:86; Nunes, Kanwal and Arif 2017:7). Organisational support towards the integration and usage of SNSs for knowledge exchange is another factor influencing the utilisation of SNSs among students (Alhawary, Abu-Rumman and Alshamaileh 2017:416; Razi and Hussin 2019:189). Academic self-efficacy is regarded as one of the determinant factors for students engaging in SNSs with the view of enhancing their academic performance (Boahene, Fang and Sampong 2019:6). A study conducted by El-ghorrah (2016) in Palestine found that technological support, individual self-efficacy and socialisation are among the factors influencing postgraduate students to engage in SNSs usage in Universities.

Another study conducted in the USA by Lin, Featherman and Sarker (2016) found that factors influencing women's engagement in SNSs usage include trust, social constructivism and reciprocity. Another study carried out by Mouakket (2015) in the United Arab Emirates found that users' perceptions on the usefulness of SNSs, entertainment and satisfaction are the factors influencing students to continue engaging in SNSs. A study conducted by Waldman (2016) found that individuals are ready to share information once they trust another group member. A study conducted in Malawi by Chipeta (2018) found that support from the organisational leaders and trust are the factors influencing knowledge exchange behaviour among staff. Another study in the USA by Wang *et al.*, (2015) found that attitudes, individual self-efficacy and motivation are the attractive factors for students to engage in SNSs usage. Each factor that is associated with the use of SNSs for knowledge and information exchange is presented in detail in the next subsections.

3.5.6 Organisational support and SNSs usage

Educators are advised to maximise the advantages that SNSs offer to enhance communication and involvement among students and academics in the learning process (Zachos, Paraskevopoulou-Kolia, and Anagnostopoulos 2018:6). Thus, this demands support from the organisational administrators towards ensuring SNSs is integrated into the educational process within Universities. Seman (2014:30) advances that some institutions such as Universities are still highly concerned about to integrating SNSs into their work practices because of the fear of losing productivity as a result of the number of hours that their staff may spend online. Seman (2014:33) further affirms that SNSs are effective communication tools and they may improve the communication skills of the staff and may also be utilised in an institution to ensure academic tasks are done with minimum effort. On the other hand, Adzharuddin and Kander (2018:671) assert that SNSs connect people and allow them to exchange knowledge which may, in turn, help them in solving work-related problems. Therefore, leaders of organisations should allow their staff to use SNSs to enhance productivity. Ellison, Gibbs and Weber (2015:111) assert that:

Specifically, ESNSs can constrain, enable, and reshape (1) social capital dynamics that govern how and to what end individuals mobilize informational and social support resources embedded within their social networks, (2) how social relationships are encouraged through the sharing of identity information within organisational contexts, (3) the context collapse that can accompany diverse networks, and (4) knowledge sharing, particularly in the context of networked organizational structures that characterise many large organisations.

Leaders of institutions will continue to utilise SNSs once they realise their effectiveness in attaining organisational goals and may also limit its usage once it does not bring benefits to the organisations (Carlson *et al.*, 2016:17). The utilisation of SNSs in organisations may help staff in their training because it allows interaction among people where they exchange knowledge and solve problems they face (Yokoyama *et al.*, 2016:5). University leaders should be informed of the issues that may arise in the course of using SNSs to support academics and students in making the right decisions once an issue arises (Holmes 2016:35). On the other hand, Abbas *et al.*, (2019:16) aver that

SNSs have provided numerous advantages in the educational sector, business firms, and health sector because of their abilities to facilitate knowledge sharing and online involvement.

Thus, university administrators are expected to support the integration of SNSs to enable the interaction between students and academic staff in teaching and learning processes. Siljanovska (2015:83) holds that SNSs has the potential in enhancing motivation among staff, improve interpersonal communication and lead to the creation of a conducive work environment that may enhance efficiency. Siljanovska (2015:85) further asserts that organisations that ensure effective communication through SNSs have more staff with satisfaction and motivation. Thus, Universities, where top administrators have positive attitudes on the use of SNSs for knowledge and information interchange among its students, will positively support the adoption of the technology and hence ensure knowledge and information sharing is achieved and students' academic performance is enhanced.

Looking at the organisation, integration of SNSs may be positively perceived by staff as organisational support towards connecting staff while banning its usage may be perceived negatively as lack of support from an organisation (Rodriguez-Aceves, Madero and Valerio-Urena 2018:150). On the other hand, Mickoleit (2014:64) claims that only in a few areas have organisations supported the integration of SNSs in enhancing formulation of policies, making informed decisions, and in-service delivery. A study conducted in Ghana by Boahene, Fang, and Sampong (2019) found that the use of SNSs in Universities have both positive and negative impact on students' academic performance. Therefore, university leaders are expected to put in place mechanisms to guide the usage of SNSs for academic purposes.

Another study conducted by Alhawary, Abu-Rumman and Alshamaileh (2017) in Jordanian higher education found that knowledge exchange through SNSs among academics is determined by organisational support, individual factors, and technological factors. A study carried out by Haddud, Dugger and Gill (2016) concluded that for the organisation that has integrated the usage of SNSs to facilitate knowledge exchange among its staff, are advised to supervise its utilisation, staff participation on the network and their notable competencies regularly. Thus, organisational support determines the

adoption and utilisation of SNSs because organisational administrators are the ones responsible for deciding whether a new technology will be adopted to add value and ensure the sustainability of the organisation in the current competitive environment or not. Administrators are also responsible for putting in place mechanisms that can regulate the proper usage of SNSs for academic purposes to minimise its negative impacts and maximise the advantages that SNSs technology offers.

3.5.7 Technology and the use of SNSs

The advancement of technology as a means of communicating has enabled the interaction of both academics and students in educational and social settings (Tayo, Adebola and Yahya 2019:53). On the other hand, Alsolamy (2017:189) asserts that ICTs have brought a drastic change in how individuals, organisations and societies interact. Alsolamy further claims that technology has also enabled timely communication and has facilitated knowledge donation and collection among students. Technology support in Universities highly influences students in utilising SNSs for knowledge exchanges (Ghadirian *et al.*, 2014:42).

On the other hand, Solek-Borowska (2015:135) holds that effective knowledge exchange in Universities and other forms of organisations depends on the nature of the communication chosen, whether it is face to face, or technology-driven face to face communication. Solek-Borowska (2015:137) argues that Universities are the hub of knowledge creation, storage, utilisation and dissemination and therefore are required to utilise new technologies with innovations to gain a competitive advantage. Thus, Universities are expected to utilise technology in academic-related tasks with the view of enhancing students' class involvement, enhancing learning, improving academics' and students' interaction and in fostering better students' academic performance.

Njiraine (2019:86) advances that even though technology plays significant roles in facilitating KS there is a need for organisation administrators to put in place mechanisms to ensure its proper usage. Nunes, Kanwal, and Arif (2017:3) hold that in the current world, Universities and other forms of organisations are acknowledging the role played by KM in facilitating knowledge creation, sharing, codification, and dissemination and therefore are adopting technology-driven systems as their important institutional asset. The range of technologies that are utilised in Universities includes

learning management systems such as Moodle, SNSs such as Wikis, Blogs, Twitter, Podcast, YouTube, Facebook (Aldahdouh, Nokelainen, and Korhonen 2020:2). Likewise, Desmal (2017:2), claims that the power of social media is realised in its ability to attract more people to get connected and share the knowledge they possess which in turn improves their productivity. Boateng and Amankwaa (2016:1) state that SNSs technologies have emerged as an important platform in connecting both students and academics in Universities. In Universities, SNSs are associated with the utilisation of web 2.0 technologies such as YouTube, Twitter, Facebook, MySpace, Slide share, Wikis, Facebook, and Flickr which allow students to create content, view content created by others, comment on the messages sent by others, uploading photos, videos and the sending of messages to other students who share similar groups once they decide to do so (Kumi-Yeboah and Blankson 2014:217).

Facebook is the most used of the SNSs with 1.6 billion users. Since the coming of SNSs students have completely changed the way academics interact with students, the way students participate in learning and the knowledge creation process (Hadebe, Owolabi and Mlambo (2016:743). On the other hand, Kumi-Yeboah and Blankson (2014:227) aver that the utilisation of SNSs in Universities has provided several benefits to Universities including timely communication between students and academics, marketing of Universities programmes, a forum for online group discussion, group participation, socialisation and entertainment. Davis III *et al.*, (2014:2) advances that since new technologies provide added advantages to Universities especially in promoting students' participation in learning and enhancing their academic performance university administrators are advised to put in place mechanisms for integrating SNSs to enhance the creation of new knowledge.

Various studies were conducted on the influence of technology on the usage of SNSs in Universities. For example, a study done in Zambia by Chikono (2018) found that limited access to ICT has affected the quality of knowledge exchange in Zimbabwe Open University. Another study conducted in Palestine by El-ghorrah (2016) found that lack of IT skills is the main reason for not utilising SNSs among university students in Palestinian Universities. A study carried out in Ghana by Ankamah (2021) indicated that postgraduate students had awareness that the use of ICT facilities could enable them in academic activities including producing quality research outputs. In another

study carried out in Pakistan by Naqvi *et al.*, (2020), they found that technology has improved SNSs and has enabled users to communicate in many ways. Another study carried out in Indonesia by Supardi *et al.*, (2021) showed that the use of SNSs was high due to the availability of the technology and possession of basic ICT skills among students.

In a study conducted in Tanzania by Masele and Rwehikiza (2021) it was found that lack of ICT facilities affected the use of SNSs among students in Universities. Another study conducted in France by Youssef *et al.*, (2022) showed that availability of ICT facilities and skills that lecturers possess on the use of computers and other digital devices were the pre-requisite for students to acquire knowledge and utilise digital technologies such as SNSs for collaborative learning. A study conducted in Saudi Arabia by Sayaf (2022) concluded that Universities should invest on ICT facilities and offer training on the use of ICT to enable students to use SNSs for knowledge and information sharing to enable them to attain better academic grades. Thus, technology plays a significant role as the enabler of knowledge exchange in Universities because it offers several benefits including timely access to information, enhances class involvement, language improvement, freedom of expression, enjoyment, improves social interaction, bridges the knowledge gaps, and in turn influences students' better academic performance.

3.5.8 Self-efficacy and the use of SNSs

Bandura (1994) defines self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Beliefs about self-efficacy determine how people feel, think, motivate themselves and behave." Technology self-efficacy and information self-efficacy are the two common types of self-efficacy that are discussed in KS literature (Kim and Lee 2015:293). High academic performance among students is associated with high academic self-efficacy while lower academic performance is directly linked with low academic self-efficacy (Hassel and Sukalich 2016:4). Similarly, Boahene, Fang, and Sampong (2019:12) affirm that academic self-efficacy influences students' usage of SNSs because of the benefits that they are expecting to gain in their academic activities. Acun (2020:46) identifies two factors that determine the utilisation of SNSs for knowledge exchange namely, self-efficacy and motivation such as self-esteem. Many

students have positive perceptions of the use of SNSs and an adequate level of self-efficacy since the use of mobile technology allows them to access SNSs at any point (Erçağ and Karabulut 2017:12).

Ansari and Khan (2020:2) opine that many students believe that SNSs and mobile gadgets are affordable and useful means of acquiring information about their needs. On the other hand, Raymer (2015:13) holds that students consider SNSs as a platform for socialisation and an area for adjusting themselves to university life. Therefore, university administrators are advised to guide students in the usage of SNSs to enhance their academic-self efficacy which may, in turn, enable them to achieve better academic performance (Hassel and Sukalich 2016:9). Students' perceptions on the easiness of academics studies may have an influence on their online conduct which is a result of their confidence that they have in their academic abilities (McNallie *et al.*, 2019:5). On the other hand, Lahiri and Moseley (2015:18) aver that if students do not have high self-efficacy, they may be incapable of accessing, assessing, and synthesising information obtained from online sources. Alshahrani and Pennington (2018:2) argue that self-efficacy can be built among students through conducting training and seminars on the skills of utilising SNSs for KS.

Keshavarz, Givi and Vafaeian (2016:29) state that self-efficacy leads to information-seeking behaviour hence influencing students' engagement on SNSs usage for KS. A study conducted in Nigeria by Chikweru and Jane (2018) found that the utilisation of SNSs among university students had negative effects on their academic performance. A similar study indicates that SNSs reduce hours students spend on learning. Another study carried out in Nigeria by Ndubuaku *et al.*, (2020) found that low levels of self-esteem among students, stress, and anxiety are caused by SNSs usage addiction. In a study done in India by Vivakaran and Neelamalarr (2018), it was found that peer pressure, perceptions of the students on the use of SNSs for knowledge exchanging are among the determinant factors that motivate students' intention to utilise SNSs for their classroom purposes. Thus, in the light of the literature above it can be said that academic self-efficacy among students influences their behaviour towards the utilisation or underutilisation of SNSs for academic purposes. Therefore, it becomes important to understand the level of self-efficacy of postgraduate students in the Universities in

Tanzania and the utilisation of the SNSs for knowledge and information sharing purposes.

3.5.9 Motivation and the use of SNSs

Motivation is regarded as an intrinsic force to donate and collect knowledge from others and is influenced by internal and external factors (Sriratanaviriyakul and El-Den 2017:291). Academics and students are motivated to share knowledge through SNSs once there is an expectation of reward and recognition (Faith and Seeam 2018:65). On the other hand, Ghadirian *et al.*, (2014:42) advance that students' readiness and their perceptions on the use of SNSs for their academic purposes influence their motivation to engage in knowledge exchange activities. Chikono (2018:15) argues that at the institutional level, knowledge exchange is influenced by individual willingness (intrinsic factor) even though there are rewards and other incentives (extrinsic factors). Njiraine (2019:87) claims that knowledge exchange in organisations like Universities is influenced by some important factors including individual willingness (motivation), and organisation culture.

Other factors influencing KS through SNSs in Universities include individual factors such as self willingness to share information with others with the expectation of gaining reputation, reward or recognition (Nunes, Kanwal and Arif 2017:11). Ajie (2019) holds that individual willingness to donate and collect knowledge from others in an organisation is attracted by some factors such as motivation, reward, technology and trust. One of the factors influencing students to engage in knowledge exchange activities is their belief that their academic performance will be achieved through KS hence they will be motivated to engage in knowledge exchange conducts (Balozi, Othman, and Isa 2016:6). On the other hand, Panahi *et al.*, (2012:6) aver that people are willing to share their tacit knowledge once there is a platform such as SNSs that allow them to share information with others without charges. Ayodele *et al.*, (2016:226) affirm that some employees in an organisation tend to hoard knowledge because they want to remain competitive and valuable. However, they can be motivated to make their knowledge available to others through reward systems and recognition.

A study conducted in Bosnia by Ozlen (2017) found that proper knowledge management practices, conducive knowledge sharing surroundings, motivation on

knowledge-sharing lead to knowledge sharing and enhance the performance of the organisation and its people. Another study carried out in Hungarian organisations by Obermayer-Kovács *et al.*, (2015) found that people with high self-esteem and high empathy tend to develop more trust in others hence becoming willing to share the knowledge they possess with others. A study done by Razmerita, Kirchner, and Nielsen (2017) found that the decision of employees to share or not to share knowledge with others is influenced by both intrinsic incentives such as organisational culture and managerial support) and extrinsic incentives such as image, recognition and reward. Thus, motivation for KS can be influenced by several factors such as individual students' willingness towards making their knowledge available to other students, organisational support including putting in place the opportunity of utilising SNSs, rewards systems, training to enhance students' knowledge and putting in place the required technology to support SNSs usage.

3.5.10 Influence of trust on the use of SNSs

Trust is the readiness of an individual to be open to others with the belief that they will behave as expected (Koranteng *et al.*, 2019:2). On the other hand, Grabner-Kräuter and Bitter (2015:52) advance that the involvement of an individual in SNSs is directly influenced by their behaviour which resulted from their trusting beliefs and their intentions towards their behaviour. Ethical behaviour is a good indicator of trust for both trustees and thrusters (Abdul-Ridha and Jader 2018:49). SNSs are recognised as important tools for solving problems facing individuals and this can be attained by ensuring issues such as trust are properly managed (Labib and Mostafa 2015:434). Therefore, trust influences the usage of SNSs in any organisation. Maia *et al.*, (2018:197) assert that one of the important factors for individuals to participate in SNSs usage is trust in the SNSs providers. Al-Harrasi and Al-Badi (2014:134) hold that with the enormous amount of information that is generated in the world today, students need to understand techniques of filtering information and be aware of the trusted sources of information.

Liu *et al.*, (2018:72) mention two factors that influence people to engage in SNSs usage namely, internal and external environmental factors. External environmental factors include trust and subjective norms while internal factors include self-efficacy, motivation and image. Bohler and Drake (2017:1) aver that exchanging knowledge in

SNSs requires that the shared information will be utilised ethically by others. Bohler and Draker (2017:3) further argue that a high level of willingness to use SNSs enhances the level of trust, and the enhanced level of trust accelerates disclosure of private information to others with the assumption that the disclosed information will not be misused by others. To a large extent, the level of trust in SNSs determines how individuals assist each other in a network (Bush 2018:8).

Building trust and reciprocity respect among the group members in SNSs is an important factor of enhancing effective interactions between lecturers and students whether during the classroom or after classroom hours (Athukorala 2018:67). On the other hand, Alonge, Kiai and Ndati (2016:66) assert that individuals prefer to use SNSs that are attached privacy provision compared to others that have no such control. Thus, the utilisation of SNSs for knowledge and information exchange is influenced by the level of trust that students have in the network and other group members that their information will not be misused by others once shared in a platform. Therefore, Universities are expected to have in place mechanisms to protect students once they engage in online knowledge and information sharing. These may include password protection and policies that may provide the guidelines and actions on its violations.

3.5.11 Knowledge sharing culture and the use of SNSs

The sharing of information and knowledge may be influenced by the knowledge culture in a given context. "Culture is a set of joint attributes, attitudes, beliefs, philosophies, practices, principles, rituals and values that are shared by employees in the pursuit of the firm's respective goals-providing its unique character" (Naicker *et al.*, 2017:55). Organisation culture refers to the shared behaviour of the employees within an organisation, it normally results from the mission and vision of the organisation including their culture and beliefs (Mlanga 2013:2). On the other hand, Janus (2016) posits that the culture of exchanging knowledge in organisations is made up of factors such as the historical background of the organisation, leadership or management style that are in use, external environmental factors, financial capacity, governance, mission and vision of the organisation. Celep, Konakli, and Kuyumcu (2014:255) assert that the knowledge sharing culture in an organisation is influenced by administrators and managers perceptions of whether they trust or do not trust SNSs due to the possibility of misusing the information as the result of the open nature of the SNSs. Some of the

factors influencing knowledge sharing culture in organisations include organisational structure and hierarchy, perceptions of the administrators and the institutional strategies (Corcoran and Duane 2018:8).

In highlighting the importance of knowledge sharing culture, Charles and Nawe (2013:49) assert that in the world today, KM is regarded as the most important strategy of ensuring that a knowledge donation and collection culture happens in Universities since knowledge is an important asset for Universities to gain their competitive advantages. On the other hand, Ahmed *et al.*, (2019:20) state that knowledge sharing culture in organisations can be hampered by factors such as institutional setting, organisation culture and lack of support from managers and administrators.

Ojo (2016:341) advances that since Universities are the hub of knowledge and information creation and dissemination, they are expected to promote knowledge sharing culture and utilisation of technology in learning to foster communication between academics and students. Looking at organisations Kathiravelu *et al.*, (2014) aver that, organisations should put in place a knowledge exchange culture with the view of enhancing knowledge sharing activities and the organisation structure should be in the form that accelerates knowledge interchange. Thus, Universities top administrators may inculcate the culture of knowledge sharing among students by supporting the integration and harnessing the use of SNSs as the platform for knowledge and information exchange between students and academics.

Madugu and Manaf (2018:23) mention several factors influencing knowledge sharing culture in organisations such as types of knowledge to be shared, available chances to share such knowledge, work settings, and motivation to exchange knowledge. Molose and Ezeudji (2015:3) affirm that knowledge sharing culture is determined by organizations' managers, the culture and climate they create towards ensuring innovations are utilised to attain organisational competitive advantages. Mosha, Holmner and Penzhorn (2015:4) hold that knowledge interchange requires strategies that influence knowledge donation and collection culture between individuals.

Strategies that can be deployed in knowledge interchange include technologically driven and traditional ways such as face to face interaction, Web 2.0 technologies such as

SNSs. On the other hand, Abdi *et al.*, (2018:14) argue that organisations that intend to improve their innovations should inculcate a culture of knowledge sharing among their staff which enhances organisational learning. Ogendi (2017:23) states that factors influencing a knowledge sharing culture in organisations include incentives, organisational culture and trust. Ingari and Ali (2017:364) mention bureaucracies as the source of mistrust among staff in organisations which prevents the culture of knowledge sharing. Ncoyini and Cilliers (2016) aver that factors that influence KM practices in organisations are IT, human resources, organisational structure, strategy and leadership. Thus, once factors that affect knowledge and information giving and receiving in Universities are eliminated it will influence more students to engage in KS behaviour and build the culture of KS in the university community.

Several studies were conducted to examine the influence of knowledge sharing culture on knowledge sharing behaviours. A study conducted in Nigeria by Omojowolo and Olatokun (2017) found that culture of individualism has been found to affect knowledge sharing behaviour because people tend to concentrate on their own individual goals. Another study carried out in Kenya by Nguyo, Kimwele and Guyo (2015) found that ICT is the major enabler of knowledge sharing because the use of SNSs promotes online interaction and improves the quality of knowledge that is shared. Another study was done in Kenya by Sirorei and Fombad (2019) propose that academic libraries in Kenya should put in place knowledge sharing policies that will inculcate the culture of exchanging knowledge among the staff.

A study conducted in Ghana by Dzandu, Boateng and Tang (2014) found that there is a direct link between KS culture of the students, environmental cultural factors, self-efficacy, incentives and attitudes. Thus, from the light of the above literature knowledge and information sharing culture and the utilisation of SNSs is influenced by organisational support, technological support, organisational settings, organisational structure, trust, and organisational strategies. Since knowledge and information sharing culture can be inculcated among the students, Universities are expected to initiate the process and impart skills to students which may change their habits towards the use of SNSs.

3.5.12 Influence of training on the use of SNSs

The major aim of the training is to transfer knowledge, skills and work-related attitudes among employees to ensure they keep abreast in their field of specialisation. Training ensures both short term and long-term benefits to organisations and employees (Nassazi 2013:21). Organisations that are integrating SNSs should consider putting in place training sessions to create awareness to all employees on the operational guidelines of the SNSs to enhance proper usage of the platform and ensure the organisation is benefiting from such SNSs. This will enable organisation leaders to monitor how SNSs are utilised by their employees once implementation starts (Haddud, Dugger and Gill 2016:8; Cetinkaya and Rashid 2018:16). On the other hand, Okyireh and Okyireh (2016:126) advances that employee training and development leads to job satisfaction and improved job performance among employees and therefore organisational leaders should consider putting in place training programs to ensure SNSs are effectively utilised to enhance organisational productivity.

Donelan (2016:13) holds that there are factors that may hamper effective utilisation of SNSs in organisations such as lack of skills and lack of time to engage on SNSs, however, these factors can be addressed through seminars and training on proper usage of SNSs in an online environment and its possible associated risks. Therefore, Universities that offer training to postgraduate students on the proper usage of SNSs will attract more students to join the platform to interchange knowledge since it will equip students with the basic skills required when using SNSs. Silic and Back (2016) claim that awareness programs should be designed to educate employees on how SNSs can harm them based on the type of information they prefer to share on the platform. Looking at Universities like any other forms of organisations Aillerie and Mcnicol (2016:18) insist that academics and librarians are expected to train students on how best they can utilise SNSs for academic purposes.

Vincent (2016:2) states that:

Before the current age of technology, professional counsellors only discussed and assisted clients through face-to-face interactions. Now, with the presence of social media, professional counsellors can aid clients in engaging in social interactions with peers within the counselling session.

A study conducted by Alabdulkareem (2015) in Saudi Arabia on the utilisation and impact of SNSs in studying science found that both instructors and students need training on the use of ICT and SNSs before the actual implementation of SNSs usage in teaching and learning. A study that was carried out in South Africa by Koch, Gerber, and Klerk (2018) on the use of SNSs by recruitment companies found that lack of training on the use of SNSs had affected the utilisation of SNSs by the recruitment agents. Another study carried out in China by Athukorala (2018) on the barriers to effective utilisation of SNSs among higher education students found that both academics and international students need media literacy training and the contents of training programs should consider the need of students based on their country of origin, age, gender, and academic programmes that student is enrolled on.

Thus, from the literature above it can be depicted that training is a re-tooling mechanism towards ensuring staff and students' capability on the use of new technologies such as SNSs is enhanced. Training enables students to learn things previously unknown to them and may improve their skills towards the use of SNSs for knowledge and information exchange and socialisation. In such a situation, Universities are expected to have in place training sessions to equip academics and students with skills on the best way of utilising SNSs in exchanging knowledge and information which may, in turn, improve their academic performance and expand their knowledge base.

3.5.13 Factors affecting knowledge and information sharing (KS) in organisations

Knowledge is an important asset that any organisation is required to manage to ensure effective knowledge giving and receiving and ensuring organisational competitive advantages (South *et al.*, 2017:87). However, some factors may affect knowledge sharing in organisations. Razmerita, Kirchner and Nielsen (2016:23) advance that some of the factors impeding effective knowledge exchanges in organisations such as the tendency of hoarding knowledge among the employees, limited time to share knowledge that some employees possess, and mistrust among staff that their information might be wrongly used by others once shared. Similarly, Andolšek (2015:71) holds that there is a tendency of employees to hoard knowledge in organisations with hierarchical shapes.

On the other hand, Jabbar and Madhoshi (2014:134) claim that organisation culture may hinder knowledge sharing in organisations like Universities since it may impose negative views on the university administrators towards the use of SNSs for knowledge donating and collecting. Yusuf and Wanjau (2014:15) affirm that insufficient human resource capacity prevents KS practices in an organisation. Areekkuzhiyil (2016:25), argues that the application of IT enables employees to exchange explicit knowledge rather than tacit knowledge and organisational support resulted from managers attitudes on the use of SNSs for knowledge giving and receiving, provision of training to employees and limitations on the use of SNSs in an organisation may act as promotional or impeding factors on the KS in an organisation.

In the light of the literature above it can be said that the behaviour of donating and collecting knowledge among students may be influenced by individual factors, support from Universities top administrators, culture, and availability of technology that facilitate KS in Universities. Mamo and Tesema (2018:25) express the view that factors that may affect knowledge sharing interchange in organisations include fear of adopting new changes and technology, the culture of the organisation, and attitudes of the top organisation administrators.

South *et al.*, (2017:91) aver that lack of an organisational strategic plan on KM and KS practices affects many Universities like any organisation in the world in implementing knowledge exchange practices. Other factors that may hinder KS in the organisation include expected reciprocal benefits, individual self-efficacy, and organisational setting (Palo and Charles 2016:17; Shihab, Anggoro and Hidayanto 2016). Lack of employee's rewards and recognition can hamper knowledge giving and receiving behaviour in an organisation because rewards and recognition promote KS which also foster innovativeness (Siddiqui *et al.*, 2019:463). Organisations that fail to leverage tacit knowledge to influence individuals to share knowledge that they possess with others may affect KS practices in an organisation (Manus 2016). On the other hand, Islam and Khan (2014) assert that lack of clear organisational hierarchy that may speed the knowledge sharing behaviour, limited application of technology in alleviating challenges imposed by distance and time may also hamper knowledge interchange in an organisation.

At an individual level, people perceive KS in different ways and therefore their perceptions may determine their motivation on whether to share the knowledge they possess or not (Marouf 2015:114). Looking at how individual factors can affect KS Shoeleh, Golabchi, and Yakhchali (2019:21) hold that organisations that fail to build mutual trust among their employees will continue with knowledge hoarding tendencies as a result of mistrust between their colleagues. Nadason, Saad, and Ahmi (2017:34) identify four types of barriers to knowledge interchange namely, (i) individual, (ii) culture, (iii) technology, and (iv) organisational. On the other hand, Kazaure *et al.*, (2016:164) point out the following types of individual barriers towards KS, individual ethnicity, age, level of education, time to share knowledge, lack of awareness, organisational hierarchy, limited interactions and lack of trust.

Kazaure *et al.*, (2016:165) further mention organisational factors impeding KS including organisational culture, organisational KM strategy, limited KS spaces, top-down approach, hierarchical structure of the organisation and organisation climate. Phung, Hawryskiewycz, and Binsawad (2016:78) express barriers of KS in organisations as follows: psychological factors, mistrust, low technology adoption, lack of organisational support, limited information technology infrastructure, lack of rewards and incentives. Several studies were carried out to examine factors impeding effective knowledge interchange in the organisation. In a study conducted in Jordanian Universities by Alhawary, Abu-Rumman, and Alshamaileh (2017) when examining factors influencing knowledge donating and collection among academics, they found that actors that affect knowledge giving and receiving include human factors, organisational factors such as the hierarchy nature of the organisation attitudes of the top managers towards IT and knowledge interchange and technological factors.

Another study that was conducted in Pakistan to examine factors hindering knowledge exchange among medical students by Rafique and Anwar (2019) found that low adoption of IT has affected KS among medical students. A similar study found that students prefer to interchange knowledge with colleagues who also share knowledge with them and exclude other students with little KS attitudes. A study conducted in Malaysia by Haque, Ahlan and Razi (2015) investigated factors hindering knowledge exchange on innovation in Universities and found that human behavioural intentions towards KS may affect the practices of knowledge interchange within an organisation.

Another study done in Tanzania by Maiga (2017) on knowledge exchange among academics in higher education institutions found organisational support, human factors, and technological factors may influence or hamper knowledge exchange behaviour among academics. Similar findings were obtained in a study conducted by Islam and Khan (2014) which found that human factors, organisational factors and technological factors are barriers towards knowledge interchange in Universities. In a study carried out in China by Sun *et al.*, (2018) on knowledge exchange culture among students, it was found that in a competitive environment people will continue to hoard knowledge to respond to competition and ensure they remain valuable and competitive in an organisation.

Another study conducted by Arekkuzhiyil (2016) on how organisational factors affect knowledge exchange practices of instructors in higher education institutions. The study revealed that the absence of open communication, lack of good organisational culture and mistrust can directly affect knowledge and information sharing in Universities. Therefore, from the above-reviewed literature, it can be observed that many factors may hamper knowledge and information sharing in Universities. These factors can be categorised as human factors, organisational support, technological and cultural factors. Therefore, Universities are expected to make a prior analysis of the factors that may affect the smooth utilisation of SNSs in exchanging knowledge and information among students before its implementation. This will enable them to overcome obstacles that may arise in the course of implementation of SNSs usage.

3.6 Level of usage of social networking sites

Social networking sites provide opportunities for people to keep close and maintain their relationships despite the distance existed between them (Christensen 2018:5). SNSs offer opportunities for people with common interests to meet and exchange knowledge (Gwena, Chinyamurindi and Marange (2018:2). SNSs providers can enhance the frequency of SNSs usage if they link them with useful features that can demonstrate their relevance and usefulness to the students and academics (Sago 2013:8). Thus, postgraduate students will frequently use SNSs once they perceive their usefulness in academic activities. On the other hand, Liu *et al.*, (2018:81) aver that perceived enjoyment is one of the factors that determine the level of usage of SNSs among students. Universities students utilise SNSs for academic reasons as a result of

limited communication technology and lack of infrastructure in government-based institutions which provide an opportunity for SNSs to be utilised as a useful communication platform (Sobaih 2016). Likewise, Ganda (2014:) points out that "one potential consequence of the individual's increased online interaction time is that the formation of identity and understanding of self is now affected to a greater degree through the popularity or feedback or certain aspects of the user's life that they are willing to share".

A study conducted by Sago (2013) on the factors leading to SNSs adoption and its usage frequency found that the level of usage of SNSs is influenced by enjoyment, perceived usefulness, and the perceived ease of use among the users. On the contrary, a study carried out by Abdulahi, Samadi, and Gharleghi (2014) in Malaysia on the impacts of SNSs among Pacific university students found that the frequent use of SNSs affected students' academic performance. A study investigated by Gwena, Chinyamurindi and Marange (2018) on the influence of Facebook utilisation as a social media platform found that the need for students to discuss academic issues influence the usage of SNSs.

A study carried out in Singapore by Jiang and Ngien (2020) found that frequent use of SNSs is influenced by the existing comparison level among the group members. In the light of the above literature, it can be depicted that level of usage of SNSs among postgraduate students may be influenced by several factors including trust, perceived ease of use, perceived usefulness, perceived enjoyment, policies, organisational support, individual self-efficacy, skills on the use of technology and the existed culture in the university community.

3.6.1 Attitudes and the use of SNSs

The benefits that ICTs offer to the students including online discussion, collaboration and communication with their peers, influence their positive attitudes towards SNSs usage (Cheta and Yinka 2017:90). On the other hand, Waheed (2017:16) affirms that one of the reasons for the adoption and usage of SNSs among students is their easy accessibility and ease of use. Marlow (2020) holds that attitudes towards the usage of SNSs may be associated with the age of the users. Kim and Gyeong-Ju (2017:198) aver that although SNSs provide advantages to the students in their academic and social-

related activities they are also bringing problems associated with privacy. Therefore, some students develop negative attitudes towards SNSs hence they do not utilise them in their day-to-day life (Matikiti, Mpinganjira, and Roberts-Lombard 2017:7).

A study conducted in Nigeria by Omorogbe and Iguodala (2018) on the attitudes and motivation for SNSs among secondary school students found that students prefer to use SNSs since it has now become an international phenomenon. Their study also found that students use more than one SNSs platform to get connected to their family and friends online. Another study carried out in Saudi Arabia by Alqahtani *et al.*, (2017:7) on student's attitudes and perceptions on the utilisation of SNSs for academic activities found that students feel comfortable when using SNSs as a result of the benefits that they gain including knowledge exchange, meeting online with course instructors, and discussion with their classmates.

Ahmad and Khan (2017) examined factors attracting consumers' attitudes towards SNSs marketing and found that perceived usefulness, word of mouth quality, and reliability influence positive attitudes towards the use of SNSs in marketing strategies. Thus, students develop negative or positive attitudes towards the use of SNSs after taking into consideration several issues such as benefits and the risks associated with the use of SNSs technologies. In the context of the selected universities in Tanzania, there is a need to examine the attitude of postgraduate students toward the use of SNSs for knowledge and information sharing. This will provide an insight as to whether students will utilise SNSs because of the advantages the technologies offer in exchanging knowledge and information, between those who have and have not utilised them which in turn depends on their views towards the SNSs.

3.6.2 Perception on the use of SNSs

Studies on perception and the utilisation of SNSs in the educational context have been variously documented (for example, Muhammad and Tamimi 2017; Neir and Zayer 2015; Richardson 2017; Orgaz, Moral and Dominguez 2018; Haneefa and Sumitha 2011; Zhao *et al.*, 2018; Shohrowardhy and Hassan 2014; Aiyebilehin and Omekwu 2019; Hamade 2013; Alshoaibi and Shukri 2017; Alsolamy 2017; Athukorala *et al.*, 2018; Zhang 2013; Bramorski and Madan 2016). "Perception is basically how people feel towards a thing or system. In this sense, the way people react or accept a

circumstance or object is determined partly by their perception (Aiyebelehin and Omekwu 2019:3).

If SNSs are utilised by the majority of people for socialisation and gathering information and since KS is facilitated by SNSs, then the utilisation of SNSs will be positively associated with KS (Omotayo and Salami 2018:66). Users of SNSs strongly believe that joining a network provides them with an avenue to interact with many other members of the platform and therefore develop relationships with the view of exchanging knowledge (Ma and Chan 2014:52). Thus, once students perceive positively the usefulness of SNSs in their academic activities they will join and utilise SNSs with other students with the expectation of accessing knowledge and fulfilling their information needs relating to their academic activities and social purposes.

On the other hand, Lin and Utz (2017) affirm that familiarity enhances the utilisation of SNSs platforms because users feel comfortable when knowing their group members and therefore feel supported by them and hence, they become willing to make their knowledge available to others. Knowledge sharing should be influenced by an individual's willingness to participate in the SNSs platform to exchange knowledge with other group members (Ghadirian *et al.*, 2014:39). Thus, based on the above clarification from various scholars it can be said that the self-efficacy of an individual postgraduate student towards making their knowledge available to other students may determine their willingness to utilise SNSs for knowledge sharing. On the other hand, Njiraine (2019:84) affirms that for an individual or group to acquire new knowledge, they should possess the necessary skills including the capability of working in a team to ensure knowledge exchanges happen effectively.

Boateng *et al.*, (2017) advance that trust is one of the determinant factors for students to share knowledge in educational settings. El-ghorrah (2016:36) asserts that perceived usefulness is an important catalyst for knowledge exchange. In the same vein, Lin *et al.*, (2016:10) hold that some of the important factors that attract people to continue using SNSs include perceived usefulness, perceived enjoyment, and satisfaction. Thus, the benefits that postgraduate students' gain from using SNSs will determine their behaviour towards using the platform for knowledge and information exchange.

Looking at the organisation Alhawary, Abu-Rumman and Alshamaileh (2017:421) opine that, employees that are committed to participating in helping their organisation in attaining good performance through exchanging knowledge with others will have a high positive willingness to share knowledge with others. Thus, in the context of Universities, students with the highly ambitious intention of helping their colleagues in attaining good academic performance will perceive the usage of SNSs for KS as the best way of helping other students. Chen and Hew (2015) affirm that KS self-efficacy is directly linked with knowledge donating and receiving behaviour among the SNSs members. Thus, the description from the above scholars signifies that SNSs chosen for knowledge sharing once are associated with attractive features students will perceive to be useful in academic activities as well as for their social purposes, this may, in turn, attract them to utilising SNSs for knowledge exchange.

A study carried out on how perception leads to the actual use of technology, by Orgaz, Moral and Dominguez (2018) found that students' attitudes on the technology determine their perceptions of the technology and their attitudes towards SNSs greatly influences the utilisation of the technology. A study done by Miralbell (2015) found that students' utilisation of SNSs is highly dependent on their self-efficacy which is strongly associated with their perception that they can effectively manage interaction in a network. Another study conducted by Zhao *et al.*, (2018) found that perceived value and trust among SNSs users determine their use of the platform for knowledge sharing.

Another study conducted in Bangladesh by Shohrwardhy and Hassan (2014) found that only a small number of students perceive the usefulness of SNSs in their academic undertakings while the majority perceive SNSs as tools used for forgery, falsification, plagiarism and misinforming society. A study conducted by Leonardi (2015) found that staff becomes aware of who knows what in an organisation when they are connected in one platform and receive messages created by their colleagues which is another advantage of using SNSs.

Another study conducted by Alshoaibi and Shukri (2017) in Saudi Arabia found that male students perceived positively the use of SNSs in academic activities compared to female students who perceived negatively as a result of lacking experience and confidence in using SNSs. On the other hand, Alsolamy (2017) conducted a study in

Saudi Arabia Universities and found that the utilisation of SNSs has provided opportunities to the Universities and enhanced collaborative learning among the students. A study by Gray (2018) found that perception towards SNSs among young people is a major determinant factor of their online KS conducts. Thus, several factors may influence students' perceptions of the use of SNSs including self-efficacy, experiences, perceived ease of use, trust, skills, perceived usefulness, the familiarity of group members, security of information and members, appealing features that support multiple functions of the SNSs, privacy, and the academic perceived value of the SNSs. However, there is a need to examine if the perception of postgraduate students in te selected universities in Tanzania is consistent with students from other Universities outside Tanzania as scholars have pointed out there are may be differences in perception amongst students.

3.7 Chapter summary

The chapter provided an introduction, followed by the purpose of the chapter which was the review of the literature. The chapter highlights the importance of a literature review, mapping of the literature review, followed by a theoretical framework section where the theory of reasoned action (TRA) by Fishbein and Ajzen (1975), knowledge creation (SECI) model by Nonaka and Takeuchi (1995) and TAM 2 model by Davis (1989) were reviewed to form the conceptual framework of the study. Thereafter, a review of the related literature section was presented by reviewing empirical studies related to the study under investigation. A thematic literature review was used in presenting the literature review section.

It was noted that previous related studies that were reviewed did not completely address the study objectives as a result of the weak methodologies that were used. Some researchers failed to explain methodologies that they deployed in the course of conducting their studies, some studies lacked a theoretical and conceptual framework which are the foundation of any study while others have deployed only a single technique of data collection resulting in the limited presentation of their research findings. In contrast, this study adopted mixed methods research and deployed convergent mixed methods research design where multiple perspectives provided insights into the phenomena being investigated. It was also guided by a conceptual framework that formed the basis for the study, data collection methods were

triangulated to ensure the rigour of the research findings and finally, pre-testing was done to enhance the validity of the study. The gaps identified from the previous studies necessitated this study to be conducted to uncover the existing knowledge gap.

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

The previous chapter mapped the review of literature that is pertinent to this study. In this chapter, different aspects of the research methodology are presented and discussed including, research paradigms, research design, data collection procedures and instruments, data analysis, validity and reliability, research ethics and the evaluation of the research process. The next sub-section presents the discussion of research paradigms.

4.2 Research paradigms

A paradigm as a scientific term is used in research to elaborate beliefs of individual researchers in a specific area of specialisation, it states what should be examined, the procedures for examination and how the findings should be interpreted and presented (Creswell and Creswell 2018). On the other hand, Saunders, Lewis and Thornhill (2019:133) aver that a paradigm is a manner we view the earth, critically thinking about and attaching the meaning of the phenomenon of the real universe. Creswell (2015:111) advances that a paradigm is concerned with the universe and its reality and the proper procedures of understanding that reality. Researcher beliefs on the existence of the universe and what comprised the procedures for attaching meaning to such social reality set a foundation paradigm stance of research for a particular discipline. Kivunja (2017:25) argues that paradigms are guided by four factors namely, ontology, epistemology, methodology and axiology. These elements possess assumptions and beliefs which every paradigm possess. Therefore, researchers need to be aware of them to locate their studies in an appropriate paradigm.

Ontology and epistemology are the two philosophical assumptions on which social research is premised (Ngulube 2015:127). Based on the argument from Ngulube (2015), this study deployed an MMR design. The ontology of the study adopted was pluralism which is associated with the pragmatism paradigm which normally combines quantitative and qualitative methods with the view of obtaining robust results from multiple perspectives. The epistemological view that guided this study was pragmatism which combines positivism and interpretive assumptions with the view of gaining a

better understanding of the phenomenon under study since it is associated with MMR. This assertion was supported by Ngulube (2020a:89) who affirmed that many researchers with a pragmatic stance utilise MMR designs in the course of examining phenomena as a means of gaining better understanding. Thus, MMR was used in investigating the usage of SNSs for knowledge and information sharing among postgraduate students at the selected universities in Tanzania.

4.2.1 Ontology

Ontology refers to the belief of the researcher of what is real while undertaking their studies. It is more associated with the nature of reality (Creswell and Creswell 2018; Creswell and Clark Plano 2018; Saunders, Lewis and Thornhill 2019:136). This study was guided by ontological assumptions which are comprised of multiple views (objectivity and subjectivity). Positivism aims at testing theories and it is deductive while interpretivism is a theory-building approach and it is inductive. The combination of objectivity and subjectivity is associated with MMR. MMR is underpinned by two or more research methods to be conducted in a single study and findings can be triangulated to form a complete whole (May, Hunter and Jason 2017:1; Saunders, Lewis, Thornhill 2009:119). Critical realism and constructivism are the philosophical assumptions that can support and validate key aspects of both quantitative and qualitative approaches (Creswell and Clark Plano 2018). On the other hand Ngulube (2015b) argues that pluralism ontology and pragmatism epistemology intend to bridge the gap between realism and constructivism ontologies.

This study was guided by pluralism ontology since the study adopted an MMR approach that is associated with methodological pluralism. This foundation assumption enabled the researcher to obtain a richer understanding of the study since it allowed the researcher to collect both quantitative and qualitative data in a similar phase of the research process using various techniques of data collection, data analysis, and finally integrate both quantitative and qualitative data during the interpretation of the study findings. Data integration enabled the researcher to relate findings collected from both types of data, identify differences and the complements which provided a broader understanding of the subject matter to the researcher. Quantitative data on the use of SNSs for knowledge and information sharing were gathered through the use of open-ended questionnaires, while qualitative data were collected through semi-structured

interviews and documentary reviews. Both quantitative and qualitative data were integrated to communicate the findings of the study which are presented in Chapter 5 of this study.

4.2.2 Epistemology

The science of understanding is referred to as epistemology (Levy 2017:12). It aims to identify what can be considered acceptable knowledge. Epistemologies are different ways of knowing (Creswell and Creswell 2018). The common epistemological perspectives include positivism which is associated with a quantitative approach, interpretivism linked with the qualitative approach and pragmatism which is related to mixed-method research (Ngulube 2015b:15). Positivists hold a belief that with the appropriate research measurement tools they can reveal the truth about a phenomenon in a physical world and people's experience (Leedy and Ormrod 2015:25). Interpretivism researchers hold a belief that the researcher must be exposed to the social world of what is being studied (Wilson 2014:10). With interpretive epistemologies, the researcher becomes part of the group of people that he/she is studying (Walliman 2011:74).

The major aims of the researchers are to gain detailed information that is made possible through adopting the interpretive paradigm. Therefore, in a situation when using quantitative research which explains the social world in numerals and not explanations is not likely to produce the required outcomes (Thanh and Thanh 2015:26). On the other hand, Addae and Quan-Baffour (2015:155), aver those assumptions and methods that are used in conducting natural sciences can be used in carrying out social science studies. The broad paradigms in which research is carried out include positivism and interpretivism (Ngulube 2015b:127).

This study was premised on interpretive and positivism paradigms and adopted the pragmatism paradigm. The interpretive paradigm was used in presenting qualitative information that was collected through in-depth interviews from the key informants and document reviews. The positivism paradigm was also used in this study since positivists believe their findings can be statistically measured, quantitatively presented, and the results generalised (Moshia 2017:26). Therefore, information for this study that was collected from the respondents through the use of open and closed-ended questionnaires was presented in a quantitative form while qualitative data was collected through semi-

structured interviews and documentary review such as a review of policies on the use of SNSs in the selected universities in Tanzania were presented qualitatively. The use of pragmatism paradigms in this study enabled the researcher to offset any weakness that could arise when a single paradigm could have been used.

4.2.3 Paradigms used in social science research

Neuman (2014:96) outlines three types of paradigms that are commonly used in social science research namely positivism paradigm, interpretivism, and pragmatism or critical social science. Each of the paradigms is discussed in the following sub-sections.

4.2.3.1 Positivism and post-positivism

The term positivism was propounded by Auguste Comte and Vienna Circle scientist philosophers at the beginning of the 20th century and was commonly used in 1798-1857; this paradigm is directly associated with natural science because researchers who fall in this philosophy believe that a problem can be objectively studied through formulation and testing of hypothesis and results can be generated to explain the phenomenon (Saunders, Lewis, and Thornhill 2019; Creswell 2015; Kumar 2005:13). Postpositivism is linked to quantitative research. It involves the choice of tools, testing the existing relation between variables and determining the statistical findings generated from the collected data (Cresswell and Plano Clark 2018). Positivists believe in the philosophy of cause and effects relationships. Therefore, studies carried out by positivists are focused on examining how the outcomes are truly influenced by the causes similar to those that are achieved through experimentation (Creswell and Creswell 2018). Thus, if your study is based on the belief in postpositivism assumptions you would have to agree with the viewpoints of the natural scientist (Cohen, Manion and Morrison 2018:11; Saunders, Lewis, and Thornhill 2019).

On the other hand, Matthew and Ross (2010:102) mention four characteristics of positivism namely "(i) knowledge is identified as that which can be observed by the senses, (ii) knowledge of the social phenomenon is based on what can be observed and recorded rather than subjective understandings, (iii) usually data are gathered to test the hypothesis which has been generated from existing theory, (iv) the researcher is independent of and has no impact on the data-the researcher is objective". Positivist researchers generate laws that can be used to determine human behaviour (Saunders,

Lewis and Thornhill 2019:144; Fisher *et al.*, 2010:19). Walliman (2011:73) affirms that positivist researchers trust that similar methodologies and steps that are applied in natural science can be used in social science studies and findings can be presented as laws in the same way as those generated in the natural sciences. Babbie (2007:41) advances that, human beings do behave rationally; while positivist researchers tend to believe that, human beings behave rationally this is one area that may pose challenges to positivist researchers. Mosha (2017:135) posits that studies conducted by positivist researchers start with theories, gather data and at the final stage the gathered data are tested to confirm or disconfirm if findings conform with the theories or not.

4.2.3.2 Interpretivism

The epistemology that accepts the analysis that an investigator must be attached to the social world of what is being investigated is referred to as interpretivism (Wilson 2014:10). It is also named relativism, idealism, constructivism or constructionalism (Creswell and Plano Clark 2018:48; Creswell 2014:8). Normally researchers that believe in the interpretivism paradigm take on an empathetic stance (Saunders, Lewis and Thornhill 2019:149). Interpretivism researchers hold a view that it is difficult for a researcher to attach meaning to what is being investigated if a researcher is not attached to the social world being investigated (Fisher *et al.*, 2010:23).

Ngulube (2015:127) states that interpretivism epistemology produces knowledge that is subjective while positivist paradigm produces objective knowledge that exists out there. On the other hand, Walliman (2011:74) affirms that with the interpretivism paradigm a researcher is positioned close to the human circumstances which he/she is examining, unlike in the natural sciences where a researcher is isolated from what is being investigated with the view of obtaining objective answers. Levy (2017:13) claims that when a researcher is attached to the social world that is being investigated respondents avail the researcher with explanations that enable the researcher to make interpretations and attach meaning to the phenomenon. Fisher *et al.*, (2010:23) aver that the way we understand and interpret reality is not just about what it means, but is a result of the following from communities or groups:

- i. Their understanding of reality which is directly linked with their values and the way they interpret the world,

ii. Perceptions and understanding of other people

iii. The connection between the first two.

4.2.3.3 Pragmatism

A pragmatism paradigm deploys both positivism and interpretivism philosophical assumptions in examining the social world (Wilson 2014:10). On the other hand, Tashakori and Teddlie (2003) affirm that "pragmatism is intuitively appealing, largely because it avoids the researcher engaging in what they see as rather pointless debates about such concepts as truth and reality". Munyua and Stilwell (2012:30) affirm that the pragmatism paradigm provides a clear understanding when examining a complex phenomenon. Ngulube (2015:127) argues that both paradigms positivism and interpretivism produces knowledge that exists in the world and therefore the pragmatism paradigm has come to eliminate the gaps between positivists and interpretivism paradigms. On the other hand, Gilbert (2008:139) advances that a researcher chooses to mix the two paradigms with the view of gaining a richer understanding of the phenomenon under investigation.

The majority of pragmatic researchers use mixed methods research designs to gain a better understanding of the phenomenon (Ngulube 2019:6). On the other hand, Creswell and Plano Clark (2018) suggest that researchers who adopt a convergence design should use the pragmatism paradigm since it allows for obtaining an understanding of the phenomenon under investigation through multiple perspectives. Thus, based on the advice from Ngulube (2019:6), and Creswell and Plano Clark (2018) this study adopted a pragmatism paradigm stance and deployed MMR which enabled the researcher to use multiple sources of data to gather information, different techniques for data collection and analysis, and finally theories were triangulated to address the objectives of the study which enhanced better understanding of the use of SNSs for knowledge and information sharing among postgraduate students at the selected universities in Tanzania. The next section presents the discussion of research approaches namely quantitative, qualitative and mixed methods research.

4.3 Quantitative research methods

Quantitative methods heavily depend on positivist views of objectivity and therefore attach meaning to the phenomenon by testing and measuring the existing relationship among variables (Neuman 2014:167). In addition, quantitative research begins by advancing and testing a theory. This process of testing is achieved through gathering and analysing data (Creswell 2015:53). To clarify the approach, Bryman (2008:22), posits that:

quantitative research can be applied as a research strategy that emphasises quantification in the collection and analysis of data and that (i) entails a deductive approach to the relationship between theory and research, in which the accent is placed on the testing of theories, (ii) has incorporated the practices and norms of the natural scientific model and positivism in particular; and (iii) embodies a view of social reality as an external, objective reality.

With quantitative methods, researchers are capable of exchanging data that is in the form of conversation and media stories, into numeric forms (Tracy 2013:24). Researchers who deploy the quantitative method in their research believe in testing theories and controlling alternative answers so that the results of the study can be generalised and replicated (Creswell and Creswell 2018). Quantitative research is also useful in testing theories and hypotheses and is free from researchers' bias which may arise from their values (Basias and Pollalis 2018:92). The greater number of researches done by positivists is quantitative because they believe experimenting is the best means to undertake research (Creswell and Plano Clark 2018; Neuman 2014:97). The quantitative research method is useful in gathering a larger volume of data from different data sources than other means that need to be analysed quantitatively (Haslam 2020:2). It is composed of techniques or analytical tools which aim at ensuring objectivity in the measurement of study variables and in analysing quantifiable data to reveal the truth of a given phenomenon under the study (Verma and Sharma 2017:24).

In the same light Esperon (2017:1) argues that the quality of quantitative research is determined by its ability to examine the nature of realities and in attaining objectivity of the study findings from a large sample that is representative of the population. ACAPS (2012:5) affirms that the larger the sample in quantitative research the more the

confidence the researcher can have that the findings would truly represent the relationship of the variables under study and the population from which the sample is derived. On the other hand, Queirós, Faria and Almeida (2017:370) advance that quantitative research concentrates on objectivity and therefore adheres to the systematic data collection procedures where quantifiable data are analysed statistically using several techniques and tools such as Statistical Package for Social Sciences (SPSS) software and STATA. In the context of this study, quantitative data was collected from postgraduate students and academic staff through the use of questionnaires. The sample of 239 respondents from the population of 633 students was selected to represent the entire population of postgraduate students which ensured generalization of the study findings. Quantitative data that was collected from postgraduate students and academic staff through the use of questionnaires were analysed statistically using SPSS computer software version 24 to generate numerical values and draw inferences from sample about the the population.

4.3.1 Qualitative research methods

Qualitative research methods generate findings that are non numeric and cannot be easily analysed quantitatively (Rahman 2017:103). On the other hand, Babbie (2007:25) avers that the qualitative method uses words in providing explanations of the existing cause and effects of a particular phenomenon. Connaway and Powell (2010:2) state that the qualitative method enables researchers in examining problems from a natural setting and provide explanations on the existing cause and effects of a given condition. Paulsen (2017:407) affirms that researchers that prefer to use qualitative methods utilise several techniques to ensure they generate research findings with high rigour and are accepted as research.

The value of qualitative studies is based on the utilisation of open-ended questions and probing which avail respondents with the chance to answer research questions based on their own understanding instead of demanding them to select answers in a provided list as in quantitative research (Australia Department of Foreign Affairs and Trade 2019). Qualitative research provides explanations of people or communities through the attachment of the researcher to the participants, observation and through considering their experiences and perspectives (Jameel, Shaheen and Majid 2018:1). On the other hand, Somekh (2006:155) posits that there is a need for researchers to apply theoretical

understanding of phenomenon rather than relying too much on the results that are quantitatively generated from tests and scores. But this does not differentiate qualitative studies from quantitative ones (Howitt 2016:7). Qualitative methods employ interview, observation, as data collection methods or use archival data and therefore qualitative methods concentrate on single or multiple case studies (Neuman 2014:13). Thus, qualitative methods are non-experimental and are conducted in a natural setting (Saunders, Lewis and Thornhill 2019:179).

Data that are collected through qualitative approaches are in a qualitative rather than a quantitative form and they intend to provide explanations of the event or condition rather than providing statistical inferences (Leedy and Ormrod 2016:80; Cohen, Manion, and Morrison 2018:287). Qualitative research uses an inductive approach with a view of generating knowledge with the help of the interpretive model (Neuman 2014:102). Positivist researchers would prefer to use a deductive approach that is associated with quantitative research while post-positivists would follow an inductive approach to qualitative research (Khaldi 2017:18; Farghaly and Kharj 2018:6). On the other hand, Sekaran and Bougie (2016:106) state that:

Some qualitative studies (as different to quantitative data collected through questionnaires) where data are gathered through interviews or observation are explanatory in nature. When the collected data expose some pattern about an event, theories are generated and hypotheses formulated for subsequent testing.

Butina, Campbell and Miller (2015:186) argue that there is flexibility in qualitative research compared to quantitative research, also data is gathered in a natural setting based on participants' experiences and perspectives and the sample is focused and not large. Thus, in this study qualitative data that were collected through semi-structured interviews and documentary review was analysed using content analysis where themes were arranged into sub-themes and categories and finally analysed thematically using Atlasi.ti version 7 and WordArt software which allowed the researcher to attach meaning to them. The use of thematic analysis enabled the researcher to provide explanations based on participants experiences, views, feelings and emotions and

perspectives regarding the use of SNSs in knowledge and information sharing in the selected universities in Tanzania.

4.3.3 Mixed methods research

Mixed methods research (MMR) is composed of the use of two methods: qualitative and quantitative, in one study with the view of enabling the researcher to gain a clear understanding of the phenomena under investigation (Johnson and Christensen 2014:82; Wilson 2014:17; Mertens, 2010:293). Mixing two or more methods in one study produces well-focused research and increase the rigorous nature of the study (Ngulube and Ngulube 2015:3). Both numbers and words provide explanations on the quality of life and provide an understanding of the world, the use of qualitative and quantitative methods in a single study provides opportunities to the researchers to offset weaknesses that could arise when a single method was deployed Ngulube and Ngulube (2015:4). MMR is considered to be an essential approach linked with the pragmatism paradigm (Cohen, Manion and Morrison 2018:49). It intends to eliminate the existing gap between quantitative and qualitative methods and address research questions in general (Ngulube, Moktwalo and Ndwandwe 2009:108).

Kaushik and Walsh (2019:3), affirm that mixed methods research is regarded as pluralism and ignores the traditional method of quantitative and qualitative use alone and is considered to be pragmatic that is guided by the research questions being investigated and not determined by the paradigmatic views. Saunders, Lewis and Thornhill (2019:181), advance that an MMR design allows two or more research methods to be conducted in one study and the results are triangulated to form a complete whole. Therefore, the use of MMR enables researchers to offset weaknesses that may arise in one of the approaches (Cohen, Manion and Morrison 2018:49).

Creamer (2018:5), affirms that the combination of quantitative and qualitative approaches in a single study enhances the rigour of the research findings. Ngulube and Ngulube (2015:2) warn that researchers should not employ mixed methods research (MMR) as a fashion but rather it should be able to address the problem under investigation. MMR deploy a variety of techniques in a similar study to ensure it enhances the rigour of research findings (Romm and Ngulube 2015). In the context of

this study, MMR was adopted to examine the topic under study from multiple perspectives to generate findings with high rigour.

In the course of undertaking this study, semi-structured interviews and documentary reviews were used to collect qualitative data while questionnaires were used to collect quantitative data. Documents reviewed include institutional ICT policies, The National ICT Policy 2016, Tanzania Education Policy 2014, the National Science and Technology Policy for Tanzania 1996 and the handbook for standards and guidelines for university education in Tanzania 2019. Qualitative data collected was used to support quantitative data that were collected through the use of open-ended questionnaires. The use of mixed data collection techniques such as questionnaires, semi-structured interviews, and documentary review, mixing of data sources, analysis techniques, and interpretation of data enabled the researcher to gain better insights on the use of SNSs in exchanging knowledge and information among postgraduate students in the selected universities in Tanzania as presented in Chapter 5 and 6 of this study. This study deployed mixed methods research (MMR) and adopted a convergent design since it is associated with MMR. Discussion of research design is presented in the next section.

4.4 Research Design

Three strategies associated with MMR include convergent parallel, explanatory sequential, and exploratory sequential (Creswell and Plano Clark 2018). Convergent parallel design is a fashionable mixed methods strategy that is associated with MMR because it deploys triangulation design where various techniques are deployed in a single study to generate (qualitative and quantitative) findings on the phenomenon under investigation (Creswell and Plano Clark 2018). The convergent design allows researchers to gather both quantitative and qualitative data at the same time in parallel on the same topic under investigation.

Both types of data that are collected are given the same weight and are then triangulated with the belief that similar findings on the topic under investigation would be drawn from the two types of data collected (Leedy and Ormrod 2016:313). Similarly, Ngulube (2020a:9) affirms that convergent strategy allows researchers to collect both quantitative and qualitative data in parallel, at the same time. The convergent design was used because it allows the collection of both qualitative and quantitative data in the same

phase of the research process which also enabled the researcher to gain a better understanding of the use of SNSs in exchanging knowledge and information among postgraduate students in the selected universities in Tanzania by drawing inferences from both quantitative and qualitative data that were collected. It also enabled the research to counter check the fit of the instruments during the data collection process and ensured data that were collected addressed the research objectives.

4.4.1 Convergent design

In a convergent parallel design, both quantitative and qualitative data are gathered in the same phase of the research process and analysed in separation and finally are integrated to confirm if the findings of the study converge or diverge (Cohen, Manion and Morisson 2018:39). On the other hand, Saunders, Lewis and Thornhill (2019:182) identify that the convergent design is concurrent mixed methods research that allows researchers to collect both quantitative and qualitative data in a similar phase of the data collection process which allows findings to be compared for similarity, differences and complementarity which also offer a better understanding of the question under investigation. Creswell and Creswell (2018) assert that MMR researchers assume that quantitative and qualitative data that are collected in the same phase of the research process may provide various kinds of information for example respondents' views given during interviews can provide qualitative responses and scores on questionnaires (quantitative) can produce results that should be the same.

Creswell and Plano Clark (2018) affirm that MMR researchers deploy convergent design for several reasons and not just to generate triangulated results. Thus, this study deployed a convergent design intending to mix both quantitative and qualitative data which enhanced a better understanding of the topic under investigation and ensured rigour in the whole research process as suggested by Ngulube and Ukwoma (2021) who stated that that mixing the quantitative and qualitative data and integrating them during the communication of study findings lead to transparency in the whole methodological process. The next section discusses the population of the study.

4.5 Study Population

The population of the survey are the people that possess similar characteristics to the population of the larger group that the investigator is investigating, from which he is

expected to collect data and select a sample. Since it is not always possible to meet the whole population of the study and collect data from them because of time, cost and accessibility, a small group of people are chosen as a sample to be representative of the large group from which they are drawn, for the investigator to be able to generalise the findings from the small to the larger group (Saunders, Lewis and Thornhill 2019:194; Cohen, Manion and Morrison 2018:202; Leedy and Ormrod 2016:20; Mertens, 2010:4; Flick 2018). In the context of this study, the population of the study was comprised of all postgraduate students from the selected universities for the study.

4.5.1 Sampling frame

A sampling frame is a list of cases in population, it can be of individuals, organisations, group or documents that are being examined (Cassel, Cunliffe and Grandy 2018:485). The selection of a sample starts by setting up a sampling frame that is, all elements of a population are listed first before the sample selection (Cohen, Manion and Morrison 2018:216; Johson and Christensen 2014). A list from which a sample is selected is referred to as a sampling frame (Saunders, Lewis and Thornhill 2019:297; Lohr 2010:3). It includes people that can be approached and be included in the study. But such a list may not be prepared for the aim of academic research; it is normally prepared to be used for administrative reasons (Boncz 2015:24; Creswell 2014).

On the other hand, Hesse-Biber and Johnson (2015:10) claim that for the sample to be representative of the entire population it is important that it includes almost all people that form the population of the study. The sampling frame for this study was a list of all admitted postgraduate students in the selected universities in the Northern Zone Tanzania (Kilimanjaro and Arusha specifically). The researcher obtained the list of postgraduate students from each university administration selected for the study. The researcher also obtained the list of all heads of academic departments and academic staff responsible for teaching and supervising postgraduate students from the office of postgraduate coordinators. Therefore, the sampling frame was composed of a list of all admitted postgraduate students pursuing their studies in the academic year 2020/2021, and all heads of academic departments and academic staff responsible for teaching and supervising postgraduate students.

4.5.2 Sampling procedure

The procedure for obtaining a subgroup from the target population to form a representative sample of the study is known as sampling. Sampling in the research process aims at obtaining a representative sample from the target population to enable the researcher to generalise the research findings. Therefore, the sample chosen should possess all characteristics of the entire population (Christensen, Johnson, and Turner, 2015:162). On the other hand, Creswell and Plano Clark (2018) identify the following types of sampling procedures that are used in mixed methods research (i) Concurrent mixed methods sampling, (ii) sequential mixed methods sampling, (iii) basic mixed methods sampling and (iv) multiple mixed methods sampling. On the other hand, Ngulube (2020a:431) identifies the following mixed methods research sampling identical, parallel, nested and multi-level. Creamer (2018:206) argues that parallel sampling enables researchers to collect both quantitative and qualitative data in the same phase of research, data analysis is then conducted separately but the findings of both strands are then merged for comparison purposes to provide a richer understanding of the phenomena under study. In the context of this study, stratified sampling was used since the researcher used online survey to collect data for the study from postgraduate students.

The sampling process is of the essence in any research strategy be it quantitative, qualitative, or mixed methods research. Probability sampling is linked with quantitative research and non-probability sampling is directly associated with qualitative research (Ngulube 2020a:441). On the other hand, Ngulube (2020a:442) affirms that study objectives are the major determining factor when doing sampling in mixed methods research therefore, researchers conducting MMR may choose non-probability and probability sampling techniques that are available.

Probability sampling through stratified sampling techniques was used to choose academic staff to participate in the study. Since the study intended to collect data from academic staff that teaches and supervises postgraduate students, subgroups were formed that enabled the researcher in doing the selection of academic staff to participate in the study. Thus, the quantitative data was collected through the use of questionnaires from both postgraduate students and academic staff. Non-probability sampling through purposive sampling was used to select heads of academic departments to be involved in

interviews. With this technique, the key informants were involved in the study to obtain in-depth information on the topic under investigation. The use of probability and non-probability sampling enabled the researcher to collect both qualitative and quantitative data since the study adopted MMR.

4.5.3 Sample size

Sample size refers to the number of cases that have to be selected from the population to generate a sample for the study (Leavy 2017:76). The selected sample size should not be too large or too small. The favourable sample is the one that fulfils the purpose of the study (Heckmann *et al.*, 2014:261). The sample size is an important element in establishing the accuracy of the obtained statistics from the population. Therefore, the larger the sample size the smaller the sampling error, in other words, the sample size is determined by the purpose of the study and the resources that a researcher has (Howitt 2016:350). On the other hand, Dawson (2007:54) affirms that while determining the size of the sample the researcher has to ask what he or she intends to do with the findings of the study. If the purpose is to generate well-built cross-tabulation, more research participants may be included in the study.

Taylor, Bodgan and DeVault (2016:108) assert that it is always difficult to determine sample size before the start of the study in qualitative research, but researchers developing a proposal for academic research normally prefer to indicate the number of respondents they wish to study. The problem with sample size selection is that if the sample is too small and is from a large population then it would not be representative and therefore findings cannot be generalised from the large population (Lodico, Spaulding, and Voegtle 2016:108). Therefore, the size of the sample needed for a study is determined on at least one or more of the following seven factors: (i) type of project, (ii) purpose of project, (iii) complexity of the project, (iv) tolerable amount of error (v) time constraints, (vi) budget constraints and (vii) previous studies in the area (Srivastava 2019:3).

The size of the required sample is determined by the uniformity or diversity of the population concerning the characteristics of the research interest (Leedy and Ormrod 2013:216; Ritchie and Lewis 2003:84). The size of the sample has to be large enough to be representative and ensure the researcher that the results represent the entire

population of the study (Walliman 2006:79). The size of the sample is determined by funding and time. Based on the two mentioned factors researchers are expected to choose a sample size that would allow them to produce research findings that are statistically precise, rigorous, acceptable, and fundamentally represent the population of the study (Adams *et al.*, 2007:92). However, limitations caused by funding and time should not be taken as justification in every circumstance because a small sample size may restrict the generalisation of results from the entire population of the study (Saldanha and O'brien 2013:35).

Ngulube (2005:134) notes that researchers do not need to be mathematical experts to calculate sample size for their studies since tools such as statistical power analysis software packages and tables for ascertaining sample size of a particular population in the methodology can be used. Similarly, Connaway and Powell (2010:131), opine that to attain the needed sample size researcher is required only to enter the table at the given population size and note the adjacent sample size. In the same light, Morgan, and Krejcie (1970), affirm that no arithmetical calculations are needed to use tables (see appendix 1).

Christensen Johnson and Turner (2015:173), also recommended the use of tables in determining the sample sizes. Thus, based on the arguments from various scholars regarding the use of tables in determining sample size for the study this study adopted a table of determining a sample size from Kerjicie and Morgan (1970) to determine the sample size for the study see Table 3. Therefore, based on the table for determination of the sample size a total of 239 postgraduate students were selected to participate in the study. The selected sample size was also confirmed through Google sample size calculator taking into consideration the population size of 633 postgraduate students from the selected universities, the confidence level of 95% and the confidence interval of 5% as suggested by Leavy (2017:77). A total of 40 academic staff that teaches and supervises postgraduate students was also selected using probability sampling through stratified sampling to participate in the study.

Table 3: Sample size of the study for postgraduate students

Name of University	No. of postgraduate students	Proportion	Sample
MoCU	284	44.9%	107
MWECAU	138	21.8%	52
IAA	90	14.2%	34
NM-AIST	121	19.1%	46
Total	633	100	239

4.6 Data collection

Leedy and Ormrod (2016:81) aver that qualitative research aims at ensuring that data that are collected are representing respondent's responses and actions and that nothing is left out in the communication of findings. In the same light, Cohen Manion and Morrison (2018:186), hold a view that the type of methodology that is going to be employed in conducting research determines the techniques to be deployed in data gathering. This study employed the following techniques of data gathering: interviews, questionnaires and documentary review. Interviews were used to collect data on the knowledge, views, and thoughts, of heads of academic departments, which were the key informants. The advantage of using an interview is that it enabled the researcher to clarify some important issues in the research process when required to do so, also, with the interview, probing was possible.

4.6.1 Questionnaire

A questionnaire is a well-defined list of questions in which respondents of the study write their answers. Questionnaires are very useful instruments when researchers understand exactly what is required and how to manipulate the variables of the study (Sekaran and Bougie 2016). Questionnaires allow researchers to choose how to prepare and arrange questions and possible answers. Occasionally, researchers include open-ended questions which provide an opportunity for the respondents to give their answers using their own words (Yin 2018:127). Once questionnaires are emailed to the respondents then respondents would be required to provide answers themselves (Leavy 2017:19). The use of questionnaires does not need much expertise compared to conducting an interview (Pelosi, Sandifer and Sekaran 2001:154). On the other hand, Gilbert (2008:102) states that while formulating questionnaires or interview schedules researchers may take into consideration the following two steps first, they may begin by testing the draft on the people they know and secondly, the questionnaires or schedule

may be piloted with the small portion of people selected from the large population they wish to study.

Fisher *et al.*, (2010:10), state that several factors that need to be considered while designing questionnaires such as (i) the questionnaire should not be too long, (ii) it should be devised properly to look beautiful, (iii) it should be arranged logically, (iv) questions should be separated into sections based on the study objectives, and finally, (v) it should start with simple and work towards complex questions. In the context of this study, the researcher designed questionnaires with the help of the supervisor. The designed questionnaires were then administered to a few people at the nearby university with the aim of obtaining their views on whether questions really addressed the objectives of the study or not. Questions with ambiguities were then refined before designing the final version of the questionnaire which was then shared with the postgraduate students through their emails and WhatsApp groups to be filled out. Questionnaires for academic staff were distributed by the researcher to be filled out face to face.

4.6.1.1 Structure and layout of the questionnaire

A skeleton of the questionnaires is normally derived from the previously published or unpublished works or through brainstorming and formulating questions that would address study objectives (Leedy and Ormrod 2016:142). Questions included in questionnaires are either closed or open-ended questions (Yin 2016). On the other hand, Mugenda and Mugenda (1999:72) claim that some of the advantages of closed-ended questions are: (i) they save time and money, (ii) administering them are easy because each question is followed by the choice of answers and, (iii) they can be easily analysed because of the nature of their structure. Sekaran and Bougie (2016:150) state that the design of the questionnaire consists of the following:

- (i) Questions contained in a questionnaire should be clear to avoid the wrong interpretation by the respondents and its length is determined by study funding. The questionnaire should start with an introduction which includes the aim of the questionnaire, selection process of the sample, ethical information such as confidentiality, and where the emailed questionnaire should be sent after being filled in.

- (ii) Instruction on how to answer the questions
- (iii) Arrangement of the questions and,
- (iv) Use of scales for some questions on which answers can be translated

Denzin and Lincoln (2018:1001) hold that there is no consensus on the accepted length of the questionnaire. But the shorter the questionnaire the higher the assumption that it would be returned fully completed. Saunders, Lewis and Thornhill (2019) affirm that the length of the questionnaire will depend on the people the researcher wishes to study because some participants are occupied while other respondents may encounter language challenges and find it difficult to answer the questions. Fisher *et al.*, (2010:211) state that there are various types of questions that may be included in the questionnaire including "dichotomous questions, multiple-choice questions, checklist questions, rating questions scales, ranking questions, Likert scale, open questions, presuming questions, hypothetical questions, leading questions, and semantic differential questions".

In the context of this study, both open-ended and closed-ended questions were used to gather data that were required for the study. Closed-ended questions demanded that respondents choose answers from the list of alternative options that were provided by the researcher. Some of the questions asked included ranking scales and Likert scales. In Likert scales, ranking scales are assigned a numeric value to measure the degree of respondent's agreement on a given set of answers. In open-ended questions, respondents were given the chance to use their own words to provide answers to the questions which minimised the bias. Therefore, students and academic staff were free to provide their perspectives and experiences on the use of SNSs in exchanging knowledge and information.

4.6.1.2 Administering of questionnaires

Questionnaires can be administered in several ways. Questionnaires can be administered through mailing questionnaires to the respondents to obtain responses, through collective administration of questionnaires and finally through administering questionnaires in a public place (Leedy and Ormrod 2016:153). Questionnaires can also be self administered by the research participants and through this approach respondents

are requested to fill in the questionnaires themselves or in some cases the researcher may choose to fill questionnaires on behalf of the respondents through interviewing research participants. This approach is applied when respondents have little or no knowledge on the questions, due to a low level of education. Also, questionnaires can be mailed to the respondents for them to fill out and return them to the researcher (Igwenagu 2016:43).

In this study, questionnaires were administered by the researcher to the academic staff and they were requested to complete filling them in, since their number was small compare to that of postgraduate students. Secondly, this study was conducted during the outbreak of the third wave of COVID-19 in Tanzania where government restricted gathering as one of the measures of preventing its spread among people. Therefore, it was difficult for the researcher to meet with the postgraduate students easily to administer questionnaires because their number was greater than that of academic staff, thus the researcher had to design an online survey which was then shared to postgraduate students via WhatsApp groups and their emails to be filled out.

Questionnaires were prepared in English language since respondents of the study had the ability to interpret the questions and therefore, barriers associated with the language were eliminated. All questions were arranged in order of the research objectives. Introduction and general instructions were given at the beginning of the questionnaires on how to fill in the questionnaires to enable respondents to provide correct answers to ensure all research objectives are addressed. Also, as to the matter of ethics, the introduction serves to inform respondents on the purpose of the study. Since questions were arranged in a sequence, they were also given numbers to encourage respondents to fill in the questionnaires from the beginning to the last question.

4.6.2 Interviews

The interview is an alternative method of collecting survey data. With questionnaires, respondents are asked to read and answer questions by filling their answers in the questionnaire, while interviewing researcher interrogates respondents verbally and document their answers (Creswell 2015). An interview is a useful technique of obtaining rich information and a less expensive data collection method than a survey (Leedy and Ormrod 2016; Sekaran and Bougie 2016:29). On the other Cohen Manion

and Morrison (2018:106), opine that the interview can be used as the main data gathering method to capture information from respondents concerning their experiences, beliefs, and behaviours.

Tracy (2013:133) holds that interviews enable researchers to ask questions, ask for elaboration in case of any confusion or misunderstanding from the respondents, and it allows probing during the interview session to enable researchers to capture the most useful information for the study. Denzin and Lincoln (2018:43) aver that an interview is conducted in a real-life situation and is a very useful technique of collecting data that would not be possible to be collected through other methods such as questionnaires or observations. Sekaran and Bougie (2016:2) argue that the interview is mostly applied in qualitative studies and is regarded as an ethical method of collecting data. That being the case, researchers/interviewers should consider how the interview adds value to human life and promotes a scientific body of knowledge.

Johnson and Christensen (2014:183) state that if researchers employ interviews in data collection, they should make sure they give information concerning the kind of interview process whether structured or semi-structured and the interview contents. Olsen (2012:34) argues that structured interviews normally contain a lot of closed-ended questions and sometimes few pre-coded alternative answers. Olsen (2012:34) further affirms that an unstructured interview has no time limitation because a revisit is more likely to happen while the semi-structured interview is regarded as the most useful and systematic method of data collection than an unstructured interview. This study employed semi-structured interviews that used both open-ended and closed-ended questions to gather qualitative data. The interview guide was designed to guide the researcher and the interviewee who willingly participated in the study.

The interview questions were designed in line with the objective of the study and the research questions. Guest, Namey and Chen (2020:14) assert that to attain higher degrees of saturation in qualitative studies researchers are required to conduct 11 to 12 interviews to attain (95th%ile) the higher end of the range. In the context of this study, 3 interview sessions were planned to be conducted with heads of academic departments from each university selected for the study, therefore, making a total of 12 interviews sessions for the whole study however, only 8 heads of the academic department showed

up. Thus, the researcher obtained in-depth information concerning the use of SNSs for knowledge and information sharing among postgraduate students at the selected universities in Tanzania from the 8 heads of academic departments who participated in the study.

4.6.3 Documentary review

Documentary review is a technique of gathering data by reviewing pre-existing documents. Documents may be in print or hard copy or electronic format and may include policies, reports, minutes of the meeting, manual and performance reports (CDC 2018). Document review is an economical method for secondary data collection because it minimises the time and funds that a researcher may use compared to primary data collection (Sherif 2018). Documents can serve researchers in the data collection process and in answering research questions (Dalglish, Khalid and McMahon 2020:2). On the other hand, Wood, Sebar and Vecchio (2020:457) affirm that:

scanning articles across the broad range of disciplines within which qualitative data analysis (QDA) is used for example in medicine and health, business and management, communication and Journalism, education and sociological studies that cross disciplinary boundaries in any of these fields provides examples of QDA utilising a range of methods, including variants of thematic analysis, content analysis and discourses analysis.

Despite its advantages, document review has some limitations and is regarded to be helpful as an extension of primary research because they are used for a purpose other than the original study (Sherif 2018). Since this study triangulated data sources, the researcher reviewed several documents to ensure the rigour of the research findings. Documents that were reviewed included Institutional ICT policies and guidelines, Tanzania National ICT Policy 2016, Tanzania Education Policy 2014, standards and guidelines for university education in Tanzania and Tanzania and Science Technology Policy of 1996. The above-mentioned documents were consulted to examine if the existing policies stipulate the utilisation of SNSs technologies in exchanging knowledge and information in Universities in Tanzania or whether policies are silent in that aspect. This provides the researcher with more insights into the usage of SNSs technology in

the selected universities in Tanzania. Data analysis and presentation are discussed in the next section.

4.7 Data analysis and presentation

Analysis of data in conducting any study involves a series of interrelated tasks such as data coding, data editing, tabulation, and drawing inferences (Kothari 2004:18). The series involved in data analysis as Creswell and Creswell (2018:260) mention include (i) mentioning the number of research participants who did not return questionnaires (ii) the technique of identifying bias should be mentioned (iii) a descriptive analysis plan for both dependent and independent variables should be stated (iv) computer program used in measuring variables or testing hypothesis should be mentioned and finally, (v) findings have to be communicated in the form of tables or figures followed by its interpretation.

Creswell (2014) avers that in analysing quantitative data researchers should clearly state the following key issues: variable of the study that needs to be analysed, the means through which they would be analysed, the cross-tabulation to be applied, and variables that may be joined together to describe the concepts and finally variables that would be statistically analysed. Likewise, Wilson (2014:232) affirms that various analytical methods are used in analysing and presenting quantitative data. These analytical techniques vary from simple tables to multivariate tests that can be used to examine the existing strength and relationship of the variables under the study. Wilson (2014:232) further argue that the coming of various statistical data analysis packages such as Statistical Package for Social Sciences (SPSS) software has reduced the time researchers may need in analysing and interpreting quantitative data.

Walliman (2011:112) affirms that statistical instruments such as Statistical Package for Social Sciences (SPSS) software are efficient instruments in analysing and presenting data and they do not need the researcher to be a mathematical expert to use these tools. On the other hand, Cohen Manion and Morrison (2018:505) argue that SPSS is a powerful tool that helps researchers to design, administer and process questionnaires in both electronic and paper-based formats. While undertaking this study, both data which are in the quantitative and qualitative form were gathered since the study adopted

MMR. Therefore, both quantitatively and qualitatively data were analysed differently because each of them has its data analysis technique.

Cohen Manion and Morrison further (2018), affirm that "quantitative and qualitative data can be analysed separately and independently, as, for example, in parallel or sequential designs and they can also be mutually informing". In the context of this study, SPSS version 24 was used in analysing data that was in quantitative form. The use of SPSS enabled the researcher to present data in frequencies, percentages, and tables and finally attaches meanings to them.

In analyzing quantitative data, the following steps were followed:

- i. Codes were generated and entered in a computer software
- ii. Coding was done based on respondents' responses
- iii. Responses were then processed using the computer software (SPSS) version 24
- iv. Data cleaning was done
- v. The data were then analysed
- vi. Finally, findings were communicated

In the context of this study, qualitative data that were collected were analysed thematically with the help of Atlati version 7 and findings were presented in form of summaries and narrative descriptions organised from Wordart.com software. Saunders, Lewis, and Thornhill (2019:640) assert that qualitative data gathered should be kept in patterns and codes that represent them. Creswell and Creswell (2018) aver that qualitative data collected at the beginning may be completely unorganised therefore there would be no codes and categories. The data analysis stage, therefore, formed the basis for the assignments of the codes and categories.

The following steps were followed in analysing qualitative data collected for the study as suggested by Akinyode and Khan (2018:173):

- (i) Responses collected from research participants through in-depth interviews and documentary review were documented in a worksheet
- (ii) Datalog was refined to attach meaning to the collected data
- (iii) Interpretation was provided to generate a deeper description of the collected data to ensure the credibility of the study findings

- (iv) Responses were then coded to ensure the evidence on the collected data
- (v) Themes were then organised to establish the existing relationship between the explicit statements and implicit participants understanding

4.8 Validity and reliability

Reliability is the extent to which similar results are obtained repeatedly while validity refers to the researcher conceptualisation of the idea (Mohajan 2017:2). Specific theoretical concept(s) that a researcher is trying to measure in a study is regarded as validity (Jonker and Pennink 2010:100). The intention of measuring validity in any scholarly investigation is to enhance the rigorous nature of the research findings by controlling or eliminating extraneous variables which in turn guarantee for greater assurance of a given study (Taherdoost 2016). In their detailed work, Cohen, Manion, and Morrison (2018:245), identify that any piece of research that lacks validity and reliability is useless. Quantitative researchers determine the thoroughness of the study findings by relying on validity and reliability while qualitative researchers determine rigour and trustworthiness in the whole process of inquiry (Cypress 2017:255).

In the context of this study, the researcher with guidance from his supervisor prepared data collection tools. A pre-testing was conducted in different stages. A pre-testing was conducted on postgraduate students from one of the near Universities who were not selected for the study. Responses that were obtained from postgraduate students enabled the researcher to refine some of the questions and delete some of the irrelevant questions and refine ambiguous questions before instruments were administered for data collection in the selected universities. Since the study adopted an MMR design, the researcher ensured the counter check was done to ensure quantitative and qualitative data that was collected through various techniques addressed the study objectives.

4.8.1 Validity in quantitative and qualitative research

Leavy (2017:113) affirms that validity looks at the capacity of the research instrument to measure variables it intends to measure. Therefore, validity is used to measure the effectiveness of the instruments. Creswell (2015:409) affirms that the results of measurement are what validity concentrates on. Quantitative research is guided by a measure of standard error which it lies within and which has to be declared by the researcher. Qualitative research is characterised by a higher degree of bias resulting

from respondents' subjectivity of opinion, attitudes and perspectives. Therefore, validity should be regarded as the degree of accuracy in measuring and not as an absolute state (Cohen, Manion, and Morrison 2018:270). The common problem in determining validity in qualitative research is identifying the relationship between the variables being investigated and the answers provided by an investigator (Flick 2009:387). While in quantitative research results are evaluated based on three criteria of validity, reliability and generalization (Mandal 2018:591).

On the other hand, McNeill and Chapman (2005:22) state that:

Where the survey researchers may claim reliability and representativeness, the ethnographers will claim validity. The survey enthusiast will point out the dangers of bias and unreliability in ethnography and stress how the representativeness of a sample can be calculated precisely.

As Cypress (2017:257) suggests, qualitative researchers must plan how trustworthiness through credibility, transferability, dependability and confirmability would be ensured in their studies as quantitative researchers do when looking at how internal and external validity, reliability and objectivity would be attained in the design they choose to use. Explanations on how rigour was ensured in this study are provided in the next sub-sections.

4.8.1.1 Credibility

"Credibility refers to the truth that derives from the participants lived experiences, which does not necessarily lead to universal truths, but rather an in-depth understanding of that person's unique reality" (Lemon and Hayes 2020:606). Various ways can be used to ensure credibility in qualitative research such as prolonged engagement, persistence observation, data collection triangulation, and researcher triangulation. Credibility also helps in achieving internal validity in qualitative studies (Mandal 2018:592; Nowell *et al.*, 2017:3). Credibility in qualitative research can be enhanced through preregistration where the researcher can mirror their values before reaching the field and before communicating their research findings based on their values (Haven and Grootel 2019:237). To achieve credibility, the researcher avails the reader or participants with the evidence that supports their findings to assess the degree to which the reader agrees or disagrees with the findings of the study (Johnson *et al.*, 2020:141). On the other hand,

Daniel (2019:120) advances that in ensuring credibility, qualitative researchers are required to prove how triangulation was achieved in a study.

In the context of this study, credibility was achieved through prolonged engagement with participants from the time when the researcher was introduced to the participants by the heads of postgraduate studies and explaining the purpose of the study, during the filling of the consent forms and the interview session. The researcher had an opportunity to meet heads of academic departments and inform them of the purpose of the study. Also, the researcher triangulated data collection methods, data sources, data analysis techniques and various theories that were reviewed and conceptualised that were in line with the study. Qualitative data obtained through semi-structured interviews and documentary review were organized and analysed through thematic analysis techniques with the help of Atlasi.ti version 7 and Wordart software. The use of thematic analysis methods enabled the researcher to organise the qualitative data collected into themes, sub-themes and categories and finally attach meaning to them. Quantitative data obtained through the use of an open-ended questionnaire were analysed statistically using SPSS version 24 to draw inferences.

4.8.1.2 Dependability

Dependability in qualitative research is similar to reliability in quantitative research (Mohamed 2017:88). On the other hand, Johnsen (2020:67) asserts that dependability is the consistency or stability of study results over time. Johnsen (2020:67) further advances that the dependability of findings in qualitative studies can be achieved by employing an external researcher who has not been involved in the study to audit the whole research process. Cope (2014:89) affirms that dependability can be ensured through the use of an audit trail which should also be confirmed by other researchers in every step of their studies. Document trail which provides evidence on how the entire study has been carried out and the whole process involved in the collection of data and its analysis can be used to ensure dependability in qualitative studies (Kleijn and Leeuwen 2018:2). In the context of this study, dependability was ensured through providing the background to the study, problem statement and objectives of the study in chapter 1, through providing the context of the study in chapter 2, by reviewing literature related to the topic under investigation in chapter 3, and through providing methodology which was deployed in answering research questions which states how

both qualitative and quantitative data were gathered and analysed as presented in chapter 4 and 5.

4.8.1.3 Confirmability

Confirmability is the degree to which one's finding can be confirmed by others that findings truly represent participants experiences and understanding and not represent the researcher's bias (Ibiamke and Ajekwe 2016:165). It also serves to confirm that findings represent the respondent's answers rather than the researcher's own understanding (Cope 2014:89). On the other hand, Korstjens and Moser (2018:120) aver that reflexivity plays a major role in achieving transparency and value in qualitative research. Reflexivity in qualitative research is the same as construct validity in quantitative research (Mohamed 2017:88). "Reflexivity is a continual process of engaging with and articulating the place of the researcher and the context of the research (Stenfors, Kajamaa and Bennett 2020:598).

Thus, reflexivity is the act of being aware of how people differ in terms of experiences, understanding, views, ideas and assumptions from our understanding to reach a better understanding of the phenomenon under study (Kalu 2018:98). Reflexive steps such as interacting with other researchers, journaling, stating the position of researcher and research participants and documenting it throughout the study can ensure confirmability in a qualitative study (Mwangi and Bettencourt 2017:16). In the context of this study, confirmability was achieved through MMR, also the researcher kept a record of those interviewed and the purpose of interviewing them, the list of documents that were reviewed were also indicated which can be used to confirm findings of the study.

4.8.1.4 Transferability

Transferability refers to the extent to which the findings of qualitative research can be shifted into another setting or context using different respondents and produce similar findings (Korstjens and Moser 2018:121; Lateef and Mhlongo 2020). qualitative research focuses on gaining insights on how results from focus group discussion and interviews can be transferred to other people in different settings and contexts (Mandal 2018:592). Transferability in qualitative research is the same as external validity in quantitative research (Rapport *et al.*, 2018:43). For readers to be confident in generalising and transferring the findings, qualitative researchers are compelled to

provide thorough information of the environment where a study has been carried out and incorporate such a detailed explanation in their last report (Colorado State University 2021). This study investigated the use of SNSs for knowledge and information sharing among postgraduate students in the selected universities in Tanzania. Context of the study and profile of each university was provided in chapter 2 of the study. The population of the study includes postgraduate students at the selected universities in Tanzania. Methods used in gathering both qualitative and quantitative data such as semi-structured interviews, document reviews and questionnaires were indicated. Techniques of analysing both qualitative and quantitative data were mentioned to make this study transferable to other populations, contexts, or surroundings which are similar or related.

4.8.2 Reliability in quantitative and qualitative research

Cohen, Manion and Morrison (2018:43) affirm that quantitative researchers believe in replication of similar findings if similar techniques are deployed using the same sample. Cohen, Manion and Morrison (2018:270) further posit that what investigators consider as data and what happens in the field of what is being investigated is considered as reliability in qualitative research. However, researchers can deploy several methods to amplify the reliability of data and interpretations (Mohajan 2017:2).

Holland and Campbell (2005:7) state that:

Quantitative data generated by standard survey instruments are made reliable by employing closed-ended questions that generate a discrete, precise unit of data. Reliability gains its importance as a criterion for assessing qualitative research only against the background of a specific theory of the issue under study and about the use of methods.

Qualitative researchers prefer to choose a small number of research participants who can best provide useful information on the topic being investigated (Leedy and Ormrod 2015:99). The standards of reliability and the kind of reliability are different in qualitative and quantitative research (Cohen, Manion and Morrison 2018:267). On the other hand, Leedy and Ormrod (2015:99) affirm that in quantitative research researchers choose just a small number of variables to investigate and then gather data, particularly related to those variables. Techniques of measuring the chosen variables are then

identified, prepared and standardised to increase validity and reliability. Quantitative research holds the cannons of reliability and validity, additionally, qualitative researchers, use different principles from the quantitative researchers (Neuman 2014:218). In this study, reliability was ensured through deploying MMR to ensure the fit between what a researcher was recording and what happened in a natural setting. The replication of findings provided confidence to the researcher that the instruments have ensured the validity and reliability of the study. The next section discusses the pre-testing of the research instruments.

4.9 Verification

The system of systematically reviewing data and checking whether it addresses the problem being investigated is known as data verification. Yin (2011:168) states that assessing and checking data that are gathered while in the field enable researchers to strengthen their data collection. On the other hand, Patton (2002:324) posits that researchers' knowledge of the problem being investigated helps them in examining the relationship between variables being studied. In this case therefore data analysis and interpretation should start before the researcher has left the field. Thus, in this study data that were collected were reviewed on a daily basis to spot areas where there were gaps, overlap or unclear questions and the researcher restructured the questions and presented them to the research participants to ensure the validity and reliability of data that were gathered for the study. The next section discusses how quantitative and qualitative data were integrated.

4.10 Integration of quantitative and qualitative data

Creamer (2018:18) avers that the meaning of mixed methods research may not be relevant to some studies where there is a use of various data sources and types of data in a single study but the analysis is done independently of each other. Fetters, Curry, and Creswell (2013:2) posit that integration is said to be achieved in mixed methods research once there is transparency and coherence between quantitative and qualitative findings. On the other hand, Ngulube (2020a:432) affirms that data integration is the key feature of mixed methods research thus, researchers employing such a method should clearly state the reasons for mixing and how quantitative and qualitative data was mixed in the study.

In the same light, Leavy (2017:171) holds a view that researchers employing mixed methods research need to provide clear explanations on how quantitative and qualitative datasets corroborated or diverged from each other. On the other hand, Hay (2016:18) posits that "inquiry-driven integration of new methods has enabled investigators to operationalize ever more complex problems with effective and feasible study designs. Thus, since this study used mixed methods research, integration of quantitative and qualitative datasets was done by comparing both quantitative and qualitative data that was collected for the study. Justifications for their similarities, differences or contradictions were given to provide a better understanding of the topic under investigation. Integration of data is presented in Chapter 6 of the study. The next section discusses how the researcher adhered to the research ethics in the whole research process.

4.11 Ethical considerations

Sekaran and Bougie (2016:13) affirm that ethics is a set of favourites that attract the behaviour of a human being. This is because social researchers investigate the lives of other human beings. Thus, researchers must safeguard the rights, welfare, and privacy of individuals and communities that form the concentration of their studies (Denzin and Lincoln 2018:157). Information given by the respondents must be treated confidentially and their privacy should be safeguarded; this is one of the key roles of the researcher (Cassell, Cunliffe and Grandy 2018:24). Data that are collected from respondents must be properly stored to ensure respondents privacy is not compromised (Howitt 2016:456). Saunders, Lewis, and Thornhill (2019:258) mention some of the key issues that may occur in while undertaking a research project. These relate to:

- (i) Privacy of possible and actual participants
- (ii) Voluntary nature of participants and the right to withdraw partially or completely from the process.
- (iii) Consent and possible deception of participants
- (iv) Maintenance of the confidentiality of data provided by individuals or identifiable participants and their anonymity
- (v) Reactions of participants on how you seek to collect data, including embarrassment, stress, discomfort, pain, and harm

Research should adhere to the rights, privacy, and confidentiality of the research respondents throughout the research process (UNISA 2013:9). Researchers must adhere to research ethics throughout the whole life of a research project and not just at the outset (Sekaran and Bougie 2010:405). The researcher also acknowledged all the authors used in the work to avoid copyright violations (UNISA 2005:2). Researchers should seek informed consent from the participants as one of the ethical behaviours (Flick 2018:11; Taylor, Bodgan and DeVault 2016:38). Thus, this study obtained a research permit from the UNISA and the researcher had to comply with the university research policy throughout the study. The researcher seeks informed consent from informants before the beginning of the study. Also, research participants were allowed to withdraw from the research process without providing reasons for their withdrawal to the researcher. This study also ensured integrity by considering three ethical principles namely respect for people, the principle of beneficence, and the principle of non-maleficence and justice which are discussed in the next sub-section.

4.11.1 Respect for persons

This principle requires researchers to leave the research participants free to decide on their well being and decision as to whether they should become involved in the study or not without being forced. Therefore, researchers are expected to provide detailed information to the participants on the purpose of the study, benefits, and possible risks associated with their participation in the study to obtain their informed consent (Agunyole 2019:170). On the other hand, Vilma (2018:22) advances that valid consent for any study constitutes the following elements disclosure, comprehension, voluntariness, competence and consent.

In this study, respect for participants was ensured through writing a letter seeking approval to conduct research in the selected universities, through explaining the purpose of the study and its benefits to postgraduate students, academic staff and heads of academic departments. The possible risk associated with their involvement in the study was mentioned to them. Participants who agreed to participate in the study without being forced were given the consent form to fill out before the beginning of the study. Consent form is in (Appendix xv). Also, respondents could withdraw from the research process without giving reasons for their decision. Information provided by research

participants was treated with privacy and confidentiality to ensure they are protected from any harm.

4.11.2 Principle of beneficence

Pease (2018:15) states that beneficence refers to the obligation on the side of the investigator to ensure maximum benefits to the research participants or society while minimising the risk of participants being harmed. Bengu (2018:6) argues that is important to mention who would benefit from the study and the worthiness of the study to them. Agunyole (2019:171) advances that the privacy and confidentiality of the research participants should not be compromised to protect them from any form of harm that may occur from improper management of the information collected. In the context of this study, beneficiaries of the study are postgraduate students, Management of universities and policymakers as were mentioned in chapter 1 section 1.4 on the justification for the study. Privacy and confidentiality of the research participants were ensured through proper storage of data that were collected in the research process. The significance of this study was stated to the participants on how best social networking sites can expand their knowledge base, serve their academic purposes including improving their class assignments, research output, class test, and enhance their academic performance.

4.11.3 The justice principle

Justice refers to the equal distribution of the burden and risks as well as the benefits to be generated by the study (Hoces de la Guardia 2019:42). It's the fairness or equitable choice of respondents of the study (Vilma 2018:22). On the other hand, Heale and Shrten (2017:7) aver that justice in research refers to the study that is carried out without disadvantaging or exploiting the rights of other respondents. In the context of this study, justice was achieved through the use of both purposive sampling to key informants who provided the researcher with in-depth information on the topic under investigation. Those interviewed were the heads of academic departments who are responsible in managing academic programmes. Probability sampling through stratified techniques was used to select both postgraduate students and academic staff that teaches and supervises postgraduate students to participate in the study by filling out questionnaires that were provided face to face. The next section presents the summary of chapter four.

4.12 Evaluation of the research methodology

The purpose of evaluating the research methods that were used in a study is to gain an understanding of the purpose of the study, how data was collected and analysed and the techniques that were applied (Ngulube 2005:139). In this section, research paradigm, research design, data collection procedures, instruments, data analysis, validity and reliability, and research ethics were discussed. It provides the rationale why they were applied in this study apart from others, which enables the researcher to address the phenomena under study.

The study was guided by ontological assumptions which are well-suited for multiple views (pluralist). The pragmatism epistemological perspective guided the study since it is associated with pluralist ontology. Pragmatism epistemology allows two or more research methods to be conducted in a single study and the results can be merged to produce robust findings. The pragmatism paradigm emphasises the combination of interpretivism and positivism epistemological perspectives since it enables researchers to examine complex issues using multiple perspectives and hence it provides a richer understanding of the topic under investigation. It also eliminates weaknesses that could arise when a single method could have been used. The use of mixed methods research enabled the researcher to collect both quantitative and qualitative data regarding the use of SNSs for knowledge and information sharing among postgraduate students at the selected universities in Tanzania where the use of quantitative or qualitative methods alone could not.

Methods that were used to collect data in this study included open-ended questionnaires, semi-structured interviews and document review. Triangulation of data collection methods enabled the researcher to ensure the validity and reliability of the study. The transparency in the whole research process ensured the credibility, transferability, dependability and confirmability of this study. The use of convergent research design enabled the researcher to collect both quantitative and qualitative data in a similar phase of research. Findings from quantitative and qualitative data were then compared to explain how the two types of data converged and diverged from each other where possible reasons for its divergence or convergence were also stated. Quantitative data was analysed differently from qualitative data because each has its own data analysis techniques.

Quantitative data was analysed through descriptive statistics with the help of SPSS version 24 while qualitative data was analysed and organized thematically using Atlasi.ti and Wordart.com. The researcher also sought informed consent from the respondents as part of abiding by the research ethics. Respondents could withdraw at any point in the research process without providing reasons for their decision. This allowed the researcher to collect enough responses from the respondents which enabled the generation of trustworthy findings. All WHO guidelines regarding protection against COVID-19 such as wearing a face mask, washing hands, maintaining social distancing, and sanitising were observed because this study was conducted during the outbreak of the third wave of COVID-19 in Tanzania and Africa in particular.

4.13 Chapter summary

This chapter presented the research design that was deployed in the course of undertaking the study. The study adopted MMR which was underpinned by the convergent design. The convergent design enabled the researcher to collect both quantitative and qualitative data in the same stage of the research process. Since the study adopted MMR, it was deemed important to deploy convergent design since is associated with triangulation of data. Other important issues presented in this chapter include types of research strategies such as quantitative, qualitative and mixed methods research. Ontology, epistemology, research paradigms, data collection procedures, data collection techniques, validity and reliability of data, data analysis techniques were also presented in this chapter.

The researcher also discussed how instruments were pre-tested, triangulation of data collection and verification were achieved. Finally, the chapter discussed issues relating to ethical considerations because it was necessary for the researcher to adhere to the ethics guidelines in the whole research process. The methodology chosen was deemed to be useful in addressing the research question which aimed at investigating knowledge and information sharing through social networking sites among postgraduates' students at the selected universities in Tanzania. The next chapter presents the findings of the study obtained from the design that was chosen to underpin this study.

CHAPTER FIVE

DATA ANALYSIS AND PRESENTATION OF RESEARCH FINDINGS

5.1 Introduction

The previous chapter discussed the research design and methodology that was used to conduct this study. It also, included research paradigms, research design, data collection procedures and instruments, data analysis, validity and reliability, research ethics and evaluation of the research methodology. In this chapter, data analysis and presentation of the research findings are presented based on the objectives of the study. The chapter also includes background information of the research respondents and participants such as their gender, level of study, age, education qualifications and the names of Universities where respondents belong.

5.1.1 Response rate

The population of the study was 633 postgraduate students from the four selected universities for the study including MoCU, MWECAU, NM-AIST and IAA. Questionnaires were used to collect data from postgraduate students and members of academic staff. Another important issue to note is that this study was carried out during the outbreak of the third wave of COVID-19 in Tanzania therefore, the government of Tanzania restricted gatherings as a precaution of protecting its people against such a pandemic. Thus, the researcher had to design the online survey which was then shared with postgraduate students through their emails and WhatsApp groups to be filled in. The task of sharing an online survey with the postgraduate students was facilitated by coordinators of postgraduate studies and class leaders of the respective postgraduate programmes from the selected universities. Secondly, the reason for designing an online survey is that, at some Universities postgraduate students were not at the campuses during data collection period especially those who were in data collection and those who were writing theses therefore, it was difficult to locate them to fill out questionnaires.

A total of 171 online questionnaires were returned filled by postgraduate students making 71.5% of a response rate from the 239 targeted postgraduate students' respondent which is a reasonable for drawing inferences. The responses were stratified based on their postgraduate programmes that respondents were pursuing from the four

selected universities for the study including Ph.D, Masters and Post Graduate Diploma. Anseel *et al.*, (2010) and Groves (2006) affirm that the method of administering questionnaires, purpose and the nature of the study may determine the response rate that may be required for the study as outlined below:

- (i) Mail: 50% adequate, 60% good, 70% very good
- (ii) Phone: 80% good
- (iii) Email: 40% average, 50% good, 60% very good
- (iv) Online: 30% average
- (v) Classroom paper >50% good
- (vi) Face to face: 80-85% good

Thus, based on the arguments from Anseel *et al.*,(2010) and Groves (2006), 71.5% of responses received through online filled questionnaires were deemed to be very good for drawing inferences for this study. The use of online surveys also, facilitated the data collection process because students filled out questionnaires through their mobile phones and emails. Respondents were limited to answering one questionnaire only therefore, they were not able to fill out more than one questionnaire after submission. However, options for editing their responses were provided to ensure they submit well-filled questionnaires.

Questionnaires were distributed to 40 academic staff that teaches and supervises postgraduate students from the four selected universities for the study. Only 30 questionnaires were returned from the members of the academic staff. Interviews were conducted with heads of academic departments from the respective Universities. Three interview sessions were expected to be conducted with heads of academic departments from the four Universities involved in the study. From each university, 3 heads of academic departments were expected to be interviewed. Thus, 12 heads of departments were expected to participate in the study however, only 8 showed up for interviews. Data obtained through interviews aimed at corroborating quantitative findings obtained through survey questionnaires. During the interview session's researcher observed all guidelines issued by the World Health Organisation for COVID-19.

5.1.2 Profile of participants and respondents

This section presents the profile of respondents based on their gender, age, level of study and Universities where they belong. Gender aimed at ensuring the representativeness of the respondents in the study, but also, gender had an impact on the use of SNSs technologies, age had an implication on the use of SNSs for knowledge and information sharing to some extent, level of study of the respondents also, had an influence on the findings of this study; Universities, where students were studying, had an influence on the findings of this study because three of the selected universities for the study were government based while one was a private university therefore they could be having different strategies regarding the use of SNSs technologies in exchanging knowledge and information among the postgraduate students. Table 5.1 shows the Universities where 171 postgraduate students are studying.

Table 5.1: Universities where postgraduate students are studying

Universities	Frequency (n=171)	Percentage
MoCU	107	62.6
IAA	23	13.4
NM-AIST	21	12.3
MWECAU	20	11.7
Total	171	100

The study also established Universities where postgraduate students were studying. The findings indicated that 107(62.6%) of postgraduate students were from MoCU, followed by 23(13.4%) from IAA, 21(12.3%) were from NM-AIST and 20(11.7%) of respondents were from MWECAU as shown in Table 5.1. Although the Universities where students are studying do not directly influence the results of the study, to some degree this had implications on the findings of the study because some of the selected universities for the study were government based while one is a privately owned university which could have different strategies of implementing knowledge and information sharing through SNSs. The context where the study was undertaken also helps in the transferability of the study in other settings.

Table 5.2: Universities where academic staff belongs

Name of the Universities	Frequency (n=30)	Percentage
MoCU	12	40.0
NM-AIST	7	23.3
MWECAU	6	20.0
IAA	5	16.7
Total	30	100

This study established the distribution of Universities where academic staff belonged as shown in Table 5.2. The purpose of establishing the names of the Universities where academic staff were teaching was to understand the distribution of the respondents based on the selected universities for the study. Table 5.2, shows that most of the academic staff 12(40%) belongs to MoCU, followed by 7(23.3%) that belongs to NM-AIST, while 6(20.0%) belongs to MWECAU, and 5(16.7%) belongs to IAA. The distribution indicates that all four selected universities for the study provided information regarding the use of SNSs for knowledge and information exchange in their respective Universities where they are teaching.

Table 5.3: Gender of postgraduate students' respondents

Gender of respondents	Frequency (n=171)	Percentage
Male	116	67.8
Female	55	32.2
Total	171	100

The study established that there were more male postgraduate students than females. 116(67.8%) of postgraduate students were male and 55(32.2%) were female as shown in Table 5.3. Apart from showing the gender distribution of the respondents, also gender had an influence on the use of SNSs for knowledge and information sharing to some degree. This study also examined the gender of academic staff to understand the distribution of respondents of the study. The study established that there were more male academic staff 27(90%) who participated in the study than female 3(10%) this is because the number of females academic staff is lower than that of males in the selected universities in Tanzania as shown in Table 5.4.

Table 5.4: Gender of academic staff

Gender	Frequency (n=30)	Percentage
Male	27	90
Female	3	10
Total	30	100

The study also examined the age of respondents. The researcher believed that age influenced the use of social networking sites as a platform for knowledge and information sharing. The young postgraduate students were likely to utilise SNSs for sharing various kinds of knowledge and information among their peers compared to older postgraduate students. This is attributed to the number of functionalities that SNSs offer to the users which attracts more young people to engage. Figure 5.1 presents the age of postgraduate student's respondents.

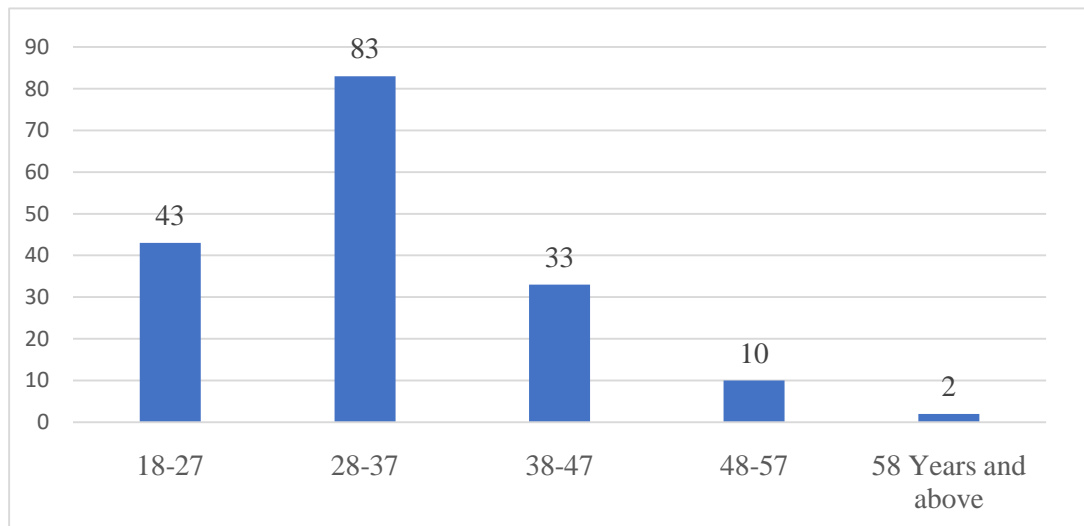


Figure 5.1: Age of postgraduate students' respondents

Findings in Figure 5.1 indicated that the majority of postgraduate student's respondents 83(48.5%) had their ages ranging between 28-37 years, followed by 43(25.1%) of respondents whose ages were between 18-27 years, 33(19.3%) had 38-47 years, whereas 10(5.8%) of respondents were between 48-57 years old and 2(1.2%) of respondents were beyond 58 years. Results obtained indicated that the majority of respondents were young with sufficient knowledge on the use of SNSs and therefore, they were in the position of providing information that this study intended to collect. This study also examined the age of academic staff. Their age is shown in Table 5.5.

Table 5.5: Age of academic staff

Age group	Frequency (n=30)	Percentage
18-27 years	1	3.3
28-37 years	5	16.7
38-47 years	10	33.3
48-57 years	8	26.7
58 years and above	6	20.0
Total	30	100

Table 5.5 shows that 1(3.3%) of the academic staff was in the age between 18-27 years, 5(16.7%) were in the age group ranging from 28-37 years, 10(33.3%) of the academic staff were in the age group ranging from 38-47 years, 8(26.7%) were in the age group ranging from 48-57 years, 6(20%) were above 58 years. Therefore, the majority of academic staff who filled out questionnaires was adults with teaching experiences and therefore they were in the position of providing information regarding the utilisation of SNSs for knowledge and information sharing among postgraduate students.

The study also established that the majority of postgraduate students' respondents were pursuing masters' degrees 126(73.7%) followed by 29(17.0%) of those who are pursuing PhD and 16(9.3%) who are pursuing Post Graduate Diploma (PGD). The researcher believed that the level of education of respondents were likely to provide information that this study sought to collect which helped to ensure the credibility and dependability of the study. Figure 5.2 shows the level of education of respondents of the postgraduate students from the four selected universities for the study.

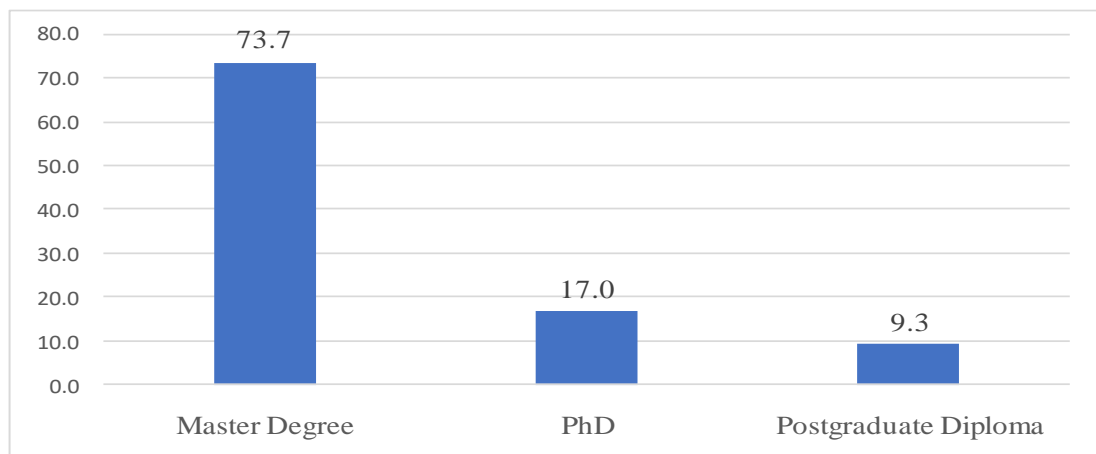


Figure 5.2: Level of education of postgraduate students' respondents

This study also assessed the level of education of academic staff as presented in Table 5.6. The findings from Table 5.6 shows that the majority of respondents 23(76.7%) had attained PhD level followed by 5(16.7%) who attained master’s degrees 1(3.3%) had PGD and 1(3.3%) had attained bachelor degree level. Therefore, most of the respondents were PhD holders who are responsible for supervising and teaching postgraduate students because these are the senior members of the academic staff. PhD academic staff provided information on how postgraduate students utilise SNSs for exchanging knowledge and information because they were responsible for engaging postgraduates in SNSs to share various types of knowledge and information related to their studies. Respondents with bachelor’s degrees and PGD were members of academic staff who are currently finalising their master's degrees.

Table 5.6: Level of education of academic staff

Level of education	Frequency (n=30)	Percentage
PhD	23	76.7
Master’s degree	5	16.7
Postgraduate (PGD)	1	3.3
Bachelor’s degree	1	3.3
Total	30	100

Table 5.7: Gender, education level, and years of service of interviewees

Interviewees	Gender	Education level	Years of services
MWECAU-1	Male	PhD	Above 5 years
MWECAU-2	Male	PhD	Above 8 years
MoCU-1	Male	PhD	Above 8 years
MoCU-2	Male	PhD	Above 8 years
MoCU-3	Male	Master’s degree	Above 9 years
IAA-1	Female	Master’s degree	Above 5 years
IAA-2	Male	Master’s degree	Above 5 years
IAA-3	Male	Master’s degree	Above 5 years

Findings of the study in Table 5.7 indicated that there was an equal distribution of educational levels among the interview participants whereby, 4(50%) had PhD's and 4(50%) had master's degrees. In terms of gender, (7, 87.5%) of the interview participants was male and (1, 12.5%) were female. Universities-wise 2(25%) of

interviewees were from MWECAU followed by (3, 37.5%) from MoCU and (3, 37.5%) from IAA. All (8, 100%) had working experiences of more than five years and therefore, they had enough experience and information which this study sought to collect. The interviewees were conversant with the use of SNSs for knowledge and information sharing in the academic context and therefore, the information they provided was regarded to be useful in providing more insights on the use of SNSs for exchanging knowledge and information among postgraduate students in the selected universities in Tanzania.

Qualitative data that was collected from the interview participants whom were the heads of academic departments from the selected universities for the study were coded with the help of Atlasi.ti version 7 and they were organised using WordArt.com software. A total of six themes were emerged from the interview transcripts that were conducted. The identified themes were derived from the objectives of the study and the research questions. Themes that were indentified included (i) types of knowledge shared (ii) policy on the SNSs' usage (iii) skills on the use of SNSs (iv) factors influencing the use of SNSs (v) the level of usage of SNSs (vi) strategies to enhance the use of SNSs. Table 5.8 shows themes, sub-themes and categories indentified from interview transcripts.

Table 5.8: Themes, sub-themes and categories identified from interview transcripts

Themes	Sub-themes	Categories
Theme 1 Types of knowledge and information preferred to be shared through SNSs	1.1 Types of knowledge	Procedural Conceptual Declarative Explicit Tacit Metacognitive Academic Social
Theme 2 Policy guiding the use of SNSs	2.1 Existence of policies guiding social networking sites usage	ICT Policy Students guide books Internet use policy Government guidelines

Themes	Sub-themes	Categories
		Government policies
Theme 3 Level of skills of postgraduate students on the use of SNSs	3.1 Skills related to the use of SNSs	Language Ability to use Access to knowledge
Theme 4 Factors for the use of SNSs	4.1 Influencing factors	Knowledge on the use Lecturing methods Access to knowledge Cost reduction Effectiveness Flow of knowledge Saves time Skills Language Perceptions Attitudes Exposure Training Self-efficacy Entertainment User friendly Students Environment Distance factor
	4.1 Factors affecting the use of SNSs	Internet connectivity Awareness Training Skills Language Attitudes Perceptions Management support

Themes	Sub-themes	Categories
		Policy Security Trust Privacy
Theme 5 Level of usage of SNSs for knowledge and information sharing	5.1 Attitudes	Positive Negative Neutral Very positive Very negative
	5.2 Perceptions	Useful Very useful Neutral Not useful Useless
Theme 6 Strategies to enhance the use of SNSs	Strategies to overcome challenges affecting the use of SNSs	Internet connectivity Policy Motivatin Stable power generators ICT facilities Traning Top university management support Security Lecturing methods Use of technology Registration to social networks

5.1.3 Data presentation arrangement

This study deployed mixed methods research approach where convergent research design was deployed which enabled the researcher to collect both quantitative and qualitative data concurrently. This technique allowed the researcher to compare both quantitative and qualitative data and explain the extent to which the two types of data

converge or diverge. The possible reasons for their convergence or divergence were also explained therefore, this enhanced the rigour of this study.

5.2 Types of knowledge and information shared among postgraduate students

The first objective of the study was to examine types of knowledge and information that postgraduate students preferred to share through SNSs. Seven sub-questions were asked to the respondents to ensure the first objective of the study is addressed.

5.2.1 Types of knowledge and information shared among postgraduate students

Respondents were asked to indicate types of knowledge and information they preferred to share through SNSs. Understanding the types of knowledge and information preferred to be shared among postgraduate students enabled the researcher to establish the commonest type of knowledge and information that postgraduate students preferred to share through SNSs in the selected Tanzania Universities. Responses were as follows 81(47.4%) of the respondents indicated that they preferred to share conceptual knowledge through SNSs, followed by 68(39.8%) of the respondents who mentioned factual knowledge, while 60(35.1%) of the respondents mentioned directive information, 58(33.9%) of the respondents pointed out scientific information, 52(30.4%) of the respondents indicated technological information, whereas 48(28.1%) of the respondents mentioned procedural knowledge, 37(21.6%) of the respondents pointed out empirical information while 27(15.8%) of the respondents listed policy information followed by 26(15.2%) of the respondents who highlighted stimulatory information whereas 18(10.5%) of the respondent's listed metacognitive knowledge followed by 14(8.2%) of the respondents who preferred to share development information and 14(8.2%) of the respondents did not mention any types of knowledge and information they preferred to share through SNSs as presented in Table 5.9. Findings of the study established that various types of knowledge that were mentioned by respondents were falling into conceptual, procedural, declarative or metacognitive knowledge which are also shared among them.

Table 5.9: Types of knowledge and information shared through SNSs

Responses of postgraduate students		
Responses	N-171	Percentage
Conceptual knowledge	81	47.4%
Factual knowledge	68	39.8%
Directive information	60	35.1%
Scientific information	58	33.9%
Technological information	52	30.4%
Procedural knowledge	48	28.1%
Empirical information	37	21.6%
Policy information	27	15.8%
Stimulatory information	26	15.2%
Metacognitive knowledge	18	10.5%
Development information	14	8.2%
Other	14	8.2%

Findings obtained from members of academic staff as summarised in Table 5.10 shows that 23(76.7%) indicated that postgraduate students preferred to share conceptual knowledge followed by 20(66.7%) of the respondents who indicated that postgraduate students preferred to share factual knowledge while 11(36.7%) of academic staff indicated that postgraduate students preferred to share procedural knowledge and 9(30%) of academic staff indicated that postgraduate students preferred to share metacognitive knowledge.

Table 5.10: Types of knowledge and information shared through SNSs

Responses of academic staff		
Responses	N-30	Percentage
Conceptual knowledge	23	76.7%
Factual knowledge	20	66.7%
Procedural knowledge	11	36.7%
Metacognitive knowledge	9	30.0%

All interview participants in the context of this study, the heads of academic staff were asked to explain various types of knowledge and information that postgraduate students' of the selected universities for the study preferred to share through SNSs. The majority of participants indicated that postgraduate students' at the selected universities for the study preferred to share procedural, followed by conceptual and declarative knowledge. The interview participants also, indicated that postgraduate students at the selected Tanzania Universities preferred to share explicit, tacit, academic, social and

metacognitive knowledge. The word cloud shows various kinds of knowledge and information that seemed to be preferred to be shared among postgraduate students as presented in figure 5.3.



Figure 5.3: Types of knowledge preferred to be shared through SNSs

During the interview, participant HoD-1 had this to say:

Post graduate students are matured students and some of them have working experiences therefore they share various types of knowledge and information such as conceptual and procedural knowledge, unlike to undergraduate students which we have to use more time and efforts since most of them are not aware of various types of knowledge and information they are supposed to share.

Basing on the types of knowledge that postgraduate student preferred to share at the selected universities for the study, participants had a view that there is various types of knowledge and information that postgraduate students may share based on their needs and their level of study, this was confirmed by HoD-2 during interview who argued that:

I cannot specifically mention only one type of knowledge and information but, declarative knowledge is shared among postgraduate students. They also share conceptual and procedural knowledge based on their subjects of specialisation and their needs.

Participant HoD-8 explained that:

Here I can say that majority of postgraduate students are coming from working places with exceptional of few who joined postgraduate studies after completing their undergraduate studies. At their level they need extra knowledge on how to do things practically and theoretically that goes to conceptual and procedural knowledge, they also share tacit knowledge as well as explicit knowledge that they have acquired through consulting other sources of information.

On the other hand, participant HoD-6 elaborated that:

Postgraduate students prefer to share conceptual knowledge because they need to acquire knowledge of different theories that are applied in their studies. However, declarative knowledge is also shared among them because of their experiences.

In acknowledging the roles that knowledge and information play in postgraduate studies participant HoD-3 contended that:

Learning is the process therefore postgraduate students prefer to share various types of knowledge and information including explicit knowledge, procedural knowledge, declarative knowledge and metacognitive knowledge to expand their knowledge base.

Participant HoD-5 elaborated that:

Of course, postgraduate students use SNSs to share different types of knowledge at different levels. Because we teach them aspects that equip them with the declarative knowledge, they also share it. Procedural knowledge is also shared because we sometimes ask them to do things practically so they have to follow some procedures. Metacognitive is more of reflective nature but at a postgraduate level they share all other types of knowledge.

Participant HoD-7 had this to say:

Different types of knowledge are shared among postgraduate students including conceptual, explicit, declarative and procedural because it enables them to explain procedures on how to do something such as in mathematics related courses.

Participant HoD-4 stated types of knowledge and information to be shared via SNSs depends on the needs of the students, where he said:

It depends, postgraduate students utilise social networking sites for sharing social related as well as academic related knowledge and information including explicit knowledge.

5.2.2 Awareness of knowledge and information sharing concepts

The first sub-question examined the awareness of postgraduate students on knowledge and information sharing concepts to gain their common understanding of the topic under study. Responses show that 31(18.1%) of respondents had very great awareness of the concept of knowledge and information sharing, followed by 66(38.6%) of the respondents who had a great awareness, 64(37.4%) of respondents had a moderate awareness followed by 8(4.7%) of respondents who had small awareness, while 2(1.2%) were not aware. The study findings indicated postgraduate students had awareness on the concept of knowledge and information sharing as shown in Table 5.11.

Table 5.11: Awareness of knowledge and information sharing concepts

Responses of postgraduate students		
Response	Frequency (n=171)	Percentage
Very great extent	31	18.1
A great extent	66	38.6
A moderate extent	64	37.4
A small extent	8	4.7
Not aware	2	1.2
Total	171	100

The findings of the study, as shown in Table 5.11 indicated that only a minority of postgraduate students 31(18.1%) had a very great awareness of knowledge and information sharing concepts. However, there was a slight difference between postgraduate students who had great awareness on the concept of knowledge and information sharing 66(38.6%) and those with moderate extent awareness 64 (37.4%). The number of postgraduate students with small extent awareness was small 8(4.7%) while few postgraduate students had very small awareness (2, 1.2%).

Table 5.12: Awareness of knowledge and information sharing concepts

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Yes	29	96.7
No	1	3.3
Total	30	100

Responses obtained from academic staff shows that 29(96.7%) of the academic staff agreed that postgraduate students had awareness on various SNSs that can be used for exchanging knowledge and information while, 1(3.3%) of the respondents indicated that postgraduate students had no awareness on the SNSs that can be utilised for sharing various types of knowledge and information as summarised in Table 5.12.

5.2.3 Knowledge and information sharing practices at the Universities

The second sub-question aimed at understanding if selected universities for the study had in place knowledge and information sharing practices. Responses indicated that 152(88.9%) of postgraduate student's indicated "Yes" followed by 8(4.7%) of the respondents who indicated "No" and 11(6.4%) of respondents who indicated that "They don't know". Their responses are presented in Table 13. Findings revealed that knowledge and information sharing through SNSs was practised among postgraduate students in the selected universities for the study although few postgraduate students were not conversant if such practices were conducted at the Universities where they were studying.

Table 5.13: Knowledge and information sharing practices at the Universities

Responses of postgraduate students		
Responses	Frequency (n=171)	Percentage
Yes	152	88.9
I do not know	11	6.4
No	8	4.7
Total	171	100

Findings of the study obtained from academic staff indicated that 22(73.3%) accepted postgraduate students had awareness of the existence of knowledge sharing practices at the Universities where they are studying, 4(13.3%) said "No" postgraduate students

were not aware of practices that promote knowledge and information sharing at their Universities and 4(13.3%) said "They don't know". Their responses are summarised in Table 5.14.

Table 5.14: Knowledge and information sharing practices at the Universities

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Yes	22	73.3
No	4	13.3
I don't know	4	13.3
Total	30	100

5.2.4 Ways through which knowledge and information was created

The third sub-question sought at addressing the first objective of the study probed on the ways through which knowledge and information is created at the selected universities for the study. Responses shows that 44(25.7%) of the postgraduate students mentioned education alone, followed by 20(11.7%) of respondents who mentioned interaction alone, while 20(11.7%) of the respondents indicated collaboration, practice, interaction and education, 18(10.5%) respondents mentioned collaboration only, whereas 12(7.0%) of the respondents mentioned practice alone, followed by 11(6.4%) respondents who mentioned collaboration, interaction and education while 7(4.1%) respondents indicated interaction and education.

Other postgraduate students, 5(2.9%), indicated practice and education followed by other 5(2.9%) of the respondents who mentioned practice, interaction and education whereas 3(1.8%) respondents mentioned collaboration and education only, another 2(1.2%) of the respondents mentioned collaboration and interaction while, another 2(1.2%) respondents listed practice, collaboration and education, followed by 2(1.2%) of the respondents who mentioned practice collaboration and interaction while 1(0.6%) of the respondents indicated practice and collaboration and 19(11.1%) of the respondents said it is not applicable. Findings indicated that knowledge is created through various ways at the selected universities for the study. These include through education, interaction, practice and collaboration. Their responses are shown in Table 5.15.

Table 5.15: Ways through which knowledge and information was created

Responses of postgraduate students		
Ways	Frequency (n=171)	Percentage
Education	44	25.7
Interaction	20	11.7
Practice; Collaboration; Interaction and Education	20	11.7
Collaboration	18	10.5
Practice	12	7.0
Collaboration; Interaction and Education	11	6.4
Interaction and Education	7	4.1
Practice and Education	5	2.9
Practice; Interaction and Education	5	2.9
Collaboration and Education	3	1.8
Collaboration and Interaction	2	1.2
Practice; Collaboration and Education	2	1.2
Practice; Collaboration and Interaction	2	1.2
Practice and Collaboration	1	0.6
Not Applicable	19	11.1
Total	171	100

Findings obtained from academic staff show that 17(56.7%) of the respondents indicated that collaboration is used to create knowledge and information, 16(53.3%) respondents indicated that interaction is used to create knowledge and information at the Universities, while, 15(50%) of the respondents indicated that education is used as a means of creating knowledge and information at the Universities and 13(43.3%) respondents indicated practice is used as a means of creating knowledge and information at the Universities as presented in Table 5.16.

Table 5.16: Ways through which knowledge and information is created

Responses of academic staff		
Responses	N-30	Percentage
Collaboration	17	56.7%
Interaction	16	53.3%
Education	15	50.0%
Practice	13	43.3%

5.2.5 Knowledge and information sharing among postgraduate students

The fourth sub-question sought at addressing objective number one by establishing whether postgraduate students were willing to share knowledge and information they

own. This enabled the researcher to understand the readiness of postgraduate to share knowledge and information among themselves to facilitate their learning. 168 (98.8%) of postgraduate students agreed that they were willing to share knowledge and information with their peers while 3(1.2%) mentioned “No” they were not willing to share knowledge and information with their peers. Their responses are presented in Table 5.17.

Table 5.17: Knowledge and information sharing among postgraduate students

Responses of postgraduate students		
Response	Frequency (n=171)	Percentage
Yes	168	98.8
No	3	1.2
Total	171	100

Responses obtained from academic staff shows that 29(96.7%) agreed that postgraduate students were willing to share knowledge while 1(3.3%) disagreed that postgraduate students had no willingness to share knowledge they own with their peers. Their responses are summarised in Table 5.18.

Table 5.18: Willingness of postgraduate students to share knowledge and information

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Yes	29	96.7
No	1	3.3
Total	30	100

Postgraduate students’ who agreed that they do share knowledge and information with their peers were asked to indicate the reasons for their willingness to share knowledge and information with their colleagues. Responses showed that 112 (65.5%) respondents were willing to share knowledge and information they owned because it was the university culture, followed by 75(43.9%) who indicated that they were willing to share knowledge and information because they possessed skills while, 70(40.9%) of respondents mentioned they were willing to exchange knowledge and information because of motivation whereas, 52(30.4%) of respondents listed trust, 49(28.7%) of respondents mentioned organisational support followed by 40(23.4%) of respondents who pointed out self-efficacy and 24(14.0%) of respondents who mentioned policy

requirements. Findings revealed that there were a number of reasons for postgraduate students to share the knowledge and information they possessed with their peers at the Universities. The reasons for sharing information include knowledge sharing culture, possession of skills, motivation, trust, organisational support, self-efficacy and policy requirements. Their findings are summarised in Table 5.19.

Table 5.19: Reasons for willingness to share knowledge and information

Responses of postgraduate students		
Responses	N-171	Percentage
Knowledge sharing culture	112	65.5%
Possession of skills	75	43.9%
Motivation	70	40.9%
Trust	52	30.4%
Organisational support	49	28.7%
Self-efficacy	40	23.4%
Policy requirements	24	14.0%

The summary in Table 5.20, shows that 23(79.3%) of academic staff indicated that the reasons for postgraduate students to share knowledge and information is for the purpose of sharing experience, 21(72.4%) of respondents mentioned to grow academically followed by 19(65.5%) of respondents who indicated to find better ways of doing things, 17(58.6%) of respondents mentioned to gain better grades, 16(55.2%) of respondents indicated to build collective knowledge while another 16(55.2%) of respondents alluded to their views that that students share knowledge for the purpose of filling their knowledge gaps, 10(34.5%) of respondents indicated that postgraduate students share knowledge and information they own because of their self-efficacy, 10(34.5%) of respondents mentioned it was done because of recognition, 7(24.1%) of respondents indicated that knowledge is shared among postgraduate students for the purpose of getting top talent access and 6(20%) of respondents indicated that postgraduate students exchange knowledge and information because of the promise of rewards.

Table 5.20: Reasons for willingness to share knowledge and information

Responses of academic staff		
Responses	N-29	Percentage
Experience sharing	23	79.3%
To grow academically	21	72.4%
Find better ways of doing things	19	65.5%
To attain better academic grades	17	58.6%
To build collective knowledge	16	55.2%
To fill the knowledge gap	16	55.2%
Self-efficacy	10	34.5%
Recognition	10	34.5%
Getting top talent access	7	24.1%
Promise of rewards	6	20.7%

5.2.6 Preferred SNSs for knowledge and information sharing

The fifth sub-question intended at identifying the mostly preferred SNSs among postgraduate students in sharing knowledge and information in the selected universities for the study. This sub-question sought at addressing objective number one on the type of knowledge that students preferred to share through SNSs. Since students are likely to use various SNSs, they were asked to mention their favourite SNSs for sharing various types of knowledge and information.

Responses were as follows, 130(76.0%) of the postgraduate students mentioned education (classmates), 122(71.3%) of the respondents preferred to use WhatsApp followed by 103(60.2%) of the respondents who indicated research (Research Gate), 32(18.7%) of the respondents mentioned Live Journal, while 57(33.3%) of the respondents indicated Books (shelfari), 47(27.5%) of the respondents mentioned LinkedIn, 14(8.2%) of the respondents indicated Wiki spaces, followed by 55(32.2%) of the respondents who mentioned Facebook, 26(15.2%) of the respondents mentioned My Creativity Community, 84(49.1%) of the respondents indicated Google+, 84(49.1%) of the respondents were in favour of You Tube, while 20(11.7%) of the respondents mentioned My life, followed by 55(32.2%) of the respondents who mentioned Twitter, 8(4.7%) of the respondents preferred Badoo, 8(4.7%) of the respondents mentioned Bebo, while 1(0.6%) of the respondents was in favour of Instagram, followed by 1(0.6%) of respondents who preferred to use Zoom and finally 1(0.6%) of respondents who preferred to use Telegram. Findings obtained indicated that postgraduate student's

used various SNSs to share knowledge and information as shown in Table 5.21. The study findings also established that there were some SNSs popular than others that are in use and liked by the majority of the postgraduate students such as WhatsApp, Education (classmates), Research (Research Gate) Google+ and YouTube. Postgraduate students also, preferred to use those SNSs with more features than others and that are compatible to their studies.

Table 5.21: The most preferred SNS for knowledge and information sharing

Responses of postgraduate students		
Responses	N-171	Percentage
Education (classmate)	130	76.0%
WhatsApp	122	71.3%
Research (Research Gate)	103	60.2%
Google+	84	49.1%
You Tube	84	49.1%
Books (Shelfari)	57	33.3%
Facebook	55	32.2%
Twitter	55	32.2%
LinkedIn	47	27.5%
Live Journal	32	18.7%
My creativity community	26	15.2%
My life	20	11.7%
Wiki spaces	14	8.2%
My space	14	8.2%
Badoo	8	4.7%
Bebo	8	4.7%
Instagram	1	0.6%
Zoom	1	0.6%
Telegram	1	0.6%

Responses obtained from academic staff show that most of the postgraduate students 25(86.2%) preferred to use WhatsApp, followed by 22(75.9%) postgraduate students who preferred to use Research Gate, 19(65.5%) postgraduate students who preferred to use Education (classmate), 19 (65.5%) postgraduate students preferring to use Google+ while another 19(65.5%) postgraduate students preferred to use YouTube 15(51.7%) postgraduate students preferred to use Live Journal, 14(48.3%) mentioned Facebook, followed by 13(44.8%) who preferred LinkedIn 13(44.8%) of postgraduate students preferred to use twitter, while 11(37.9%) postgraduate students preferred Books

(Shelfari), 5(17.2%) preferred Wikispaces, while 5(17.2%) of postgraduate students preferred Mycreativity Community and 5(17.2%) of postgraduate students preferred Mylife. 5(17.2%) of the postgraduate students preferred Badoo, 2(6.9%) of postgraduate students preferred Myspace followed by 2(6.9%) who preferred Bebo and 2(6.9%) postgraduate students who preferred Academia.edu, as indicated in Table 5.22.

Table 5.22: The most preferred SNSs for knowledge and information sharing

Responses from academic staff		
Responses	N-29	Percentage
WhatsApp	25	86.2%
Research (Research Gate)	22	75.9%
Education (classmate)	19	65.5%
Google+	19	65.5%
YouTube	19	65.5%
Live Journal	15	51.7%
Facebook	14	48.3%
LinkedIn	13	44.8%
Twitter	13	44.8%
Books (Shelfari)	11	37.9%
Wiki spaces	5	17.2%
My creativity community	5	17.2%
My life	5	17.2%
Badoo	5	17.2%
My space	2	6.9%
Bebo	2	6.9%
Academia.edu	2	6.9%

Findings obtained from academic staff presented in Table 5.22 indicated that 25(86.2%) of the academic staff indicated that postgraduate students preferred to use WhatsApp, while 19(65.5%) mentioned education (classmate) and 22(75.9%) of the respondents pointed out Research (ResearchGate), 19(65.5%) of respondents indicated Google+ and 19(65.5%) mentioned YouTube as the most used SNSs by postgraduate students in exchanging knowledge and information. Although, postgraduate students mostly use the above-mentioned SNSs for sharing knowledge and information with their peers, they also use other SNSs for their social purposes including creating online friends and for enjoyment purposes.

5.2.7 ICT facilities available at the selected universities for the study

The last sub-question aimed at establishing types of ICT facilities that were available at the Universities to facilitate knowledge and information sharing through SNSs. This question was asked to understand if the required ICT facilities or technology are available at the Universities to support postgraduate students in sharing various types of knowledge and information that is created at the Universities. Responses were as follows 156(91.2%) of the postgraduate students mentioned internet followed by 148(86.5%) respondents who outlined computers, while 114(66.7%) of the respondents indicated laptops, 94(55.0%) of respondents indicated printers, 93(54.4%) of respondents mentioned the availability of LCD projectors, 88(51.5%) respondents listed television, 82(48.0%) of respondents listed scanners, whereas 51(29.8%) of respondents pointed out the intranet, 33(19.3%) video teleconferencing followed by 17(9.9%) of the respondents who mentioned extranet and finally 1(0.6%) who indicated mobile phones as shown in Table 5.23. Findings indicated that various ICT facilities were available at the Universities for the study which supported the use of SNSs for knowledge and information sharing.

Table 5.23: ICT facilities available at the selected universities for the study

Responses of postgraduate students		
Responses	N-171	Percentage
Internet	156	91.2%
Computers	148	86.5%
Laptops	114	66.7%
Printer	94	55.0%
LCD projectors	93	54.4%
Television	88	51.5%
Scanners	82	48.0%
Intranet	51	29.8%
Video Tele-Conference	33	19.3%
Extranet	17	9.9%
Mobile phones	1	0.6%

Responses obtained from academic staff showed that 28(93.3%) of the respondents mentioned the availability of computers followed by 27(90%) of the respondents who listed availability of the internet, 23 (76.7%) respondents reported the availability of LCD projectors while 20(66.7%) respondents mentioned availability of laptops whereas 19(63.3%) of the respondents reported the presence of printers. Another category of the

respondents 16(53.3%) stated that there was availability of scanners and another 16(53.3%) of respondents named the presence of television followed by 12(40%) of the respondents who indicated Video Tele-Conference while 11(36.7%) respondents mentioned intranet followed by 7(23.3%) of the respondents who stated the availability of extranet as presented in Table 5.24.

Table 5.24: ICT facilities available at the selected universities for the study

Responses of academic staff		
Responses	N-30	Percentage
Computers	28	93.3%
Internet	27	90.0%
LCD projectors	23	76.7%
Laptops	20	66.7%
Printer	19	63.3%
Scanners	16	53.3%
Television	16	53.3%
Video Tele-Conference	12	40.0%
Intranet	11	36.7%
Extranet	7	23.3%

5.3 Policies guiding the use of SNSs at the selected universities for the study

The second objective of the study was to assess if policies were in place at the selected universities for the study to guide the utilisation of SNSs for knowledge and information sharing. This objective of the study was divided into three parts, namely;

- (i) Presence of policies at the university guiding the usage of SNSs,
- (ii) Awareness of postgraduate students on the SNSs usage policy, and
- (iii) Adherence of postgraduate students to the policy.

5.3.1 Presence of policies guiding the use of SNSs at the Universities

Postgraduate students were asked to indicate if Universities, where they were studying, had in place policies that guided the utilisation of SNSs for knowledge and information sharing. The purpose was to understand if there were guidelines and procedures which require postgraduate students to utilise SNSs for knowledge and information sharing. Their responses were as follows 99(57.9%) of the postgraduate student's respondents agreed that Universities had in place policies that guided SNSs usage, followed by

52(30.4%) postgraduate students who said "No", Universities did not have in place policies to guide the use of SNSs for exchanging knowledge and information and 20(11.7%) of the postgraduate student's respondents who said "They don't know" as presented in Table 5.25. Findings show that the majority of postgraduate students had awareness of the existence of policies guiding the utilisation of SNSs for knowledge and information sharing.

Table 5.25: Presence of policies guiding the use of SNSs at the Universities

Responses of postgraduate students		
Response	Frequency (n=171)	Percentage
Yes	99	57.9
I do not know	52	30.4
No	20	11.7
Total	171	100

Findings obtained from academic staff showed that 12(40%) of the respondents agreed that policies guiding SNSs usage were in place at the selected universities for the study, followed by 10(33.3%) of the academic staff who indicated "No" Universities had no policies to guide the use of SNSs for exchanging knowledge and information and 8(26.7%) stated that they don't know. Table 5.26 present the summary of the findings.

Table: 5.26: Presence of policies guiding the use of SNSs at the Universities

Responses of academic staff		
Response	Frequency n=30)	Percentage
Yes	12	40.0
No	10	33.3
I don't know	8	26.7
Total	30	100

The heads of academic departments involved in the interviews were probed to explain if there were policies that guided the utilisation of SNSs for knowledge and information sharing at the selected universities for the study. The majority of the heads of academic departments indicated that Universities had no stand-alone policies that provided guidance on the utilisation of SNSs for knowledge and information sharing purposes. They indicated that the aspects of SNSs' usage had been included in other university policies and procedures such as students guide books, ICT policy, and internet use policy.

During interview participant HoD-1 articulated that:

At the moment the university has no stand-alone policy that guide the use of social networking sites in knowledge and information sharing among postgraduate students but, policies are being developed. Currently, the use of social networking sites has been captured in other Universities policies.

Participant HoD-2 had this to say:

Being specific with social networking sites, no we don't have one but, we have a general university guideline which we call it ICT policy which has provided the details on how knowledge and information should be shared among students as well as staff at the university. We also have government guidelines and policy which provide guidelines on how sharing of knowledge and information should be conducted via SNSs.

Participant HoD-3 further pointed out that:

No, I am not aware if the university has a specific policy that guides the use of social networking sites. We have ICT policy but, I am not sure if within the ICT policy there is a section which specifically talk about the use of social networking sites for knowledge and information sharing purposes.

Regarding the awareness on the existence of policy that guide the use social networking usage in knowledge and information sharing at the selected universities for the study

Participant HoD-4 clearly stated that:

Most social networking platform are informal means of communication therefore we don't have an exact policy that provide guidelines on its usage in sharing knowledge and information at our university. However, we recognize that students and some lecturers are using them in accessing knowledge and information from various sources. We also, encourage our students to register themselves in those social networking sites such as LinkedIn and others so that they can continue to share knowledge and information among themselves. Here we have ICT policy but, this is a general university policy it does not talk specifically on the use of social networking sites.

Along the same line, Participant HoD-5 articulated that:

Here at our university, we have ICT policy which provides the guidelines on the use of any ICT related issues including the use of social networking technologies but, I have never consulted such a policy to read. I am aware that there is a section in that policy which talks on the use of social networking sites because any official communication including advertisement of the university and announcements meant to be communicated through social networking sites should seek official approval from the management of Universities.

The absence of stand-alone policy on the use of SNSs usage in knowledge and information sharing was also indicated by Participant HoD-6 who elaborated that:

We have some guidelines which state the proper use of social media for knowledge and information sharing. The guidelines on the use of internet connectivity also provide guidance on the use of social networking sites. The guideline for postgraduate students highlights issues regarding the use of social networking sites including indicating that social networking sites can also be used in teaching and learning. At the moment we are planning to formulate a policy that will guide the use of social media because we are in the process of adopting online learning technologies.

Similarly, the participant HoD-7 lamented that:

If you say specific social networking policy sites, I would say no but, if you say ICT policy, Yes, we have it in place which also capture the aspects of social networking sites usage for knowledge and information sharing purposes among postgraduate students as well as for lecturers.

Participant HoD-8 elaborated that:

I can say at the moment the university has no specific social networking policy to guide its usage in knowledge and information sharing among postgraduate student, its usage has been accommodated into other Universities guidelines such as postgraduate student guide book. We hope that in the future there will be a specific policy on social networking sites usage because its use in education setting has been accelerating.

5.3.2 Awareness on the policies guiding SNSs usage at the Universities

The second sub-question under objective four assessed the awareness of postgraduate students on the policies that guided the use of SNSs at the university where they were pursuing their studies. Responses show that 14(8.1%) of the postgraduate student respondents had very great awareness on the policy that guided the use of SNSs in knowledge and information sharing at their university followed by 48(27.9%) respondents who had great awareness, while 54(31.4%) of the respondents had moderate awareness, 16(9.3%) respondents had small awareness and 40(23.3%) of the respondents had no awareness. Their responses are summarised in Table 5.27.

Table 5.27: Awareness on the policies guiding SNSs usage at the Universities

Responses of postgraduate students		
Response	Frequency (n=171)	Percentage
A moderate extent	54	31.6
A great extent	48	28.1
I am not aware	39	22.8
A small extent	16	9.4
Very great extent	14	8.2
Total	171	100

Findings obtained from academic staff indicated that 4(13.3%) agreed that postgraduates had a very great extent awareness on the policy guiding SNSs usage, 5(16.7%) of academic staff indicated that postgraduate students had a great extent of awareness, 7(23.3%) academic staff mentioned that postgraduate students had moderate extent awareness on the policy guiding the use of SNSs and 14(46.7%) of the academic staff indicated that postgraduate students had no awareness of the policy guiding the use of SNSs as shown in Table 5.28.

Table 5.28: Extent of awareness on the policies guiding SNSs usage at the Universities

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Very great extent	4	13.3
A great extent	5	16.7
A moderate extent	7	23.3
I am not aware	14	46.7
Total	30	100

5.3.3 Adherence to the SNSs policies among postgraduate students

The third sub-question probed who among postgraduate students adhered to the SNSs policies while sharing knowledge and information among their peers. Responses revealed that 94(55%) of the postgraduate students “agreed that they adhered to the policies” while using SNSs followed by 56(32.7%) respondents who said “they don’t adhere to the policy” and 21(12.3%) of the respondents mentioned that they “don’t know” as shown in Figure 5.4.

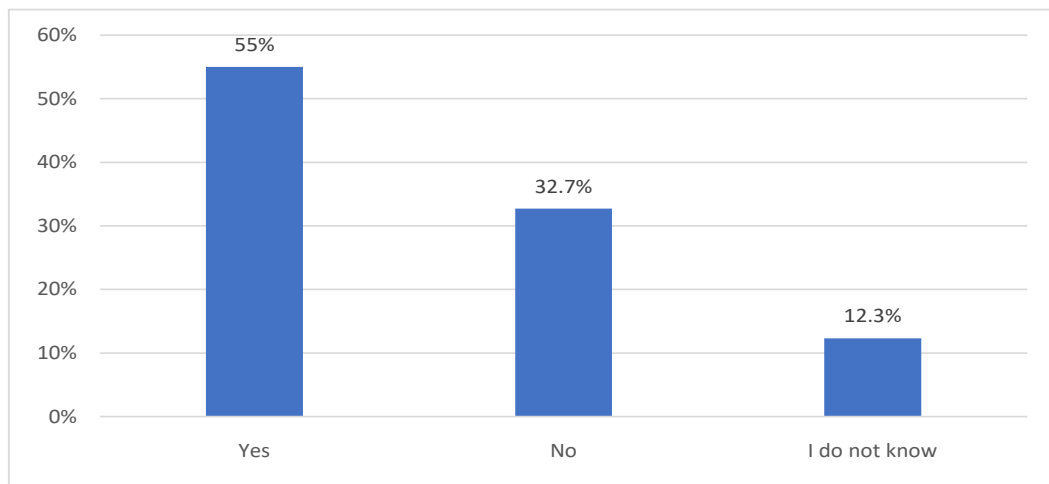


Figure 5.4: Adherence to the SNSs usage policies among postgraduate students’

Findings of the study from members of the academic staff indicated that 8(26.7%) of them did not know if postgraduate students adhered to the policy while utilising SNSs in exchanging knowledge and information, 7(23.3%) of the academic staff agreed that "Yes" postgraduate students complied to the policy while using SNSs in sharing knowledge and information followed by 1(3.3%) of the academic staff who said "No" postgraduate students do not adhere to the policy while using SNSs and 14(46.7%) of the academic staff indicated that it was not applicable as presented in Table 5.29.

Table 5.29: Adherence to the SNSs policies among postgraduate students

Responses of academic staff		
Response	Frequency (n=30)	Percentage
I don't know	8	26.7
Yes	7	23.3
No	1	3.3
Not Applicable	14	46.7
Total	30	100

5.3.4 Review of national and institutional ICT policies

A documentary review report from the Tanzania Commission for Universities (TCU 2019:199) standards and guidelines for university education in Tanzania stipulate that to ensure the quality of education in the nation, Universities are required to put in place all necessary facilities such as lecture halls, library and ICT resources to facilitate teaching and learning. The policy clearly, stipulates the role of Universities in fostering the use of ICT in teaching and learning including the utilisation of SNSs as avenues for knowledge and information sharing. The document analysis report from the Tanzania National Information and Communication Technology Policy (2016:10) reported that the use of SNSs as the platform of learning has increased, while appreciating its benefits several issues need to be taken care of including security challenges. Therefore, there should be strategies to prevent the misuse of SNSs. This calls for putting in place policies and guidelines to guarantee online safety among users.

The document review report from Education and Training Policy 2014 section 3.2.9 states that:

The government shall ensure that relevant teaching and learning tools, resources and equipment in education and training are sufficient according to the demand and the development of science, technology and teaching and learning at all levels.

Another paragraph in Education and Training Policy 2014 outlined that, education providers at all levels in the country shall be responsible to ensure that the educational legal framework in place is adhered to, to facilitate the implementation of education and training policy. This statement substantiates the need for Universities to deploy and utilise ICT including integration of SNSs in teaching and learning. MoCU ICT policy (2019:7) section 3.5 stipulates that the university shall be responsible to schedule ICT capacity building events and conducting them as per requirements or when the need arises. Another section of the same policy section 3.5.3 (d) outlined that, the department responsible for ICT shall conduct an assessment periodically of ICT skills amongst its patrons to recognize the gaps and training needs. Section 3.6 of a similar policy states that the university should create various online contents which are communicated to both local and international stakeholders using different communication channels including, social networks, television, radio, e-learning and websites. The policy

acknowledges the use of social networking as the platform of communication where its students and staff can use it for knowledge and information sharing purposes.

A documentary review report from the National Science and Information Technology Policy for Tanzania (1996:33) established that one of the sectoral objectives is to ensure that enough and appropriate science and technology teaching and learning equipment is available in schools, colleges and higher education together with competent and well-experienced science and technology instructors. The policy further, states that another sectoral objective is to ensure the utilisation of science and technology in other means of production and education. The policy identifies the need for Universities to put in place ICT facilities to facilitate the utilisation of technologies including the use of SNSs for knowledge and information sharing purposes. Another document review done from NM-AIST Policy (2016:3) reported that NM-AIST is a government based higher education institution that is required by law to have various policies in place including the ICT policy.

The ICT policy provides the academic community such as students and staff with guidance and procedures on how to use the available ICT facilities effectively and in an accepted manner. Another paragraph of NM-AIST policy (2016:11) stipulates that NM-AIST shall formulate acceptable procedures to guide acquisition, storage, access and management of computer software and data in such a way it may not affect services offered, security, integrity and confidentiality of the users. The policy outlined the need of formulating policies and guidelines to ensure that the security and privacy of the users is not compromised.

Through a document analysis report, the IAA ICT Policy and Procedures which was revised on July 2021 section 1.6 indicated that all activities performed by the IAA staff and students are supposed to be in line with the national legal frameworks that are in place and that of the IAA policy. Section 1.8 of the policy further stipulates that the department responsible for ICT shall be tasked with the duty to ensure the current ICT policy is reviewed every three years to accommodate any changes that may happen in the future and to maintain ICT standards and best practices. The policy outlined the need for formulating various policies in Universities and higher education institutions

including those related to the utilisation of ICT in education systems, including the use of SNSs as stipulated by national-level policies.

The gap identified from the reviewed policies

Findings from the reviewed documents indicated that there was no specific policy document at the national and institutional level that specifically stipulates the utilisation of SNSs for knowledge and information sharing. However, the utilisation of ICT including the use of social network technologies has been stated in some parts of the available national and institutional ICT policies. Another, important issue to note is that policies especially at the national level stipulate the utilisation of ICT in the education sector, but the use of ICT is stated generally.

There is no section from all consulted policy documents, which required every university in the country to integrate and use SNSs to facilitate knowledge and information sharing activities that is why the utilisation of SNSs in Universities in the country is compromised. However, it is up to the Universities to make maximum use of the national policies to ensure they deploy SNSs in facilitating knowledge and information exchanging practices among the postgraduate students to enhance student's class engagement and attain university competitive advantages. Since the use of SNSs has been accelerating, Universities need to formulate specific policies to streamline them to make sure they are not used for non academic purposes.

5.4 Level of skills on the use of SNSs

The third objective of this study sought to assess the level of skills of postgraduate students on the use of SNSs in knowledge and information sharing. This objective was divided into three parts, namely;

- (i) Level of satisfaction of the skills among individual postgraduate students,
- (ii) Provision of training on the use of SNSs and,
- (iii) Methods of training that postgraduate have undergone to acquire skills on the use of SNSs.

5.4.1 Satisfaction on the level of skills in the utilisation of SNSs

The first sub-question assessed the level of satisfaction with the skills that postgraduate students possessed on the utilisation of SNSs for knowledge and information sharing. 96(56.1%) of the postgraduate students were satisfied, followed by 36(21.1%) respondents who were neutral while, 23(13.5%) the respondents were very satisfied, 13(7.6%) respondents were dissatisfied and 3(1.8%) of the respondents were very dissatisfied as indicated in Table 5.30. The findings of the study revealed that the majority of postgraduate students were satisfied with the level of skill they possessed in using SNSs in knowledge and information sharing.

Table 5.30: Satisfaction on the level of skills in the utilisation of SNSs

Responses of postgraduate students		
Level of satisfaction	Frequency (n=171)	Percentage
Satisfied	96	56.1
Neutral	36	21.1
Very Satisfied	23	13.5
Dissatisfied	13	7.6
Very dissatisfied	3	1.8
Total	171	100

Findings obtained from 1(3.3%) members of the academic staff indicated that they were very satisfied with the level of skills that postgraduate students possessed in the use of SNSs for knowledge and information sharing, 17(56.7%) of the respondents were satisfied while 9(30%) respondents were neither satisfied nor dissatisfied, followed by 2(6.75) respondents who were dissatisfied with the level of skills that postgraduate students possessed, and 1(3.3%) respondent were very dissatisfied, as presented in Table 5.31.

Table 5.31: Satisfaction on the level of skills in the utilisation of SNSs

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Very satisfied	1	3.3
Satisfied	17	56.7
Neither satisfied nor dissatisfied	9	30.0
Dissatisfied	2	6.7
Very dissatisfied	1	3.3
Total	30	100

The heads of academic departments were interviewed to establish if postgraduate students at the selected universities for the study possess skills of using SNSs in accessing and sharing knowledge and information of their needs to fulfil their academic goals. The majority of heads of academic department confirmed that postgraduate students had skills of using SNSs in sharing knowledge and information because it has now become part and parcel of their daily academic lives.

Participant HoD-1 remarked that:

Majority of postgraduate students do possess skills of using Social networking sites in knowledge and information sharing because only soft skills are required for them to be able to use the Social networking sites technologies.

Participant HoD-2 articulated that:

Mostly we determine them based on the skills they have on the use of electronic gadgets. For example, sometimes we expose them to group works and assignments which require them to use Social networking sites and ICT facilities and therefore we can judge their skills based on their ability to use Social networking sites in knowledge and information sharing. Students are very clever these days, they have their WhatsApp groups, they are in Facebook, and they have their Instagram pages. The general understanding of this generation is that anyone who has smart-phone can use Social networking sites for sharing knowledge and information.

Participant HoD-3 stated that:

It is bit tricky to assess the ability of postgraduate students in using social networking sites for knowledge and information sharing purposes because most of those possessing smart phones tend to use them at their own time. But, students with basic ICT skills are capable of using social networking sites to share knowledge and information with their colleagues.

Participant HoD-4 elaborated that:

Most of them have some skills on the use of social networking sites but, limited. For example, when you decide to use zoom for making presentation or lecturing there are postgraduate students who will follow-up while others may fail to join the presentation. Also, some social networks requires the information seeker to register before accessing

knowledge and information of their need but, due to limited skills some postgraduate students may not be able to access such knowledge and information for their academic purposes.

Participant HoD-5 had this to say:

The majority of postgraduate students have skills of using social networking sites for sharing knowledge and information in various aspects. The main challenge to them is their ability to access relevant and reliable information and share it to their colleagues.

Participant HoD-6 explained that:

I normally give them assignments and ask them to submit by attaching them through social media. There are some postgraduate students who cannot attach document through social media therefore I can realize those with challenges, I normally call and teach them how to do it for the next assignments. After sometimes they find themselves catching up. Therefore, I can say that they possess skills for using social networking sites because they also have their WhatsApp groups where they interact for various academic as well as social issues.

Participant HoD 7 affirmed that:

When I use social networking sites for students I normally set up a mechanism to assess the contribution made by every student in a class, I will look at how many have contributed to determine their level of skills; I also look at how many have failed to participate. But, in general I can say they have skills of using social networking sites for sharing knowledge and information because they frequently engaged in.

Participant HoD-8 articulated that:

I can say postgraduate students have skills of using social networking sites because most of them do not require postgraduate students to attend long training on how to use them, one can consult a friend to learn how to use a particular social networking in accessing knowledge and information. For example, anyone can use Facebook, WhatsApp, Instagram and other social networks after being given short instructions.

Based on the interviews findings, it was established that the heads of academic departments determined the skills of postgraduate students in using SNSs by looking at their ability to use SNSs including accessing and sharing relevant knowledge and information with their colleagues. But they also determined the skills of postgraduate by looking at the extent of their participation in sharing knowledge and information with their colleagues in the platform.

5.4.2 Training offered on the use of SNSs

The second sub-question aimed to assess if training is offered by the selected universities to enhance the skills of postgraduate students on using SNSs for knowledge and information sharing purposes. Responses show that 97(56.7%) of the postgraduate students agreed that they had received training while 74(43.3%) respondents disagreed and stated that they had never received training on the use of SNSs. Their responses are shown in Table 5.32. The findings revealed that training was offered at the selected universities for the study but was not attended by all postgraduate students that is why some postgraduate students were not aware if there were training programmes organised for them to gain knowledge and skills on the use of SNSs.

Table 5.32: Training offered on the use of SNSs

Responses of postgraduate students		
Response	Frequency (n=171)	Percentage
Yes	97	56.7
No	74	43.3
Total	171	100

Responses obtained from academic staff shows that 16(53.3%) agreed that training is offered to postgraduate students to enhance the utilisation of SNSs for exchanging various types of knowledge and information, 9(30%) of the respondents indicated no training was offered to postgraduate students on the use of SNSs and 5(16.7%) of the respondents indicated that they did'nt know, as summarised in Table 5.33.

Table 5.33: Training offered on the use of SNSs

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Yes	16	53.3
No	9	30.0
I don't know	5	16.7
Total	30	100

5.4.3 Methods used to acquire skills on the use of SNSs

The third sub-question examined the methods that were used by postgraduate students to acquire knowledge and skills of using SNSs for knowledge and information sharing. Responses shows that 60(35.1%) of the respondents had acquired training through self-study, 55(32.2%) postgraduate students had acquired training through attending information literacy programmes organised by the university staff, followed by 32(18.7%) of the respondents who acquired training through attending short courses lasting less than nine months, 12(7.0%) of the respondents had acquired training through attending long courses lasting over nine months as shown in Table 5.34.

Table 5.34: Methods used to acquire skills on the use of SNSs

Responses of postgraduate students		
Responses	N-171	Percentage
Self study	60	35.1%
Through information literacy training offered by the university staff	55	32.2%
Through attending short courses lasting less than nine months	32	18.7%
Through attending courses lasting over nine months	12	7.0%

Responses obtained from academic staff shows that 15(50%) of the respondents indicated that postgraduate students had acquired skills on the use of SNSs through information literacy training offered by the Universities followed by 9(30%) respondents who mentioned that postgraduate students had acquired skills on the use of SNSs through self-study while 7(23.3%) reported that they had acquired skills on the use of SNSs through attending short courses lasting less than nine months whereas 2(6.7%) answered that the postgraduates had acquired skills through attending courses lasting over nine months and 13(43.3%) of the respondents responded ‘not applicable’, as summarised in Table 5.35.

Table 5.35: Methods used to acquire skills on the use of SNSs

Responses of academic staff		
Responses	N-30	Percentage
Through information literacy training offered by the university staff	15	50.0%
Self-study	9	30.0%
Through attending short courses lasting less than nine months	7	23.3%
Through attending courses lasting over nine months	2	6.7%
Not Applicable	13	43.3%

5.5 Factors influencing the use of SNSs

The fourth objective of the study examined factors that influenced postgraduate students to use SNSs in knowledge and information sharing. This objective was also addressed using one sub-question concerning factors affected knowledge and information sharing through SNSs.

5.5.1 Factors influencing the use of SNSs

Respondents were asked to mention factors that influenced their decision towards using SNSs for knowledge and information sharing. The findings indicated that 97(56.7%) of postgraduate student's mentioned personal interaction followed by 96(56.1%) who mentioned motivation, 95(55.6%) pointed out the presence of technology whereas 92(53.8%) of the respondents listed educational compatibility while 89(52.0%) of the respondents indicated trust followed by 86(50.3%) who indicated individual attitudes. 77(45.0%) mentioned personal expectations whereas 74(43.3%) pointed out university culture followed by 71(41.5%) of the respondents who indicated perceived ease of use while 71(41%) mentioned perceived usefulness and 62(36.3) listed skills of using SNSs, 48(28.1%) indicated management support and 33(19.3%) respondents indicated policy requirement as presented in Table 5.36.

Table 5.36: Factors influencing the use of SNSs

Responses of postgraduate students		
Responses	N-171	Percentage
Personal interaction	97	56.7%
Motivation	96	56.1%
Presence of technology	95	55.6%
Educational compatibility	92	53.8%
Trust among postgraduate students	89	52.0%
Individual attitudes towards knowledge and information sharing	86	50.3%
Personal expectations	77	45.0%
University culture	74	43.3%
Perceived ease of use	71	41.5%
Perceived usefulness	71	41.5%
Skills of using SNSs	62	36.3%
Management support	48	28.1%
Policy requirement	33	19.3%

Responses obtained from academic staff revealed that 23(76.7%) of the respondents indicated that postgraduate students were influenced to use SNSs because of personal interaction followed by 21(70%) respondents who reported that postgraduate students were influenced to use SNSs because of the skills they owned, while 20(66.7%) of the respondents stated that postgraduate students were attracted to use SNSs as a result of the trust they had developed among their peers, 20(66.7%) reported that students were influenced to use SNSs because of motivation whereas another 20(66.7%) of the respondents revealed that students were influenced to use SNSs because of the attitudes they had towards knowledge and information exchange practices, 18(60%) mentioned presence of technology influenced postgraduate students to use SNSs, another of the factors mentioned by 17(56%) include perceived ease of use, another 17(56%) of the respondents indicated perceived usefulness followed by 16(53.3%) of the respondents who stated educational compatibility while 14(46.7%) named personal expectation as the factor that influenced postgraduate students to use SNSs for exchanging knowledge and information, 13(43.3%) indicated management support while another 13(43.3%) of the respondents stated policy requirements and 12(40%) mentioned university culture, as indicated in Table 5.37.

Table 5.37: Factors influencing the use of SNSs

Responses of academic staff		
Responses	N-30	Percentage
Personal interaction	23	76.7%
Skills of using SNSs	21	70.0%
Trust among postgraduate students	20	66.7%
Motivation	20	66.7%
Individual attitudes towards knowledge sharing	20	66.7%
Presence of technology	18	60.0%
Perceived ease of use	17	56.7%
Perceived usefulness	17	56.7%
Educational compatibility	16	53.3%
Personal expectations	14	46.7%
Management support	13	43.3%
Policy requirement	13	43.3%
University culture	12	40.0%

The findings displayed in Tables 5.36 and 5.37 indicated that various factors influenced postgraduate students to use SNSs in knowledge and information sharing including personal interaction, skills of using SNSs, trust among the postgraduate students, motivation, individual attitudes towards knowledge and information sharing, presence of technology, perceived ease of use, perceived usefulness, educational compatibility, personal expectations, management support, policy requirement and university culture. The next sub-section presents the findings based on every factor mentioned above.

5.5.1.1 Personal interaction

Postgraduate students and academic staff were probed to indicate factors that influenced the decision of postgraduates to use SNSs in exchanging knowledge and information through multiple response questions. The study findings indicated that 97(56.7%) of the postgraduate students were influenced to use SNSs in exchanging knowledge and information because of personal interactions. This was also confirmed by 23(76.7%) of the academic staff who indicated that the need for personal interactions attracted most postgraduate students to use SNSs in exchanging knowledge and information.

5.5.1.2 Motivation

As indicated in Tables 5.34 and 5.35 it was revealed that 96(56.1%) of postgraduate students indicated their decision towards using SNSs for knowledge and information sharing as a result of being motivated by other postgraduate students and their lecturers. This was supported by 20(66.7%) of the academic staff who filled out questionnaires and indicated that the decision of postgraduate students to use SNSs in exchanging knowledge and information was because they had been motivated by their colleagues, peers, friends and their lecturers to utilise them.

5.5.1.3 Presence of technology

The findings of the study obtained from 95(55.6%) of postgraduate students indicated that they were influenced to use SNSs for exchanging knowledge and information because of the presence of technology. The findings of the study were supported by 20(66.7%) of the academic staff who indicated that the presence of technology attracted most postgraduate students to use SNSs in exchanging knowledge and information.

5.5.1.4 Educational compatibility

The questionnaire respondents were asked to indicate how educational compatibility influenced the decision of postgraduate students to use SNSs for exchanging knowledge and information. The findings obtained from 92(53.8%) of the postgraduate students' response and 16(53.3%) of the academic staff' respondents indicated that SNSs are compatible because they had enabled postgraduate students to access information and knowledge that was needed for their educational purposes.

5.5.1.5 Trust among postgraduate students

As indicated in Tables 5.36 and 5.37 trust was mentioned as one of the factors that influenced the decision of postgraduate students to use SNSs in exchanging knowledge and information. This was indicated by most of the postgraduate students 89(52%) and 20(66%) of the academic staff'- questionnaire respondents.

5.5.1.6 Individual attitudes towards the use of SNSs

Postgraduate students and academic staff were quizzed to indicate how individual attitudes influenced the decision of postgraduate students to utilise SNSs in exchanging knowledge and information. The findings obtained from 86(50.3%) of the postgraduate student's and 20(66%) of academic staff revealed that students had developed a positive attitude towards SNSs that is the reason for their decision to use SNSs for sharing knowledge and information.

5.5.1.7 Personal expectations

The decision of students to use technology is directly associated with the benefits that they expected to gain out of such technology. Based on this assertion respondents were asked to explain how their expectation influenced their decision to use SNSs. The findings of the study obtained from 77(45%) of the postgraduate students and 14(46.7%) of the academic staff' indicated that postgraduate students were influenced to use SNSs because they expected to access knowledge and information owned by others which could also enable them to facilitate their academic activities.

5.5.1.8 University culture

Culture is a set of beliefs, attitudes and practices shared among people in a particular setting. Based on this statement questionnaire respondents were asked to indicate how culture influenced their decision to use SNSs for sharing knowledge and information. The findings obtained from the postgraduate students 74(43.3%), and 12(40%) academic staff, indicated that the use of SNSs among postgraduate students has increased at the Universities and therefore, it has become part of their daily university lives.

5.5.1.9 Perceived ease of use

Perceived ease of use is associated with the ability of an individual to use the technology with less effort and with no difficulties. The findings obtained from questionnaire respondents indicated that 71(41.5%) of the postgraduate students indicated that they were attracted to use SNSs because of the perceived ease of use followed by 17(56.7%) of the academic staff who revealed that postgraduate students were influenced to use SNSs in exchanging knowledge and information as a result of the perceived ease of use of the technology.

5.5.1.10 Perceived usefulness

Perceived usefulness is directly linked with the benefits that individuals gained out of the use of technology. Based on this statement questionnaire respondents were quizzed to explain how the perceived usefulness of SNSs influenced their decision to use them. The findings obtained from 71(41.5%) of the postgraduate student's and 17(56.7) of the academic staff indicated that postgraduate students were influenced to use SNSs because of the benefits they gained out of them especially in their studies.

5.5.1.11 Skills of using SNSs

A skill is the ability of an individual to perform a particular task professionally by applying his or her education and experiences. Based on this assertion the findings of the study obtained from 62(36.3%) of postgraduate students and 21(70%) of the academic staff revealed that postgraduate students in the selected universities in Tanzania were attracted to use SNSs as a result of the skills they possessed.

5.5.1.12 Management support

Management support plays a significant role in the adoption and use of technology in an organisation. Based on this statement 48(28.1%) postgraduate students and 13(43.3%) of the academic staff indicated that one of the factors that influenced postgraduate student's decision to use SNSs in exchanging knowledge and information was management support.

5.5.1.13 Policy requirements

The policy provides guidelines to the users on how best they can implement the usage of SNSs for exchanging knowledge and information. The findings of the study obtained from small number of postgraduate students 33(19.3%) and 13(43.3%) of the academic staff indicated that postgraduate students were attracted to use SNSs because they were required by the policy to comply. However, the findings of the study established that, postgraduate students were not forced to use SNSs in exchanging knowledge.

The heads of academic departments who were interviewed were quizzed to explain the factors that influenced postgraduate students to use SNSs for sharing knowledge and information to gain an understanding as to why they decide to engage in using SNSs'

technologies. The word cloud was used to display the factors that were mentioned several times by the interview participants as shown in figure 5.5.



Figure 5.5: Factors influencing the use of SNSs

In providing the factors that influenced postgraduate students in using SNSs for knowledge and information sharing participant HoD-1 had this to say:

There are number of factors that attracted postgraduate students to use Social networking sites for knowledge and information sharing including easy accessibility of knowledge and information from one person to another. Students are also forced to use Social networking sites technology to access knowledge and information required for their academic purposes.

In line to this, participant HoD-2 remarked that:

There are various factors influencing postgraduate students to use Social networking sites for knowledge and information sharing one of it being individual perception towards the use of Social networking sites because some of postgraduate students have negative connotation towards Social networking sites therefore, they are not ready to use them in knowledge and information sharing. Another factor is attitudes of individual postgraduate students towards Social networking sites usage. Students who developed positive attitudes towards Social networking sites will be willing to use them in exchanging knowledge and information compared to those with negative attitudes.

Another important factor is awareness because student with awareness on the availability of knowledge and information in the Social networking sites are influenced to use them to access knowledge and information of their need than those with little awareness. Availability of facilities such as computers and internet connectivity also influence postgraduate students to use Social networking sites for knowledge and information sharing purposes. Finally, the cost of accessing Social networking sites is cheap hence postgraduate students are influenced to use them in sharing knowledge and information.

Participant HoD-3 articulated that:

The main factor influencing postgraduate students to use SNSs is the teaching methods used by their lecturers. For example, if postgraduate students are required to make class presentations or submitting their assignments through social networking platform such as WhatsApp or any other, they will automatically use them. Another main factor influencing postgraduate students to use social networking sites is accessibility of information via such networks.

Participant HoD-4 explained that:

Some of factors influencing postgraduate students to use social networking sites for knowledge and information sharing purposes are the exposure that they have and they are also influenced by their lecturers who engage them in different social networking sites that are useful for academic purposes. Secondly, is training conducted by librarians to create awareness to them on various social networking sites that can be used in sharing knowledge and information. Also, self-efficacy of individual postgraduate students who are willing to make follow-up and use social networking sites to share knowledge and information with their colleagues, and finally the reliability of the particular social networking sites

Participant HoD-5 stated that:

Some of factors influencing postgraduate students to use social networking sites for knowledge and information sharing purposes include their ability to provide the required information promptly. Secondly, is cost effective in accessing knowledge and information that is required by postgraduate students, Also, reliability of such social networking sites in providing the needed knowledge and information.

Participant HoD-6 elaborated that:

There are various factors including easy access of materials compared to the physical visit to the library. Social networking sites are also user friendly, any person who can use those social media can access knowledge and information. The use of social networking sites also saves time in accessing materials. With the variety of social media you can also access a variety of sources of knowledge and information. It is cost effective because students can access free knowledge and information through social networking sites and finally social media are interesting therefore most of postgraduate students are attracted to use them.

Participant HoD-7 proclaimed that:

I can say there are several factors influencing postgraduate students to use social networking sites for sharing knowledge and information for academic purposes, one lecturers play the major role for example if lecturers engage students in any of the social networking sites for sharing academic related information students will be automatically forced to use them. Also, students themselves if you give them task and ask them to come with unique answers, they will also share knowledge and information through social networking sites. Finally, another factor influencing postgraduate to use social networking sites is environment.

Participant HoD-8 asserts that:

There are several factors influencing postgraduate students to use social networking sites because it enables them to access knowledge and information required in their studies, it also facilitate the quick flow of knowledge and information and has eliminated the distance factor in accessing knowledge and information that someone want.

Findings from the interview indicated that there were various factors influenced postgraduate student to use SNSs in sharing knowledge and information including skills they possess, language competency, perceptions towards SNSs, attitudes, awareness they had on SNSs usage, availability of facilities, cost effective, lecturers who engage postgraduate student in SNSs for the purpose of sharing academic related knowledge and information, accessibility of materials through SNSs, exposure they had, training provided to them on the use of SNSs, self-efficacy of individuals, reliability of the

SNSs, quick flow of knowledge and information, saving time, entertainment, SNSs are user friendly, access to knowledge and information, students themselves, environment and elimination of distance factor in accessing knowledge and information.

5.5.2 Factors affecting the use of SNSs

This sub-question aimed at assessing factors that affecting the utilisation of SNSs for knowledge and information sharing among postgraduate students at the selected universities for the study. The purpose of this sub-question was to address the fourth objective by identifying factors that affecting the utilisation of SNSs among postgraduate students. Responses show that 79(46.2%) postgraduate students indicated a lack of skill on the use of SNSs, followed by 82(48.0%) of the respondents who mentioned lack of training on the use of SNSs, 80(46.8%) respondents stated the absence of the required technology, followed by 60(35.1%) respondents who listed the absence of policy regarding the use of SNSs, 116(67.8%) of respondents mentioned unreliable internet, 61(35.7%) respondents stated lack of awareness on the use of SNSs, 65(38.0%) of respondents indicated lack of trust, whereas 75(43.9%) respondents mentioned unreliable power sources, followed by 78(45.6) respondents who mentioned insecurity while 66(38.0%) respondents pointed out the absence of knowledge and information sharing culture whereas, 59(34.5%) indicated lack of management support and 47(27.5%) respondents mentioned the tendency of hoarding knowledge as presented in Table 5.38.

Table 5.38: Factors affecting the use of SNSs

Responses of postgraduate students		
Response	N-171	Percentage
Unreliable internet	116	67.8%
Lack of training on the use of SNSs for Knowledge Sharing	82	48.0%
Absence of the required technology/facilities	80	46.8%
Lack of skills in the use of SNSs for knowledge sharing	79	46.2%
Insecurity	78	45.6%
Unreliable power sources	75	43.9%
Absence of knowledge sharing culture	66	38.6%
Lack of trust	65	38.0%
Lack of awareness on the use of SNSs for knowledge sharing	61	35.7%
Absence of policy regarding knowledge sharing	60	35.1%
Lack of management support	59	34.5%
Tendency of hoarding knowledge	47	27.5%

Findings from Table 5.38 revealed that the lack of reliable internet at the Universities affected the utilisation of SNSs for knowledge and information sharing. Unreliable, slow, and unavailability of the internet has been identified as a major challenge in almost all selected universities for the study. Limited access to the internet at the Universities affected the proper utilisation of SNSs for knowledge and information donating and collecting. The study also, established that lack of training, absence of required facilities, unreliable power sources, absence of policies guiding the use of SNSs, absence of the culture of exchanging knowledge, lack of management and a tendency of hoarding knowledge, as other factors that hindered the effective utilisation of SNSs at the Universities in Tanzania.

Responses obtained from academic staff shows that 23(76.7%) indicated that unreliable internet affects the use of SNSs followed by 20(66.7%) who mentioned that lack of training on the use of SNSs affects proper utilisation of SNSs while 19(63.3%) revealed that lack of awareness on the use of SNSs for exchanging knowledge affects the use of SNSs, another category of respondents 19(63.3%) reported unreliable power sources as a challenge followed by another 18(63.3%) respondents who indicated lack of skills as another challenging factor in the use of SNSs, 17(56.7%) respondents mentioned absence of a knowledge sharing culture as a challenge that affected the use of SNSs, followed by 16(53.3%) respondents who indicated absence of required technologies as a challenging factor towards the use of SNSs, 14(46.7%) of respondents reported absence of policy guiding the use of SNSs as a challenging factor, whereas 13(43.3%) of respondents indicated lack of trust as the factor affected the use of SNSs, twelve (40%) of respondents mentioned insecurity as a challenging factor on the use of SNSs followed by 12(40%) respondents who reported the tendency of hoarding knowledge as a challenging factor on the use of SNSs and 11(36.7%) respondents indicated lack of management support as the factor affected the use of SNSs for exchanging knowledge and information as presented in Table 5.39.

Table 5.39: Challenges facing postgraduate students in the use of SNSs

Responses of academic staff		
Response	N-30	Percentage
Unreliable internet	23	76.7%
Lack of training on the use of SNSs for Knowledge Sharing	20	66.7%
Lack of awareness on the use of SNSs for knowledge sharing	19	63.3%
Unreliable power sources	19	63.3%
Lack of skills in the use of SNSs for knowledge sharing	18	60.0%
Absence of knowledge sharing culture	17	56.7%
Absence of the required technology/facilities	16	53.3%
Absence of policy regarding knowledge sharing	14	46.7%
Lack of trust	13	43.3%
Insecurity	12	40.0%
Tendency of hoarding knowledge	12	40.0%
Lack of management support	11	36.7%

The study findings obtained from postgraduate students' respondents and academic staff presented in Tables 5.38 and 5.39 revealed that several factors affected effective utilisation of SNSs for knowledge and information. The next sub-section discusses each challenge identified by the questionnaire respondents and interview participants.

5.5.2.1 Unreliable internet

Respondents were asked to indicate factors that affected the utilisation of SNSs in exchanging knowledge and information. The findings obtained from 116(67.8%) of the postgraduate student's and 23(76.7%) of the academic staff indicated that the use of SNSs in knowledge and information among postgraduate students was affected by the absence of reliable internet.

5.5.2.2 Lack of training on the use of SNSs

Training sessions enable the transfer of knowledge among students on how they can perform a particular task by applying the use of technology. Based on this assertion, postgraduate student's respondents and academic staff questionnaire respondents were asked to indicate how lack of training affected their use of technology. The findings obtained from 82(48%) of the postgraduate student's respondents and 20(66.7%) of the academic staff indicated that lack of training affected the utilisation of SNSs in exchanging knowledge and information among postgraduate students because some of

postgraduate students lack knowledge on how to use them in accessing and sharing knowledge and information with their colleagues.

5.5.2.3 Lack of the required ICT facilities/technology

Lack of the required ICT facilities or technology was indicated by 80(46.8%) of the postgraduate student's respondents and 16(53.3%) of the academic staff. The utilisation of SNSs required the presence of ICT facilities including computers, LCD projectors, scanners and the internet and extranet. Lack of ICT facilities affected the use of SNSs for exchanging knowledge and information among the postgraduate students.

5.5.2.4 Lack of skills among postgraduate students

Lack of skills among postgraduate students was mentioned as one of the factors that affected the utilisation of SNSs in exchanging knowledge and information. The findings obtained from 79(46.2%) of the postgraduate student's respondents and 18(60%) of the academic staff indicated that lack of skills among postgraduate students affected their use of SNSs in donating and collecting knowledge.

5.5.2.5 Insecurity

Insecurity is the extent to which users of the SNSs are not safe from other online users of information including strangers and hackers and some of their colleagues who were in the same network of sharing knowledge and information. Insecurity was indicated by 78(45.6%) of the postgraduate students and 12(40%) of the academic staff.

5.5.2.6 Unreliable power sources

Knowledge and information sharing practices at Universities is facilitated by the presence of power. The absence of reliable power sources was indicated by 75(43.9%) of the postgraduate student's respondents and 19(63.3%) academic staff. Universities were expected to have in place a stable power generator to be used in case of power failure.

5.5.2.7 Absence of knowledge sharing culture

As indicated in Tables 5.38 and 5.39 the findings of the study obtained from 66(38.6%) of the postgraduate students and 17(56.7%) of the academic staff indicated that at some

selected universities for the study sharing of knowledge and information is not the culture of postgraduate students, therefore, it affected the utilisation of SNSs.

5.5.2.8 Lack of trust

Trust is the belief that an individual develops in other people after observing some of the important issues from them and therefore, become willing to make their knowledge and information available to them without being forced. Lack of trust has been indicated by 65(38%) postgraduate students and 13(43.3%) of the academic staff as one of the factors that affected the use of SNS for knowledge and information sharing among postgraduate students in the selected universities in Tanzania.

5.5.2.9 Lack of awareness

The findings obtained in Tables 5.38 and 5.39 indicated that 61(35.7%) of the postgraduate student respondents and 19(63.3%) of the academic staff indicated that lack of awareness among postgraduate students on the use of SNSs in knowledge and information sharing resulted from ineffective training and had affected the sharing of knowledge and information among postgraduate students in Universities in Tanzania.

5.5.2.10 Lack of policy on the use of SNSs

The policy provides guidelines on how to do something properly. Findings obtained from Tables 5.38 and 5.39 indicated that 60(35.1%) of the postgraduate students and 14(46.7%) of the academic staff revealed that lack of policy on SNSs usage has affected the sharing of knowledge and information among the postgraduate students in the selected universities in Tanzania.

5.5.2.11 Lack of management support

The findings of the study presented in Tables 5.38 and 5.39 indicated that 59(34.5%) of the postgraduate students and 11(36.7%) of the academic staff indicated that lack of management support affected the utilisation of SNSs in sharing knowledge and information among postgraduate students.

5.5.2.12 Tendency of hoarding knowledge

The tendency of hoarding knowledge was mentioned by 47(27.5%) of the postgraduate students and 12(40%) of the academic staff. The findings of the study indicated that some postgraduates had no willingness to make their knowledge and information available to others therefore, sharing of knowledge and information through SNSs among postgraduate students was affected because if students hoarding knowledge could agree to share knowledge and information they owned with others, it could enhance the utilisation of SNSs as the platform for exchanging knowledge and information.

The heads of academic department who were involved in interviews were asked to explain factors that affected the utilisation of SNSs in knowledge and information sharing among postgraduate students at the selected universities for the study. Participant HoD-1 remarked that:

There are students who are not good in language therefore they will try as much as they can to avoid using Social networking sites in knowledge and information sharing. A skill is another factor affecting the use of Social networking sites in knowledge and information sharing among postgraduate students at our university.

Participant HoD-2 had this to say:

If there is no internet connection then the whole process of knowledge and information sharing among postgraduate students will be affected. Another factor is cyber-bulling or Social networking sites bulling, if student is bulled by someone in Social networking sites that person will be discouraged to access or share knowledge through social networking sites. But, also security issues such as hacking, tempering of the firewalls may distort the entire process of knowledge and information sharing through social networking sites.

Participant HoD-3 articulated that:

The first factor affecting the use of social networking sites especially at the university level is the infrastructure. The available facilities do not support the use of social networking sites in sharing knowledge and information. Secondly, is lack of awareness among postgraduates themselves on multiple social networking sites that are in place which can be used for exchanging knowledge and information required for their

academic undertakings. Also, some postgraduate students are not sure of the authenticity of the information available through social networking sites.

Participant HoD-4 stated the following:

Lack of exposure and lack of networking among postgraduate students is amongst the factors affecting their ability to use social networking sites for sharing knowledge and information.

Participant HoD-5 stated that:

There are postgraduate students who lag behind in using social networking technologies or some are not active at the time when new knowledge and information is shared in the platform. Some postgraduate students are scared to use social networking sites with a fear that their information may be misused by other people for none intended purposes.

Participant HoD-6 explained that:

There are hindering factors on the use of SNSs among postgraduate students, one of it being internet connectivity because to access social networking sites postgraduate students as well as lecturers need internet connectivity. Lack of skills is another challenging factor for postgraduate students to use social networking sites in sharing knowledge and information because if one does not know the language used then it become difficult to access knowledge and information that may be needed. Power cut is another factor affecting the use of social networking sites and absence of electricity especially in remote areas. Some lecturers are also not interested to use social networking sites for academic matters thinking that it is wastage of time but other students are misusing social networking sites by visiting other sites which are not meant for academic purposes.

Participant HoD-7 explained that:

One thing which I would say is network connectivity, second is cost and personal attitudes of postgraduate students towards social networking sites.

Participant HoD-8 proclaimed that:

I can say there are several factors affecting the use of social networking sites for knowledge and information sharing among postgraduate students one of it being lack of trust on social networking among some students, some students have negative attitudes towards social networking sites while others they have considered the use of social networking sites for academic matters as the wastage of time. But, the major challenge is the internet connectivity around the university environment which affects easy accessibility of internet and the use of social networking sites in knowledge and information sharing among postgraduate students

The findings obtained from the interviews that were conducted with the heads of academic departments shows that unreliable internet connectivity, lack of trust, negative attitudes towards SNSs, cost involved in buying internet bundles, lack of skills, power cut problem, fear, lack of exposure, authenticity of knowledge and information obtained through SNSs, lack of facilities, lack of awareness, cyber-bulling, lack of security and language barrier as among the factors affecting the use of SNSs in knowledge and information sharing in the selected universities in Tanzania.

5.6 Level of usage of SNSs for knowledge and information sharing

The fifth objective determined the level of SNSs usage for knowledge and information sharing among the postgraduate students. This objective was addressed through four sub-sections. These include:

- (i) The frequency of using SNSs for knowledge and information sharing purposes
- (ii) The benefits of using SNSs for academic purposes,
- (iii) Attitudes of postgraduate towards SNSs as a platform for knowledge and information sharing and
- (iv) Postgraduate student's perceptions on the use of SNSs for knowledge and information sharing

Responses obtained from postgraduate student's respondents shows that 50(29.2%) used SNSs for knowledge and information sharing most often, followed by 85(49.7%) of respondents who used SNSs often while 30(17.5%) respondents occasionally used SNSs

for knowledge and information sharing purposes, 5(2.9%) respondents rarely used SNSs for knowledge and information sharing and 1(0.6%) of the respondents did not use SNSs at all as shown in Figure 5.6.

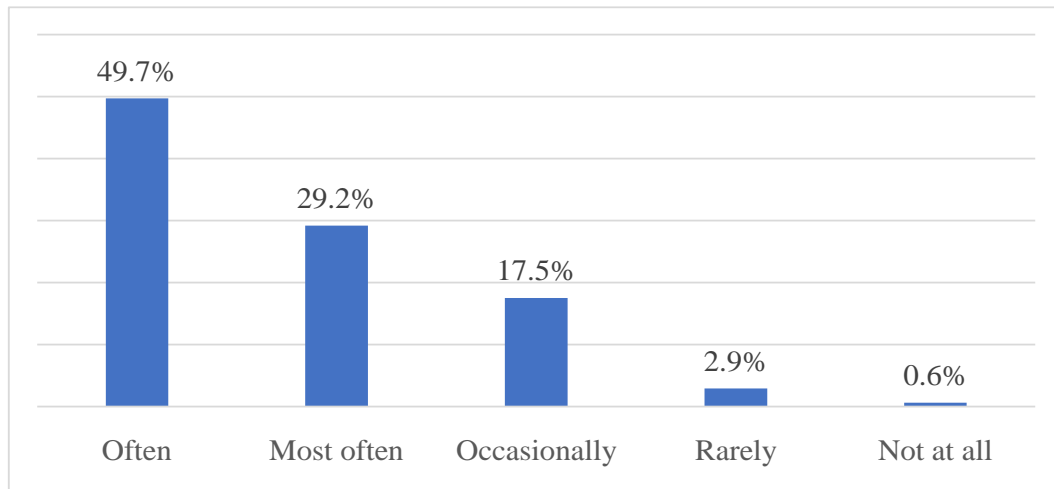


Figure 5.6: Frequency/level of using SNSs for knowledge and information sharing

The findings of the study obtained from academic staff indicated that 11(36.7%) mentioned that postgraduate students used SNSs for exchanging knowledge and information most often, 11(36.7%) indicated that SNSs were used often by the postgraduate students in giving and receiving information among their peers followed by 7(23.3%) who mentioned that postgraduate students used SNSs occasionally and 1(3.3%) stated that postgraduate students rarely use SNSs for donating and receiving knowledge and information as presented in Table 5.40.

Table 5.40: Level of usage of SNS for knowledge and information sharing

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Most often	11	36.7
Often	11	36.7
Occasionally	7	23.3
Rarely	1	3.3
Total	30	100.0

Findings from academic staff presented in Table 5.40 indicated that postgraduate students utilised SNSs frequently to access knowledge and information of their needs. The findings of the study confirmed that postgraduate students frequently used SNSs in

accessing knowledge and information because the majority of them possessed smartphones, tablets and personal laptops therefore, it was easy for them to search and access the information they want at a particular time.

5.6.1 Benefits of using SNSs for knowledge and information sharing

Postgraduate students were quizzed to indicate the benefits of using SNSs in their academic activities. 109(63.7%) of postgraduate students stated that it provided an avenue to meet other research scholars online, 136(79.5%) mentioned that it enabled them to increase their knowledge, 127(74.3%) established that it enhanced academic performance while 86(50.3%) were of the view that students felt comfortable to express their views were followed by 120(70.2%) of the respondents who stated that it enhanced timely communication, 104(60.8%) indicated that it enhanced relationships with other research scholars, 97(56.7%) established that it enhanced collaboration and peer to peer learning 103(60.2%) highlighted that it reduced the cost of accessing academic works 97(56.7%) mentioned that it helped them in generation of new knowledge, followed by 78(45.6%) of the respondents who stated that it strengthened individual wellbeing and self-esteem, whereas 2(1.2%) indicated that it provided quick access to information, quick response and spread of information, another 1(0.6%) mentioned that it enhanced time management in searching for information and 1(0.6%) of the respondents stated that it simplified the study as indicated in Table 5.41.

Table 5.41: Benefits of using SNSs in academic activities

Responses of postgraduate students		
Responses	N-171	Percentage
Enable to increase their knowledge	136	79.5%
Enhance academic performance	127	74.3%
Help in generation of new knowledge	121	70.8%
Enhance timely communication	120	70.2%
Provide an avenue to meet other research scholars online	109	63.7%
Enhance relationship with other research scholars	104	60.8%
Reduce the cost of accessing academic information	103	60.2%
Enhance collaboration and peer to peer learning	97	56.7%
Improve the quality of academic works	97	56.7%
Students feel comfortable to express their views through SNSs	86	50.3%
Strengthen individual wellbeing and self esteem	78	45.6%
Access and quick response and spread of knowledge and information	2	1.2%
Simplify the study	1	0.6%
Time management in searching for information	1	0.6%

Responses obtained from academic staff shows that 26(86.7%) of respondents mentioned that the use of SNSs for exchanging knowledge and information-enabled postgraduate students to increase their knowledge, followed by 25(83.3%) of the respondents who indicated that it helped postgraduate students in generating new knowledge, while 24(80%) reported that it provided avenues to meet other research scholars online, another 24 (80%) of the respondents stated that it reduced the cost of accessing academic information whereas 23(76.7%) mentioned that it enhanced relationships with other research scholars. 23 (76.7%) revealed that the use SNSs enhanced collaboration and peer to peer learning, 22(73.3%) indicated that it enhanced the academic performance of students while another 22(73.3%) reported that it enhanced timely communication followed by 22 (73.3%) of the respondents who indicated that it improved the quality of academic works, 18(60%) mentioned that the use of SNSs strengthened individual wellbeing and self-esteem and 15(50%) indicated that students felt comfortable to express their views through SNSs as presented in Table 5.42.

Table 5.42: Benefits of SNSs in academic activities

Responses of academic staff		
Responses	N-30	Percentage
Enable to increase their knowledge	26	86.7%
Help in generation of new knowledge	25	83.3%
Provide an avenue to meet other research scholars online	24	80.0%
Reduce the cost of accessing academic information	24	80.0%
Enhance relationship with other research scholars	23	76.7%
Enhance collaboration and peer to peer learning	23	76.7%
Enhance academic performance	22	73.3%
Enhance timely communication	22	73.3%
Improve the quality of academic works	22	73.3%
Strengthen individual wellbeing and self-esteem	18	60.0%
Students feel comfortable to express their views through SNSs	15	50.0%

Findings of the study from postgraduate students and academic staff summarised in Tables 5.40 and 5.42 revealed that the use of SNSs for exchanging knowledge and information among postgraduate students provided them with various benefits such as enhanced knowledge level and helped in the creation of the new knowledge it also, provided students with opportunities to meet with other online research scholars. The use of SNSs also reduced the cost of accessing academic information, enhanced relationships with other research scholars, it enhanced collaboration and peer to peer learning and it also improved the academic performance of the students and facilitated timely communication. The next sub-section discusses the benefits mentioned by postgraduate students, academic staff questionnaire respondents and interview participants.

5.6.2.1 Increased knowledge

The findings obtained from most of the postgraduate students 136(79.5%) and most of the academic staff 26(86.7%) indicated that the use of SNSs for knowledge and information sharing enabled postgraduate students to increase their knowledge base. The findings of the study indicated that the use of SNSs enabled postgraduate students in the selected universities in Tanzania to access various types of knowledge and information which also enabled them to enhance their knowledge level.

5.6.1.2 Enhanced academic performance

The findings of the study obtained from postgraduate students 127(74.3%) and 22(73.3%) academic staff revealed the use of SNSs for knowledge and information sharing had enabled postgraduate students to enhance their academic performance. The findings of the study indicated that the use of SNSs had enabled postgraduate students in the selected universities in Tanzania in accessing knowledge and information which helped them in handling their class assignments and other academic-related tasks. The use of SNSs also enabled postgraduate students in accessing knowledge and information related to academic purposes which have also enabled them in attaining better academic grades.

5.6.1.3 Creation of new knowledge

The findings presented in Tables 5.40 and 5.42 indicated that most 121(70.8%) of the postgraduate students and 25(83.3%) of the academic staff indicated that the use of SNSs for knowledge and information sharing helped in the creation of new knowledge and information at the selected universities. The findings indicated that the use of SNSs allowed postgraduate students to post various types of knowledge and information in the platform whereby postgraduate students gained new insights and experiences from the knowledge and information shared by their colleagues which enabled them to gain new understanding from their prior knowledge and has enhanced the creation of new knowledge and information that was used to enhance their academic achievement.

5.6.1.4 Enhanced timely communication

The majority of postgraduate students, 120(70.2%) and 22(73.3%) of academic staff indicated that the use of SNSs for knowledge and information sharing enhanced timely communication among students. The finding also indicated that timely communication among postgraduate students since the use SNSs allowed instant messaging once one is connected. The interview participants stated that with the use of SNSs postgraduate students were capable of communicating in a timely manner in case they needed help on the matters relating to their studies as well as other social issues.

5.6.1.5 Provide Avenue to meet other online research scholars

The findings of the study summarised in Tables 5.40 and 5.42 revealed that most of the postgraduate students' respondents, 109(63.7%) and 24(80%) of the academic staff indicated that the use of SNSs enabled postgraduate students to meet with other online research scholars. The findings of the study revealed that the use of SNSs had enabled postgraduate students to meet other online research scholars where they also requested help in matters relating to their academic studies. The interview participants stated that the use of SNSs had enabled postgraduate students to interact and form a friendship with other online research scholars pursuing similar or related programmes and consult them for help in case of difficulties.

5.6.1.6 Enhanced relationship with other online research scholars

As indicated in Tables 5.40 and 5.42 most of the postgraduate students' respondents 104(60.8%) and 23(76.7%) academic staff, indicated that the use of SNSs for knowledge and information sharing enhanced the relationship between postgraduate students and other online research scholars. The findings of the study established that the use of SNSs had enabled the interactions between postgraduate students and other online research scholars because students had been able to collaborate with other online research scholars in various issues relating to academics such as research. The interview participants stated that with SNSs students were able to share their research topics with the online research scholars and discover the methodologies that were also, deployed by others who are doing similar or related topics.

5.6.1.7 Reduced cost of accessing information

The findings obtained through questionnaire respondents revealed that 103(60.2%) of the postgraduate students and 24(80%) of the academic staff indicated that the use of SNSs in exchanging knowledge and information among postgraduate students reduced the cost of accessing information. The findings of the study indicated that with the use of SNSs the cost of accessing information has been eliminated because postgraduate students were no longer needed to visit libraries or internet cafes to access knowledge and information needed for their studies. Using their personal computers such as laptops, tablets and smartphones students were able to search and locate the information they needed hence, the cost for accessing knowledge and information has been reduced.

5.6.1.8 Enhanced collaboration and peer to peer learning

Most of the postgraduate students' respondents 97(56.7%) and 23(76.7%) of the academic staff indicated that the use of SNSs for knowledge and information sharing had enhanced the class involvement and peer to peer learning among postgraduate students. The findings further showed that SNSs has enabled collaboration among postgraduate students in education-related matters whereby a range of knowledge and information were shared to ensure the students completed their class assignments. The use of SNSs has also, enabled class participation among postgraduate students because they became active members of groups in sharing knowledge and information, they possessed to make sure they also had access to knowledge and information possessed by others.

5.6.1.9 Improved quality of academic works

One of the benefits offered by SNSs to postgraduate students is the improved quality of academic work. This was indicated by 97(56.7%) of postgraduate students and 22(73.3%) academic staff. The findings of the study indicated that the use of SNSs has enabled postgraduate students to improve the quality of their academic works such as class assignments, class presentations, research papers and theses as a result of access to knowledge and information from various sources which enabled them to add value to their academic works. The interview participants stated that access to various types of knowledge and information from various SNSs enabled postgraduate students to become information-rich and capable of making informed decisions in their studies.

5.6.1.10 Students feel comfortable to express their views through SNSs

The findings of the study obtained from postgraduate students, 86(50.3%) and 15(50%) of the academic staff indicated that postgraduate students felt free and comfortable expressing their views through SNSs rather than in a face-to-face classroom environment. The findings of the study established that some postgraduate students were shy and therefore, could not express themselves in front of others but, with SNSs students felt comfortable to express their views without hesitation.

5.6.1.11 Strengthen individual wellbeing and self-esteem

The findings of the study as indicated in Table 5.40 and 5.42 revealed that most of the postgraduate students 78(45.6%) and 18(60%) of the academic staff revealed that the use of SNSs among postgraduate students strengthened their wellbeing and self-esteem. The findings of the study confirmed that the use of SNSs for knowledge and information sharing has strengthened the well-being of postgraduate students and their self-esteem because it enhanced their value, happiness and comfort. Interview participants stated that the use of SNSs enabled them to become informed in different spheres of their lives which enabled them to live healthy lives.

5.6.1.12 Provide access and quick response

The findings obtained from a minority 2(1.2%) of postgraduate students' respondents indicated that the use of SNSs enabled the quick access of information and feedback among postgraduate students. The findings revealed that the use of SNSs enabled postgraduate students to access knowledge and information promptly and they were able to receive feedback on time because it is easier to respond online than the traditional print-based method.

5.6.1.13 Simplify the study

As indicated in Tables 5.40 and 5.42 postgraduate students 1(0.6%) indicated that the use of SNSs as a platform for knowledge and information sharing has facilitated the learning among postgraduate students. The findings of the study established that SNSs has enabled postgraduate students to access class notes and learning materials required for their studies and therefore, it has simplified the learning process.

5.6.1.14 Time management in searching for information

The findings of the study obtained from postgraduate students' respondents 1(0.6%) indicated that the use of SNSs enabled postgraduate students to search for information at any time they decide to do so. The findings indicated that the use of SNSs enabled postgraduate students to search for information and knowledge at any time they feel they are free to do so since plenty of materials are available online unlike visiting physical buildings of libraries for searching print materials where most of the libraries are closed during the night in the selected universities in Tanzania.

5.6.2 Attitudes of postgraduate students on the use of SNSs

The second sub-question of this study assessed the attitudes of postgraduate students towards the use of SNSs for knowledge and information sharing. This sub-question aimed at understanding the feelings of students regarding the use of SNSs which may, in turn, determine their frequency of using SNSs for knowledge and information sharing. The responses show that 80(46.8%) of postgraduate students had positive attitudes towards the use of SNSs for exchanging knowledge and information, followed by 78(45.6%) of respondents whose attitudes towards SNSs were positive and finally 13(7.6%) of respondents were neutral. Their responses are summarised in Table 5.43.

Table 5.43: Attitudes of postgraduate students on the use of SNSs

Responses of postgraduate students		
Attitude	Frequency (n=171)	Percentage
Very positive	80	46.8
Positive	78	45.6
Neutral	13	7.6
Total	171	100

Responses obtained from academic staff shows that 14(46.7%) agreed that postgraduate students had positive attitudes towards the use of SNSs followed by 13(43.3%) of respondents who indicated that postgraduate students had very positive attitudes towards the use of SNSs for donating and receiving knowledge and information and 3(10%) of the respondents were neutral as shown in Table 5.44.

Table 5.44: Attitudes of postgraduate students on the use of SNSs

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Positive	14	46.7
Very positive	13	43.3
Neutral	3	10.0
Total	30	100

Eight heads of academic department who participated in the study as interviewees were also asked to explain the attitudes of postgraduate students towards the use of SNSs in sharing knowledge and information.

Participant HoD-2 stated the following:

Postgraduate students have positive attitudes towards Social networking sites usage and they are collaborative because they use Social networking sites for academic purposes. Sometimes they use social networking sites platform as official forums for communications because not all postgraduate are full time students therefore, part time postgraduate students use social networking sites to share knowledge and information with their colleagues who are around the university to help each other. Sometimes we supervisors are brought on board to assist in some academic related issues including the use of social networking sites in knowledge and information sharing.

On the other hand, participant HoD-3 lamented that:

Frankly, speaking the attitudes of postgraduate students towards the use of social networking sites for knowledge and information sharing purposes is very negative.

Participant HoD-4 articulated that:

Students attitudes towards the use of social networking sites in knowledge and information sharing is moderate because of their level of study they are sometimes obliged to use them as one of the sources of accessing current literature.

Participant HoD-5 remarked that:

Majority of postgraduate students have positive attitudes towards the use of social networking sites in sharing knowledge and information because it helps them in accessing new knowledge and information needed in both academic and social lives.

Participant HoD-6 stated the following:

Most of postgraduate students have positive attitudes towards the use of social networking sites. They also like to know more about the social media and they are very positive on it.

Participant HoD-7 proclaimed that:

I am not sure because I do not focus much to assess their attitudes towards the use of social networking sites for knowledge and information sharing purposes.

Participant HoD-8 stated that:

I would say postgraduate students at our university have developed positive attitudes towards social networking sites as a result of the benefits they get out of them including accessing academic information which enable them to do their academic assignments.

Based on the interview, it was evidenced that postgraduate students at the selected universities for the study had developed positive attitudes towards the use of SNSs for exchanging knowledge and information among their colleagues and their lecturers.

5.6.3 Perceptions of postgraduate students on the use of SNSs

The third sub-question of the study examined perceptions of postgraduate students towards the use of SNSs for knowledge and information sharing at the selected universities. The purpose of this third sub-question was to determine how perceptions of postgraduate students towards SNSs determined their level of usage. Responses show that 101(59.1%) of postgraduate student respondents had perceived the use of SNSs to be very useful followed by 61(35.7%) respondents who perceived that SNSs were useful, whereas 6(3.5%) respondents were neutral and 1(0.6%) mentioned that SNSs were perceived not to be useful and 2(1.2%) respondents perceived SNSs to be useless as shown in Table 5.45.

Table 5.45: Perceptions of postgraduate students on the use of SNSs

Responses of postgraduate students		
Perception	Frequency (n=171)	Percentage
Very useful	101	59.1
Useful	61	35.7
Neutral	6	3.5
Not useful	2	1.2
Useless	1	0.6
Total	171	100

Responses obtained from academic staff shows that 14(46.7%) accepted that postgraduate students had perceived SNSs to be useful for exchanging knowledge and information, 12(40%) indicated that postgraduate students had perceived SNSs to be very useful for knowledge donating and collecting and 4(13.3%) mentioned that they were neutral as indicated in Table 5.46.

Table 5.46: Perceptions of postgraduate students on the use of SNSs

Responses of academic staff		
Response	Frequency (n=30)	Percentage
Useful	14	46.7
Very useful	12	40.0
Neutral	4	13.3
Total	30	100

Findings of the study obtained from members of academic staff, 14(46.7%) and 101(59.1%) postgraduate students revealed that postgraduate students perceived the use of SNSs to be useful because of the benefits they gained from them.

The heads of academic departments who were involved in interviews were quizzed to explain the perceptions of postgraduate students towards SNSs as platforms for knowledge and information sharing.

Participant HoD-1 stated the following:

Postgraduate students have perceived the use of Social networking sites in knowledge and information sharing to be very useful because they can now access knowledge and information they want for their academic purposes at any place without limitation caused by distance or need of physical visit to libraries and other information centers as long they have bundles in their smart-phones.

In agreement with the above participant HoD-2 had this to say:

Mostly they perceive it to be very useful, they real agree that Social networking sites is very useful especially during the outbreak of COVID-19 that has brought us to a state where the use of social networking sites has been very much valued especially in official communications and postgraduate training because the postponement of classes and meetings with students it means the only opportunity we have is the social networking platform for sharing knowledge and information. Someone in one country and studying in other country can do presentation without physically being there with the use of social networking sites.

Participant HoD-3 remarked that:

Postgraduate students perceived the use of social networking sites to be useful especially when they need to access knowledge and information required for their academic purposes. But, their use of social networking sites is caused by pressure from their lecturers especially when they ask all postgraduate students to do independent study or once there is no handout given for them to read.

In consensus with HoD-3 participant HoD-4 stated that:

Postgraduate students perceive the use of social networking sites to be very useful because at their level the ownership of academic work is at individual level unlike undergraduate students. The learning is centered at individual postgraduate students so they have to use various social networking sites to produce quality academic works.

In supporting what have been said by HoD-2, participant HoD-5 proclaimed that:

The perception of postgraduate students on the use of social networking sites is very useful especially during the outbreak of Corona Virus (COVID-19) where studies have been postponed and Universities were closed. Therefore, lectures, seminars and presentations were conducted through social networking sites such as Zoom, Microsoft Teams, Moodle and other virtual learning technologies.

Participant HoD-6 articulated that:

They find it useful for sharing information because they are required to share knowledge and information through social networking sites and therefore they are exposed, it is something they like and use them for sharing various academic information, they also use social network in communication among themselves.

Participant HoD-7 affirmed that:

For learning I can say they perceive social networking sites to be useful because it is the best way for them to learn and share knowledge and information needed for their academic purposes.

Participant HoD-8 elaborated that:

Postgraduate students have perceived the use of social networking sites in knowledge and information to be very useful because now they do not need to visit the physical building of the library to access knowledge and information of their need, they simply navigate various social networking sites through their smart phones to access them.

Based on the findings obtained from the interviews it is obvious that postgraduate students at the selected universities of the study had perceived the use of SNSs for knowledge and information sharing to be very useful as a result of the benefits that SNSs offer to them. The following benefits were mentioned timely access of information, reducing the cost of accessing information, also distance factor in accessing knowledge and information has been eliminated.

5.7 Strategies to enhance the use of SNSs at the Universities in Tanzania

Objective six of the study required respondents to provide means through which the use of SNSs for knowledge and information sharing at the university could be enhanced. Table 5.47 presents the responses of which 125(73.1%) of postgraduate students indicated that the university should put in place ICT facilities to facilitate the use of SNSs for knowledge and information sharing followed by 115(67.3%) respondents who mentioned that Universities should formulate policies to guide SNSs usage, 116(67.8%) indicated that university should offer training on the use of SNSs while, 102(59.6%) respondents were of the view that awareness campaign are needed to market the usage of SNSs for knowledge and information sharing 113(66.1%) indicated that there should be a reliable internet around the Universities whereas 79(46.2%) of respondents stated that a knowledge sharing culture should be inculcated among postgraduate students, followed by 83(48.5%) who mentioned that stable power generators should be in place while, 88(51.5%) suggested that university management should provide support towards integration of SNSs, 88(51.5%) of respondents indicated that the tendency of hoarding knowledge should be abandoned while 65(38.0%) of respondents indicated that security issues should be considered to protect users of the SNSs, 60(35.1%) of the respondents suggested that incentives and rewards should in place to promote SNSs usage and 77(45.0%) indicated that trust should be ensured among the SNSs users.

Table 5.47: Strategies to enhance the use of SNSs at the Universities in Tanzania

Responses of postgraduate students		
Response	N-171	Percentage
University should put in place ICT facilities to facilitate the use of SNS for Knowledge Sharing	125	73.1%
University should offer training on the use of SNSs	116	67.8%
University should formulate policies to guide SNSs usage	115	67.3%
There should be a reliable internet around the university	113	66.1%
Awareness campaigns are needed to market the usage of SNS for KS	102	59.6%
University management should provide support towards integration of the SNS	88	51.5%
Security issues should be considered to protect users of the SNSs	86	50.3%
Stable power or generators should be in place	83	48.5%
Knowledge sharing culture should be inculcated among postgraduate students	79	46.2%
Ensure trust among the SNSs users	77	45.0%
Tendency of hoarding knowledge should be abandoned	65	38.0%
Incentives and rewards should be in place to promote SNSs usage	60	35.1%

Responses obtained from academic staff regarding the strategies towards improving knowledge and information exchange in the selected universities shows that 27(90%) of the respondents recommended that there should be a reliable internet around the Universities, followed by 24(80%) of the respondents who recommended that Universities should formulate policies to guide the use of SNSs, 23(76.7%) of the respondents indicated that Universities should offer training on the use of SNSs, 22(73.3%) of the respondents recommended that awareness campaigns are needed to market the utilisation of SNSs, 21(70%) of the respondents pointed out that Universities should put in place ICT facilities to facilitate the use of SNSs, 21(70%) of the respondents recommended that a knowledge sharing culture should be inculcated among postgraduate students followed by 20(66.7%) of the respondents who recommended that stable power or generators should be in place while 19(63.3%) of the respondents stated that trust has to be ensured among SNSs users, 18 (60%) of the respondents recommended that security issues should be considered to protect users of the SNSs, 17(56.7%) of the respondents indicated that Universities' managements should support

the use of SNSs, 15(50%) of the respondents stated that the tendency of hoarding knowledge should be abandoned and 14(46.7%) of the respondents recommended that incentives and rewards should be in place to promote SNSs usage as summarised in Table 5.47.

Table 5.48: Strategies to enhance the use of SNSs at the Universities in Tanzania

Responses of academic staff		
Responses	N-30	Percentage
There should be a reliable internet around the university	27	90.0%
University should formulate policies to guide SNSs usage	24	80.0%
University should offer training on the use of SNSs	23	76.7%
Awareness campaigns are needed to market	22	73.3%
University should put in place ICT facilities to facilitate the use of SNS for Knowledge Sharing	21	70.0%
Knowledge sharing culture should be inculcated among postgraduate students	21	70.0%
Stable power or generators should be in place	20	66.7%
Ensure trust among the SNSs users	19	63.3%
Security issues should be considered to protect users of the SNSs	18	60.0%
University management should provide support towards integration of the SNS	17	56.7%
Tendency of hoarding knowledge should be abandoned	15	50.0%
Incentives and rewards should be in place to promote SNSs usage	14	46.7%

The findings obtained from postgraduate students in Table 5.47 and that provided by academic staff in Table 5.48 and responses from interviews provided the particular ways in which the goal of utilising SNSs for knowledge and information sharing in the universities in Tanzania can be achieved. The next sub-section provides a discussion of every strategy proposed by the questionnaire respondents and interview sessions.

5.7.1 ICT facilities to support the use of SNSs for knowledge and information sharing

The majority of postgraduate students, 125 (73.1%) and 21(70%) of academic staff indicated that ICT facilities need to be in place to support the use of SNSs at the universities. They suggested that enough ICT facilities are to be put in place because at the moment the available ICT facilities were not functioning properly while at other

universities the available number of ICT facilities such as computers did not match with the current number of the enrolled postgraduate students. Therefore, to achieve knowledge and information sharing in universities enough ICT facilities need to be in place.

5.7.2 Training on the use of SNSs

Training provides individuals with abilities to do something. Findings obtained from 116(67.8%) postgraduate students and 23(76.7%) of academic staff proposed that the Universities should offer training to the postgraduate students to enable them to utilise SNSs for knowledge and information sharing purposes. They indicated that training enables the transfer of knowledge and skills on how to do things properly, therefore, Universities should think of putting in place training sessions to equip postgraduate students with knowledge and skills of using SNSs for exchanging knowledge and information.

5.7.3 Formulation of policies to guide the use of SNSs

Policies provide the guidelines on how to do something in a proper way. Findings obtained from 115(67.3%) of the postgraduate students and 24(80%) of the academic staff revealed that there was a need for Universities to formulate policies that would provide the guidance on the proper use of SNSs among postgraduate students while sharing knowledge and information. The findings of the study showed that postgraduate students were using SNSs for the purpose of accessing knowledge and information needed for their studies but, there is no specific policy which directly demands them to use SNSs for the purpose of knowledge and information sharing at the Universities.

5.7.4 Reliable internet connectivity around Universities

Availability of internet connectivity around Universities facilitates knowledge and information sharing among postgraduate students. Findings obtained from 113(66.1%) postgraduate students and 27(90%) of the academic staff revealed that for Universities to achieve efficiency in knowledge and information sharing through SNSs there should be the availability of reliable internet connectivity. The findings established that sharing of knowledge and information using SNSs needs reliable internet connectivity around the Universities because the absence of reliable internet affected the utilisation of the SNSs in accessing knowledge and information among postgraduate students.

5.7.5 Awareness campaign to promote the use of SNSs

Awareness is making someone informed on something. The findings from 102(59.6%) postgraduate students and 22(73.3%) academic staff revealed that to attain efficient knowledge and information sharing through SNSs the Universities should plan to put in place awareness campaigns to make sure all postgraduate students are aware of the use of SNSs for exchanging knowledge and information. The findings of the study indicated that respondents were of the view that Universities need to create awareness among postgraduate students to ensure that they become aware of the use of SNSs in exchanging knowledge and information. The findings from the respondents indicated that putting awareness campaigns at Universities will enable more postgraduate students to become aware and start utilising SNSs for accessing knowledge and information that will also help them in their studies.

5.7.6 Management of Universities should provide support in adoption and use of SNSs

Universities' top management plays significant roles in the development and achievement of the vision and mission of the Universities. The Findings obtained from 88(51.5%) postgraduate students and 17(56.7%) academic staff indicated that they thought that the management of Universities should offer support to ensure the adoption and use of SNSs to facilitate knowledge and information sharing among postgraduate students. The respondents recommended that management of universities should provide support towards ensuring SNSs are integrated and used to facilitate the exchange of knowledge and information among the postgraduate students.

5.7.7 Security issues to protect SNSs users

Security is the major concern of most users of SNSs because any form of misuse can lead to harm. Findings obtained from 86(50.3%) of the postgraduate students and 18(60%) of the academic staff indicated that Universities should ensure the security of the SNSs users to attain effective knowledge and information sharing among postgraduate students in Universities. The findings obtained through questionnaires further recommended that Universities should make every possible means to protect the security including the privacy of the SNSs users to attract more postgraduate students to utilise SNSs for knowledge and information sharing purposes and enhance their academic achievement.

5.7.8 Stable power generators should be in place

The problem of power cuts may be solved by the presence of stable power generators in Universities. The findings obtained from 83(48.5%) of postgraduate students and 20(66.7%) of the academic staff indicated that for Universities in Tanzania to achieve the effective utilisation of SNSs for knowledge and information sharing there is a need to put in place stable power generators. The findings of the study established that the problem of internet connectivity may affect the utilisation of SNSs for knowledge and information sharing purposes therefore, Universities should strive to ensure stable power generators are in place in case of power cut problem.

5.7.9 Knowledge and information sharing culture should be inculcated among postgraduate students

Findings obtained in Tables 5.47 and 5.48 indicated that 79(46.2%) of postgraduate students and 21(70%) of the academic staff mentioned that Universities should inculcate the culture of knowledge and information sharing among postgraduate students to attain efficient knowledge and information sharing at the Universities. Findings of the study obtained through questionnaires indicated that for Universities to achieve knowledge and information sharing through SNSs culture of sharing knowledge and information should be instilled among the postgraduate students.

5.7.10 Ensuring trust among SNSs users

Findings obtained from postgraduate students 77(45%) and 19(63.3%) of the academic staff, indicated that to achieve effective utilisation of SNSs for knowledge and information sharing among postgraduate students there should be trust among the SNSs users. The findings of the study revealed that lack of trust among postgraduate students affected the use of SNSs in knowledge and information sharing therefore, lecturers and the university management should develop trust among the SNSs' users that their information is safe and secure. Trust may be ensured by providing training to the postgraduate students on the proper use of SNSs by informing them how to use the obtained information ethically. Doing so may influence more postgraduates to trust their group members who therefore may be willing to share knowledge and information they own.

5.7.11 Tendency of hoarding knowledge should be abandoned

The tendency of hoarding knowledge refers to the situation whereby some people are not willing to make their knowledge available to others. This was indicated by 65(38%) of the postgraduate students and 15(50%) of the academicians' respondents. The findings obtained indicated that the tendency of hoarding knowledge among some of the postgraduate students affected the effective knowledge and information sharing through SNSs. The findings of the study further established that postgraduates who were not willing to share knowledge and information they owned affected the utilisation of SNSs because students depended on SNSs for sharing knowledge and information.

5.7.12 Incentives and rewards should be offered to promote the use of SNSs

Findings of the study in Tables 5.47 and 5.48 indicated that 60(35.1%) of the postgraduate students and 14(46.7%) of academic staff established that Universities' management should provide incentives and reward to the students to promote the use of SNSs for knowledge and information sharing purposes. The findings suggested that Management of universities should offer incentives and rewards to the postgraduate who frequently and effectively use SNSs for sharing knowledge and information.

All interview participants who were involved in this study were asked to provide strategies towards ensuring effective knowledge and information sharing through SNSs among postgraduate students. Strategies that were mentioned by the interview participants towards achieving knowledge and information sharing through SNSs among postgraduate at the selected universities for the study included need for reliable internet connectivity around the Universities, formulation of stand alone policy that will guide the use of SNSs, putting in place ICT facilities to support the use of SNSs, motivation, top Universities officials support, putting in place monitoring mechanism, conducting orientation to postgraduate students on the use of SNSs, need for lecturers to adopt the modern technology methods in teaching including the use of SNSs, students should be exposed to SNSs usage, registration to various SNSs to provide access to knowledge and information among postgraduate students and changing the attitudes towards SNSs usage in knowledge and information sharing. Word cloud was used to display all strategies that were mentioned by interview participants as shown in figure 5.7.



Figure 5.7: Strategies to enhance the use of social networking sites

During interview, participant HoD-1 had this to say:

Various measures can be taken by the university management to ensure the use of Social networking sites in knowledge and information sharing among postgraduate students is attained at the university including providing training on the use of Social networking sites, ensuring the availability of the reliable internet connectivity around the university, provision of support on the use of Social networking sites and putting in place monitoring mechanism.

Participant HoD-2 stated the following:

There is no limit to new knowledge therefore; training should be offered on continuous basis because these social networking sites keep changing day after day. Another important issue is orientation to postgraduate students on what content they can share and what should not be shared through social networking sites. For Universities, aspect of connectivity is very important because if there is no stable connection then sharing of knowledge and information won't be there but, if students are on the campus and there is connectivity there is possibility that the sharing of knowledge and information will improve. Also, the change in attitude towards the use of social networking sites among academic staff and postgraduate students may accelerate the use of Social networking sites in knowledge and information sharing at the university.

Participant HoD-3 remarked that:

I think as the university we need to transform from the normal or traditional lecturing methods to technologically driven methods including using social networking sites in facilitating learning among postgraduate students. We also, need to have social networking sites policy in place that will guide the proper use of social networking sites in knowledge and information sharing.

Participant HoD-4 proclaimed that:

I think one of the measures is to have postgraduate students exposed to share knowledge with their colleagues on the use of various social networking sites. Secondly, there should be the availability of the reliable internet connectivity around the university premises. Additionally, registration to various social networking sites that are known worldwide to provide postgraduate students with access to knowledge and information needed for their academic activities.

Participant HoD-5 articulated that:

The university should invest buying of ICT resources to facilitate the utilisation of social networking sites in knowledge and information sharing among postgraduate students. Secondly, awareness should be created among postgraduate students to promote the utilisation of social networking sites in academic related issues. Finally, postgraduate students should be ready to attend training sessions that will be organised by the university to equip themselves with the skills of using social networking sites for their academic issues.

Participant HoD-6 affirmed that:

There are several issues that the university has to do including improving internet connectivity to facilitate the use of internet in accessing social networking sites. Also, there is a need to increase awareness of postgraduate students and improve their skills on the use of social networking sites for knowledge and information sharing. The old lecturers should be given seminars so that they may continue using social networking sites with postgraduate students.

Participant HoD-7 had this to say:

One I would say that there should be the policy which requires every postgraduate student to participate in social networking sites. Secondly, all lecturers should make use of social networking platform, another thing that needs to be done is to improve internet connectivity and there should also be motivation for students who fully participated in social networking sites to share knowledge and information with others, this will automatically attract other postgraduate students to use social networking sites.

Participant HoD-8 articulated that:

The first measure I would suggest is that there is a need to put in place social networking sites policy to guide its proper use in knowledge and information sharing, but the university management should improve internet connectivity to facilitate the use of social networking sites in knowledge and information sharing among postgraduate students, finally training should be offered to impart skills to postgraduate students on how best they can use social networking sites for their academic purposes.

5.8 Chapter summary

The chapter discussed and interpreted the findings of the study to provide readers with a comprehensive understanding of the collected data. The study indicated that postgraduate students from the selected universities preferred to share various types of knowledge and information such as conceptual, procedural, explicit, declarative and metacognitive since they had work experiences and different information needs. The use of SNSs in exchanging knowledge and information has become part and parcel of the university lives among postgraduate students as a result of the benefits they gained such as quick access to information, cost reduction in accessing information, and enhanced academic performance. Postgraduate students were willing to exchange knowledge and information among themselves with expectations that they would be able to access knowledge owned by others to help them in their studies. The study also established that the selected universities for the study had no stand-alone policies on the SNSs usage that compromised their utilisation in exchanging knowledge and information among postgraduate students.

Most postgraduate students in the selected universities in Tanzania possessed skills of using SNSs in exchanging knowledge and information since most of the SNSs do not require intensive training to learn how to use them. Various factors influenced postgraduate students in Universities in Tanzania to use SNSs for their education as well as social purposes including the need for interaction, motivation, presence of technology, educational compatibility, trust, attitudes towards SNSs, personal expectations, university culture, perceived ease of use, perceived usefulness, skills, management support and policy requirements. Some factors that limited the utilisation of SNSs in exchanging knowledge among postgraduate students in Universities in Tanzania were identified such as unreliable internet, lack of training, absence of the required ICT facilities or technology, lack of skills, insecurity, unreliable power sources, absence of knowledge sharing culture, lack of trust, lack of awareness on the use of SNSs, absence of SNSs usage policies, lack of management support and the tendency of hoarding knowledge.

Various strategies of improving the use of SNSs for knowledge and information sharing among postgraduate students at the selected universities in Tanzania were pointed out including need for reliable internet connectivity around the Universities, formulation of stand alone policy that will guide the use of SNSs, putting in place ICT facilities to support the use of SNSs, motivation, top Universities officials support, putting in place monitoring mechanism, conducting orientation to postgraduate students on the use of SNSs, need for lecturers in adopting the modern technology methods in teaching including the use of SNSs, students should be exposed to SNSs usage, registration in various SNSs and changing the attitudes towards SNSs usage in knowledge and information sharing.

CHAPTER SIX

DISCUSSION OF THE RESEARCH FINDINGS

6.1 Introduction

Chapter Five of this study presented the findings of the study which is in line with the objectives of the study. This chapter discusses and interprets key findings as per the objectives outlined in Chapter 5. This study adopted MMR, thus discussion and presentation of findings emanated from multiple perspectives from both quantitative and qualitative data to provide a comprehensive understanding of the problem under investigation. This is in line with Creswell and Plano Clark (2018:44) who affirm that "The core assumption of this form of inquiry is that the integration of qualitative and quantitative data yields additional insights beyond the information provided by either quantitative or qualitative data alone". Mixing the two or more methods in one study produces well-focused research and enhances robust findings. It is also regarded as pluralism that ignores the use of a single approach in a study as pragmatic researchers suggest (Ngulube and Ngulube 2015:3; Kaushik and Walsh 2019:3; Cohen, Manion and Morrison 2018). The discussion of the findings is based on the objectives of the study as outlined in section 1.3.1 of Chapter One.

6.2 Types of knowledge and information shared through SNSs

The first objective of the study was to identify types of knowledge and information shared among postgraduate students through SNSs. This objective was addressed through six sub-headings including types of preferred knowledge to be shared among the postgraduate students through SNSs, awareness of postgraduate students on SNSs usage, knowledge and information sharing practices in the selected universities, ways used to create knowledge and information in the selected universities, willingness of postgraduate students in sharing knowledge and information, and preferred SNSs for knowledge and information sharing. The detailed discussion is presented in the next sub-headings.

6.2.1 Types of knowledge and information preferred to be shared through SNSs

In responding to the first objective of the study, questionnaires were used to collect data from postgraduate students and academic staff. Interviews were used to collect data from the heads of academic departments of the respective Universities. The results

established that 81(47.4%) of postgraduate students in the selected universities in Tanzania preferred to share conceptual and procedural knowledge. While the majority of academic staff 23(76.7%) indicated that postgraduate students preferred to share conceptual knowledge through SNSs. In tandem the interviews with all heads of academic departments (8, 100%) revealed that postgraduate students preferred to share not only conceptual and procedural knowledge but also other types of knowledge such as declarative, metacognitive, tacit, explicit, and social–related knowledge because of their level of education and experiences. This study established that postgraduate students preferred to share conceptual, procedural, declarative, metacognitive, tacit, explicit, and social–related knowledge through SNSs. This is because of their level of education, experiences and requirements of their studies.

The results concur with the study carried out in Nigeria by Aligba and Abur (2018:7) which found that procedural and conceptual knowledge are important to students for them to attain better academic performance. Adeyemi and Ciske (2017:49) reported that collaborative learning such as using SNSs in sharing knowledge and information facilitates the acquisition of knowledge among students. The study conducted by Nahdi and Jatisunda (2020:3) found that it is essential for the students to develop competency in conceptual and procedural knowledge for them to be able to understand procedures and explain various concepts in a given discipline or context.

The findings of the study agree with SECI model by Nonaka and Takeuchi (1995) which states that new explicit knowledge is created by consulting other explicit knowledge such as documents, meetings, telephone conversation or computerised communication networks. In the context of this study, this was achieved through creating and sharing content in SNSs' platforms and accessing other materials available online. Thus, postgraduate students shared various types of knowledge and information depending on their need and time because most of them were coming from various working places. Therefore, they shared knowledge, information and experiences from different settings.

6.2.2 Awareness of postgraduate students on SNSs' usage

This section addresses objective one on the awareness of the postgraduate students on knowledge and information sharing concepts. Chikono (2018:30) opines that awareness of the knowledge and information sharing concepts among individuals in institutions can promote the sharing and creation of new knowledge to build the knowledge base of the institutions. The study findings established that the majority of postgraduate students had awareness of the concepts of knowledge and information sharing. This was indicated by a majority of the heads of departments who were interviewed (6, 75%) and 29 (96.7%) of academic staff who agreed that postgraduate students had awareness of the knowledge and information sharing concepts. The findings are slightly similar to the study done by Chikono (2018:61) in Zambia who found that students had a certain degree of awareness on knowledge and information sharing concepts but, contrary to the study conducted in Tanzania by Charles and Nawe (2013:57) which found that the majority of University students had no awareness of knowledge and information sharing concepts.

The findings of the present study implied that the majority of postgraduate students developed awareness on knowledge and information sharing concepts to ensure they access knowledge and information related to their studies and lives. Additionally, postgraduate students' awareness on knowledge and information sharing concepts had been enhanced by new technologies. In reciprocal, lecturers adapted the use of SNSs to share knowledge and information with their postgraduate students for ease teaching and learning processes.

The findings of the study are in agreement with the TAM 2 model which states that social factors may influence the actual individual use of the technologies. Social factors including advocacy efforts, education and training on the use of SNSs in Universities enhanced the awareness level of postgraduate students. The interactions among postgraduate students through SNSs enabled them to share knowledge and information relating to social, educational, economic and political aspects. Therefore, the interactions led by daily use of SNSs for various academic and social issues enhanced levels of awareness of postgraduate students.

6.2.3 Knowledge and information sharing practices in Universities

This section discusses knowledge and information sharing practices of postgraduate students at selected universities in Tanzania. Solek-Borowska (2015:136) affirms that since years back the function of Universities was to create and share knowledge and information with learners. Nunes, Kanwal, and Arif (2017:3) hold that Universities play a great role to facilitate knowledge creation and sharing. On the other hand, Rosaline and Kehinde (2014:102) affirm that Universities regard knowledge as an important asset and they put much effort to ensure knowledge creation and sharing to generate new knowledge.

The adoption of technologies has changed the roles of Universities to accommodate other roles in life including engaging public-private partnerships. Therefore, technology-driven systems are important institutional asset to ensure competitiveness towards knowledge creation and sharing. The findings show that the majority of postgraduate students 152(88.9%), 22(73.3%) of academic staff and interview findings from a majority of heads of academic departments (5, 62.5%) revealed that knowledge and information sharing was practised at their respective Universities.

The findings are supported by the study conducted in Tanzania by Maiga (2017:146) which found that Universities played a major role in areas of knowledge, information creation and dissemination to ensure their competitive advantages. Thus, the Universities in Tanzania were fulfilling their core roles of practising knowledge and information sharing as a strategy of ensuring Universities are place for knowledge creation and information sharing.

6.2. Strategies used to create and share knowledge and information in Universities

This sub-heading sought at examining the strategies through which knowledge and information were created and shared at the selected universities in Tanzania. Mushonga (2014:22) avers that SNSs is the common platform used by the community to share knowledge and information. This study established that 44(27.5%) of the postgraduate students created and shared knowledge and information through education. Whilst, the findings obtained from 17(56.7%) academic staff indicated that knowledge was created and exchanged through collaboration. The findings obtained from the interviews from the majority of heads of academic departments (7, 87.5%) indicated that community of

practice, interaction; education and collaboration were all used as a means of knowledge creation and sharing among postgraduate students in the selected universities in Tanzania.

The study also revealed four methods commonly used for knowledge and information creation and sharing among postgraduate students in the selected universities in Tanzania. These include the community of practice, collaboration, interaction and education as presented in Table 5.15 and 5.16 of Chapter 5. The results are similar to a study conducted in Tanzania by Maiga (2017:176) which found that Universities deployed methods to ensure knowledge and information creation and sharing. These methods include the use of online and printed, radio and television, public lectures such as during Mwalimu Nyerere Memorial Day and inter-university collaboration.

6.2.5 Willingness of postgraduate students in sharing knowledge and information

This section discusses the willingness of postgraduate students to share knowledge and information they possess. A majority of postgraduate students 168 (98.8%) were willing to share knowledge and information with their friends and colleagues followed by 29(96.7%) of the academic staff who indicated that postgraduate students were willing to share knowledge and information among themselves. The findings obtained from the majority of interviews with (5, 62.5%) heads of departments revealed that postgraduate students were willing to share and gain knowledge and information.

The study established that postgraduate students were willing to share knowledge and information they owned. This was influenced by the benefits they expected to gain out of that specific knowledge and information. The benefits include access to knowledge and information in need to become information rich, to attaining better academic grades, excelling in their academic career, enhanced ability to solve various academic-related matters, making informed decisions, and strengthening their knowledge base. The present study also, established that some postgraduate students were not willing to share their knowledge and information to others fearing of security and privacy.

The findings of the study are in accordance with the TAM 2 model which states that job relevance, output quality and voluntariness that make a direct contribution to perceived usefulness. In the context of this study, job relevance is directly linked to the benefits of using SNSs in sharing academic-related knowledge and information including timely access to knowledge and information. Whilst, output quality is associated with the ability of students to access knowledge and information which would enable them to produce quality academic works such as research works, projects and class assignments. Voluntariness is linked with the perceived usefulness of the SNSs for exchanging knowledge and information required by postgraduate students in their academic career paths.

6.2.6 Reasons for willingness to share knowledge and information among postgraduate students

The study probed the reasons for the willingness of postgraduate students to share knowledge and information. The majority of postgraduate students 112(65.5%) reported that they shared knowledge and information among themselves because it was the University culture to do so. Furthermore, the findings presented in Table 5.19 and Table 5.20 of Chapter 5 indicated that amongst the reasons for the willingness of postgraduate students to share knowledge and information included possession of skills, motivation, trust, organisational support, self-efficacy and policy requirements.

The findings were also corroborated by findings from academic staff 29(96.7%) who affirmed that postgraduate students were willing to share knowledge and information they owned for the purpose of experiences sharing. Other reasons for their willingness to share knowledge and information included self-efficacy, recognition, to grow academically, to find better ways of doing things, to build collective knowledge, and to fill their knowledge gaps. The findings were also supported by interviews with heads of academic departments whom most of them (5, 62.5%) agreed that postgraduate students were willing to share knowledge in order to grow academically, to attain better academic grades, self efficacy, to fill their knowledge gaps and for recognition.

However, there are other factors that determine sharing of knowledge and information. Njiraine (2019:87) claims that knowledge sharing in Universities depends on factors such as individual readiness, (motivation), and organisation culture. Similarly, Chikono

(2018:15) argues that in the University context, knowledge and information sharing is determined by the willingness of individuals (intrinsic factor) aided by rewards and other incentives (extrinsic factors). A study done by Jean (2017:22) reported that African students were willing to exchange knowledge and information with Chinese students especially in research with the hope of producing quality research outputs. Another study conducted in India by Areekkuzhiyil (2016) found that the willingness of the people is the most important factor that accelerates the sharing of knowledge and information in Universities. It can be best achieved once people are not forced to share knowledge and information they possess.

6.2.7 Preferred SNSs in knowledge and information sharing

This section discusses objective number one which requires postgraduate students to mention their preferred SNSs for sharing various types of knowledge and information. The study findings as presented in Chapter 5 of the study established that a majority 130 (76.0%) of postgraduate students preferred to share knowledge and information with classmates, 122(71.3%) preferred WhatsApp, and 103(60.2%) mentioned ResearchGates. Findings from academic staff indicated that 25(86.2%) mentioned WhatsApp as the most used SNSs among postgraduate students in exchanging knowledge and information. The findings from the questionnaires were corroborated by most of the interview participants (7, 87.5%) who indicated that the majority of postgraduate students preferred to use WhatsApp for sharing various kinds of knowledge and information. In general, postgraduate students at the selected universities in Tanzania used SNSs such as classmates, Facebook, and ResearchGate. But, WhatsApp is the most common one because almost every postgraduate student is a member of WhatsApp group formed for a particular purpose.

Similar results were observed by a study conducted in Ghana by Takramah, Akaadom and Anagbonu (2020:36) which found that the majority of students preferred to use SNSs that are useful for learning such as WhatsApp. Another study conducted in Nigeria by Nwabueze and Aduba (2014) found that the most used SNSs by students are Facebook, WhatsApp, Blackberry messenger and Myspace. The findings are in agreement with the TAM 2 model by Davis (1989) which states that perceived usefulness and perceived ease of use determine the actual use of technology by an individual.

Therefore, SNSs' usefulness and ease to use determine the usability part. That is to say, the use of SNSs technology by postgraduate students was influenced by their perceptions that SNSs are useful and using them did not require much effort in facilitating academic-related tasks. The study also revealed that the majority of postgraduate students owned smartphones hence they were not required to visit the internet cafes or libraries to access information and knowledge of their needs.

6.2.8 ICT facilities available at Universities to facilitate the use of SNSs

This sub-heading addresses the first objective of the study that established types of ICT facilities available at the selected universities to facilitate knowledge and information sharing through SNSs. Omona, Van der Weide and Lubega (2010:84) assert that to attain effective knowledge and information management through ICT in Universities, stakeholders need to be familiar with the available ICT facilities to establish effective KM practices. Findings presented in Chapter 5 Table 5.23 and Table 5.24 show ICT facilities available at the selected universities such as internet, computers, laptops, printers, LCD projectors, television, scanners, video teleconference, extranet and mobile phones. This was confirmed by the findings from questionnaire which indicate that 156 (91.2%) of the postgraduate students and 28 (93.3%) of the academic staff computers who filled in questionnaires. The findings obtained from the majority of the heads of academic departments (7, 87.5%) through interviews indicated that ICT facilities were available at the selected universities to support knowledge and information sharing through SNSs.

However, the findings revealed that in some Universities, ICT facilities were not per se for supporting knowledge and information sharing. Instead, they were used for other purposes such playing games, and betting rather than knowledge and information sharing. Thus, students depended on their Smartphone's, personal laptops and tablets to access and share knowledge and information. Additionally, the study established that some Universities, ICT facilities were not functioning properly to facilitate sharing of knowledge and information among postgraduate students. This study further revealed that some selected universities had inadequate ICT facilities compared to the number postgraduate students hence compromising the knowledge sharing practices.

The findings of the study are in line with the TRA which states that external and internal environmental factors may determine the intention of an individual towards performing a particular behaviour. In the context of this study, internal and external environmental factors may be directly associated with the availability of ICT facilities in the selected universities. Also, social factors such as management support including the formulation of guidelines influence the usage of SNSs. Thus, the availability of the required functional ICT facilities, technical staff and management support had impacts on the use of SNSs for sharing knowledge and information at the Universities under study.

6.3 Policies guiding knowledge and information sharing practices

The objective on policies guiding knowledge and information sharing practices of the study aimed at establishing the availability of policies to provide guidelines on utilisation of SNSs for knowledge and information sharing. This objective was addressed through the following three sub-headings: existence of policies on knowledge and information sharing, the extent of awareness on the policy, and adherence to the policy by postgraduate students.

6.3.1 Existence of policies to guide SNSs usage

Ye, Moortel and Crispeels (2020:146) hold that policy frameworks provide Universities with an avenue to access new knowledge through knowledge and information sharing practices. This study established that 99 (57.9%) postgraduate students agreed that policies were in place guiding the utilisation of SNSs for knowledge and information sharing in their Universities. This was also supported by the findings obtained from academic staff whereby 12 (40%) affirmed that policies were in place to guide the use of SNSs at their Universities. Findings from interviews with the heads of departments (8, 100%) indicated that there were no stand-alone policies in place to guide the utilisation of SNSs in the selected universities in Tanzania. However, SNSs' usage had been included in other University guidelines and procedures including University ICT policies, students guide books and internet use policies. The study carried out by Willem *et al.*, (2018:14) in Australasia found that some Universities had no single policy on SNSs usage but they included the guidelines into other university documents such as students' guide books.

In general, the findings of this study revealed that the selected universities had no specific policies guiding the utilisation of SNSs in knowledge and information sharing. This situation compromised the utilisation of SNSs for sharing of knowledge and information in the selected universities in Tanzania. The findings obtained from the reviewed national and institutional policies showed that there were no specific national or institutional policies providing guidelines for utilisation of SNSs in Universities in Tanzania. Thus, Universities were required to customize the national policies at their institutional levels to formulate policies that would provide the guidelines on the proper utilisation of SNSs in sharing knowledge and information. Though, the use of SNSs had been stated generally in the national policies such as the Tanzania National ICT Policy 2016, Standards and Guidelines for University Education in Tanzania, Education and Training Policy 2014 and National Science and Information Technology Policy 1996. The results concur with Ghazali *et al.*, (2016) affirm that there was an absence of policies that aimed at promoting utilisation of SNSs for sharing knowledge and information in Universities.

The study conducted in the United States of America by Stoessel (2016) found that some Universities would like to have a specific document detailing the use of SNSs. While, other Universities would prefer to have SNSs policy in different formats such as in the form of Students' Guide Books, ICT Policy, and University Guidelines and Procedures. A study by Sugimoto (2017) found that only a few Universities had in place SNSs policies. Also, a study conducted in Tanzania by Maiga (2017:180) found that there was a shortage of knowledge and information sharing policies in Universities in Tanzania. The study by Igwe and Ononye (2020:34) conducted a study in Nigeria, recommended that organisations should formulate policies to guide the utilisation of SNSs in Universities.

The findings are in line with TRA theory which states that internal and external environmental factors may determine the decisions of individuals towards using ICT facilities. The external and internal environmental factors would have direct or indirect influences on the formulation of SNSs policies and its usage in the selected universities in Tanzania. Therefore, it is necessary for Universities to formulate policies to guide the utilisation of SNSs to protect its users, the image or reputation compliance to the national policies.

6.3.2 The extent of awareness on the policy among postgraduate students

This section addresses objective two of this study examining the awareness of the postgraduate students on the policies guiding knowledge and information sharing. Maiga (2017:50) concedes that to achieve effective knowledge and information exchange, Universities should start with awareness campaigns to draw and raise awareness to its University community. On The other hand, Chen and DiVall (2018) affirm that SNSs policy aims at providing guidelines to the users on its proper usage to safeguard users and institutions against violation of the rule of law and to create the standards to all users of the platform. Willems and Bateman (2011) assert that policy provides guidance where SNSs users can feel safe and secure to share knowledge and information they possess with others. This study found that 48(28.1%) of the postgraduate students had great awareness of the policy, 54(31.6%) had moderate awareness, whereas 14(8.2%) had very great awareness and 16(9.4%) had little awareness of the policies that guided SNSs' usage and 4(13.3%) academic staff indicated that postgraduate students had awareness of the policies that guided the use of SNSs followed by 5(16.7%) of the academic staff who indicated that postgraduate students had great awareness and 7(23.3%) revealed that postgraduate students had moderate awareness on the policy that guided the use of SNSs in Universities. The findings of the study were supported by most of the heads of academic departments (5, 62.5%) who were interviewed and indicated that postgraduate students in the selected universities in Tanzania had awareness of the policies guiding SNSs usage.

However, the findings revealed that some postgraduate students were unable to indicate whether there were specific policies on SNSs' usage in knowledge and information exchange at their Universities. Additionally, findings of the study indicated that a minority of postgraduate students had no awareness on the contents of the policies at the selected universities. This means because postgraduate students did not read the policy documents at all. This situation affected the proper utilisation of SNSs in the selected universities in Tanzania. Therefore, users should be informed about SNSs policies through an awareness campaign (Chewae 2015:5). In the context of this study, there is a necessity putting in place information literacy programmes, seminars and workshops to enable postgraduate students to enhance their level of awareness on the use of SNSs for knowledge and information sharing purposes.

The findings are in line with the TAM 2 model by Davis (1989) through its variables cultural and social merits which states that social factors may determine the actual use of technology by an individual. In the context of this study, provision of training on the use of SNSs would enhance the creation of awareness and enable postgraduate students to observe the values of SNSs usage to share knowledge and information. Thus, the selected universities in Tanzania were expected to play their roles by teaching postgraduate students on how best they would utilise SNSs for accessing various knowledge and information. Hence, enhancing their level of awareness and improving the qualities of their academic works such as class assignments, research, and academic presentations to attain better academic performance.

6.3.3 Adherence to the SNSs usage policy by postgraduate students

This section addresses objective two of the study which examined the adherence of the postgraduate students on the SNSs usage policies guiding knowledge and information sharing at the selected universities. The findings indicated that a majority 94 (55%) postgraduate students agreed that they adhered to the SNSs Usage policy. The findings from academic staff showed that 8 (26.7%) of postgraduate students did not adhere to the SNSs Usage policy, while 7(23.3%) agreed that postgraduate students adhered to the SNSs Usage policy. The findings from interview sessions with heads of departments indicated that postgraduate students adhered to the SNSs usage policies in the course of knowledge and information sharing.

In general, the findings established that postgraduate students in the selected universities in Tanzania adhered to SNSs usage policies in sharing knowledge and information. The findings further revealed that postgraduates had a general understanding of the consequences of violating the cyber laws as stipulated by Tanzania Communication Regulatory Authority (TCRA) included imprisonment and penalties. Also, the SNSs groups in which they shared knowledge and information, lecturers were part of the groups' members leading the postgraduate students to adhere to the policies fearing to share illegal information. However, at individual levels it was difficult to establish whether postgraduate students complied with SNSs usage policies while to communicate with their friends and families for non-academic issues. Sugimoto (2015) found that Universities formulated policies to guide users on three important aspects

namely, the relevance of the message, the institutional image and compliance with the law.

6.4 The level of skills of postgraduate students on the use of SNSs

The third objective of this study was to assess the level of skills of postgraduate students on the use of SNSs for knowledge and information sharing. This objective was addressed using three sub-headings namely, satisfaction level of skills on the use of SNSs, training on the use of SNSs and methods of training used in the selected universities.

6.4.1 Satisfaction level of skills on the use of SNSs

Barbas *et al.*, (2014:294) assert that the 21st -century world requires every University student to possess skills of using technologies not only in an educational context but also in other aspects of their lives. The fact that, lack of skills affects the use of SNSs by postgraduate students (Hussain, Loan and Yaseen, 2017:82). On the other hand Semode (2017:15) affirms that some of the skills associated with the usage of SNSs include the ability to create content and web pages, design user-friendly interfaces, search and locate relevant information, and ability to create SNSs spaces for knowledge and information sharing purposes. Mushonga (2014:20) avers that the skills enable users to locate useful information, to establish the authenticity of information and its relevance, to evaluate and synthesise and use information ethically.

The findings indicated that a majority of postgraduate students 96(56.1%) and 17 (56.7%) of the academic staff were satisfied with their level of skills on the use of SNSs. The findings were similar to a majority of the heads of academic departments (6, 75%) who were also satisfied with the level of skills on the use of SNSs by postgraduate students. Therefore, the study posts that the majority of postgraduate students in the selected universities in Tanzania possessed skills of using SNSs for knowledge and information sharing purposes. Similarly, Al-Mukhaini, Al-Qayoudhi and Al-Badi (2014:151) found that the majority of universities in Oman had technical skills of using SNSs. Furthermore, a study carried out by Hou *et al.* (2017) in China on the excessive use of WeChat in social interaction, found that social interaction competencies led to excessive utilisation of SNSs among students.

The findings of the study concur with the TAM 2 model by Davis (1989) which supported that, the skills that postgraduate students possessed towards the use of SNSs determined their actual use of SNSs for sharing knowledge and information. If postgraduate students perceived the use of SNSs as difficulty they could not be attracted to use the platforms for sharing knowledge and information.

6.4.2 Training on the use of SNSs

The section discusses if the selected universities provided education and training on the use of SNSs among postgraduate students. Considering that Haddud, Dugger and Gill (2016:18) suggested that institutions that are considering using SNSs should put in place training sessions to equip the users with the skills to utilise SNSs. The findings obtained through the questionnaire indicated that the majority, 97(56.7%) of the postgraduate students attended training organised by the universities. The findings indicated that 16(53.3%) of academic staff showed that training on SNSs usage was provided by the universities. The findings were supported by the majority of the interview results (7, 87.5%) who agreed that training programmes were organised at the selected universities. In general, the findings conclude that universities organised various training sessions to ensure postgraduate students acquire skills to use SNSs in sharing knowledge and information. The necessity is also affirmed by Cetinkaya (2018:16) who understands the advantage of using SNSs and the role played by universities to provide training to the staff to utilise SNSs.

The findings concede with the TRA theory by Fishbein and Ajzen (1975) through its construct of control beliefs. The construct states that acquisition of skills enable individuals to generate beliefs for success/failure while performing a given behaviour. In the context of this study training sessions lead to acquisition of skills by postgraduate students on the use of SNSs to enhance their ability to search, locate, synthesise, evaluate and share knowledge and information for educational purposes. Therefore, Universities were expected to play their roles of providing training to postgraduate students to enhance their skills of using SNSs.

6.4.3 Methods of training on the use of SNSs in Universities

This section discusses the methods deployed by universities when offering training on SNSs usage among postgraduate students. The findings of the study revealed that 60 (35%) of postgraduate students acquired training on the use of SNSs through self-study while 60(35.2%) acquired training through attending information literacy programmes organised by the Universities. The findings were corroborated by the majority of heads of departments through interviews (7, 87.5%) who mentioned self-study, information literacy training, public lectures, workshops, conferences and academic forums were the most used methods to train students on the use of SNSs. However, the findings revealed that such programmes were not frequently conducted at the selected universities and were not attended by all postgraduate students hence affecting utilisation of SNSs. The findings are in line with the TAM 2 model through its two constructs experience and voluntariness. In the context of this study, the experience that postgraduate students had acquired through using SNSs for educational and social purposes influenced them to attend training sessions.

6.5 Factors influencing the use of SNSs

The fourth objective of this study was to assess factors that influenced postgraduate students to use SNSs. This objective was addressed through one sub-question which examined factors affecting the use of SNSs for knowledge and information sharing. Al-Busaidi, Ragsdell and Dawson (2017) affirm that several factors influence the utilisation of SNSs such as they enhanced productivity, learning, adaptability, efficiency, effectiveness, innovation and gaining competitive advantages. These factors have been accelerated by the development of smartphone technologies (Sutherland, 2018).

On the other hand, Maiga (2017:154) asserts that the use of SNSs in universities helps in the creation, use and sharing of knowledge and information. It also enables the formation of international links for knowledge and information sharing purposes. Athukorala (2018:47) avers that University students use SNSs for communications and academic purposes. In a study conducted in Tanzania by Shembilu (2013:32) it was revealed that the majority of students preferred to use SNSs for their academic purposes. Another study done in Kenya by Kipruto (2019) found that knowledge and information sharing in universities enhance the quality of research outputs. This study established that the uses of SNSs by postgraduate students at the selected universities in Tanzania

was influenced by several factors such as personal interactions, educational,, trust among them, individual attitudes,, personal expectations, culture, perceived ease of use, perceived usefulness and skills of using SNSs. The factors are discussed in detail in the next sub-headings as follows.

6.5.1 Interaction

The interaction factor influenced the use of SNSs for sharing knowledge and information among postgraduate students. The findings show that a majority 97(56.7%) of postgraduate students and 23(76.7%) academic staff agreed that interactions influenced the use of SNSs by postgraduate students. The findings were supported by the interview results from the heads of departments (6, 75%) which indicated that postgraduate students interacted through SNSs for various purposes including educational and social purposes to gain new insights and knowledge base.

The findings concur with the SECI model by Nonaka and Takeuchi (1995) which asserts that new explicit knowledge is created by interactions with diversified sources such as documents, meetings, telephone conversation, computerised communication networks or SNSs. Additionally, the findings are in line with the TAM model by Davis (1989), which states individuals interact with SNSs in the sharing of knowledge and information Therefore, postgraduate students were expected to interact with their fellows, colleagues and friends to share knowledge and information they owned through SNSs. The process would create collaborating space to interact and share knowledge and information.

There are other factors accrued from the TAM model 2 which attract interactions amongst postgraduate students to share knowledge and information. These are such as perceived usefulness and ease of use depending on the benefits they expect to gain out of the SNSs. Also, the findings fit with the TRA theory by Fishbein and Ajzen (1975) under its constructs control beliefs and perceived behavioural control. In tandem, postgraduate students would interact with other sources of information after determining ease of usability of SNSs. This study further revealed that the ability to navigate various SNSs also determined students' behaviour towards the use of SNSs.

Ahmed *et al.* (2019) affirm that group interactions through SNSs which go beyond the individual level has changed interpersonal and group interactions for the sake of exchanging knowledge and information. The study conducted in Tanzania by Mchome (2017) found that SNSs enhanced group learning among the students therefore they improved interactions among learners and their instructors which in turn improved students' academic performance. A study conducted in Ghana by Boahene, Fang and Sampong (2019) found that personal and group interaction through SNSs has enabled students to get connected to their peers, to find colleagues to help them in answering questions and in accessing class notes. A study carried out in Palestine by El-Ghorrah (2016) found that SNSs play valuable roles towards ensuring effective interaction among students which in turn facilitates the flow of knowledge and information from the senders to the receivers.

Thus, the interaction among postgraduate students in the selected universities in Tanzania had an influence on their decisions to use SNSs to collect and donate knowledge. The findings are also in line with the TRA by Fishbein and Ajzen (1975) which state that perceived behavioural control integrates external and internal environment factors that include social support. Besides, internal and external environmental factors required by the policies to exchange information and knowledge through SNSs would prompt postgraduate students to interact and share the knowledge they owned with others.

6.5.2 Educational compatibility

Scott and McGuire (2017) define educational compatibility as the extent to which an innovation meets the standards and needs of the users or adopters in accomplishing their objectives. The findings of this study established that 92(53.8%) of the postgraduate students, 16(53.3%) of the academic staff indicated that postgraduate students preferred to use SNSs because of their educational compatibility. The findings of the study were confirmed by the majority of the heads of departments (7, 87.5%) who were interviewed and indicated that among the factors that influenced postgraduate students in the selected universities in Tanzania to use SNSs was educational compatibility. This enabled postgraduate students to access knowledge and information required in their studies. Similarly, El-Ghorrah (2016:132) carried out a study in Palestine and found that

educational compatibility had a direct effect on the effective utilisation of SNSs among postgraduate students.

The study conducted in Nigeria by Oyetunde (2017:77) found that there was an increase in the use of SNSs among university students as a result of the benefits they gained from them. Oyetunde further, asserts that many Universities and higher education institutions had integrated Facebook into their websites to allow easy access to information and invite comments from potential customers and students. Another study carried out in Australia by Sutherland *et al.*, (2018) found that university students frequently used SNSs to get connected with their university community. In line with other studies, postgraduate students in the selected universities in Tanzania utilised SNSs since they were compatible with their educational requirements. Thus, education compatibility had influenced many postgraduate students to use SNSs because they found the technologies useful in accessing various kinds of knowledge and information needed for their educational purposes including texts, voice, images, and videos which would be used to enrich their understanding.

6.5.3 Trust

Trust is the existing beliefs about two or more parties Grabner-Krauter and Bitter (2015). Trust can bring about desired outcomes in organisations if exists from the top management level to the operational level (Abdul-Ridha and Jader 2018). This study established that trust is one of the factors that influenced postgraduate students in the selected universities in Tanzania to utilise SNSs for sharing knowledge and information with their peers and friends. This was obtained from 89(52%) postgraduate students and 20(66.7%) academic staff. The findings of the study were supported by a minority of the interview participants (3, 37.5%) who responded that the beliefs that postgraduate students had among them influenced their decision to engage in knowledge and information sharing through SNSs.

On the contrary, a study conducted in Saudi Arabia by Alsolamy (2017) found that academic staff did not trust the reliability of SNSs' platform because of the possibility of leakage of their privacy and confidential information. In India a study by Gupta and Dhama (2015) revealed that assurance of security and privacy of SNSs' users influenced their willingness to utilise the platforms for knowledge and information sharing purposes. Another study conducted in China by Athukorala (2018) affirmed that

protection of user's privacy is the major concern towards effective utilisation of SNSs for knowledge and exchanging purposes because once users are assured of their privacy they develop more trust towards the use of SNSs. The study carried out in Ghana by Koranteng, Wiafe, and Kuada (2018) supported the finding that trust is the most important factor towards the utilisation of SNSs among university students as some of them are not willing to share knowledge and information with others because they don't trust that their information is secured.

Thus, the existing trust among postgraduate students in the selected universities in Tanzania enabled the acceleration of SNSs usage in exchanging knowledge and information. The findings of the study are in agreement with the social factor element from the TAM 2 model. That is to say, if postgraduate students trusted each other, it became easy for them to make their knowledge and information available to others and interact voluntarily without being forced.

Another element of the TRA theory -control beliefs- concurs with the study findings. The construct states that an individual generates beliefs about factors for success/failure while performing a given task. Thus, the beliefs of postgraduate students towards sharing knowledge and information would depend on some factors if they considered sharing information and knowledge in SNSs took them to risks then they would not share information with others. But if they considered that exchanging knowledge and information had no effect then they would share knowledge and information they owned. Thus, sharing of knowledge and information among postgraduate students in the selected universities in Tanzania was determined by the trust that they possessed towards their colleagues. Students became willing to share knowledge after knowing that the shared information would not be misused by others.

6.5.4 Individual attitudes towards SNSs

This section discusses the attitude that individuals possess towards the use of SNSs and their implications on the use of SNSs in knowledge and information sharing. The findings revealed that 86(50.3%) of postgraduate students and 20(66.7%) of academic staff revealed that attitudes of postgraduate students influenced their decision to use SNSs in knowledge and information sharing. The findings of the study from most of the heads of department (6, 75%) who were interviewed agreed that attitudes was one among the factors influenced postgraduate students to utilise SNSs in exchanging

knowledge and information. The findings showed that postgraduate students in the selected universities in Tanzania had developed positive attitudes towards SNSs since these offered them several benefits included getting connected to their friends, accessing knowledge and information through the platform, to collaborate online with their friends, entertainment, and exchanging knowledge and information which enabled them to improve their academic performance.

The results are in line with the study conducted in Nigeria by Omorogbe and Iguodala (2018) which found that students developed positive attitudes towards using SNSs as a result of the advantages that they gained out of them including enjoyment and to meet with their friends online. In a study conducted in Pakistan by Waheed *et al.*, (2017) it was found that SNSs were regarded as more useful tools for emotional expressions of individuals than face to face situations. Another study conducted in Nigeria by Cheta and Yinka (2018) revealed that university students developed positive attitudes towards SNSs which had proved to be useful in learning including WhatsApp, Skype, YouTube, Opera mini and Facebook because they are useful in learning. This positive attitude influenced individual's online engagement and utilisation of SNSs among students.

The findings of this study are in agreement with the TRA theory as the intention to perform a certain behaviour is the most determining factor in whether an individual will perform that behaviour or not. Thus, utilisation of SNSs for knowledge and information sharing among postgraduate students in the selected universities in Tanzania was a result of the positive attitude they had towards the SNSs technologies. Findings of the study also, accepts the TAM model by Davis (1989) which affirms that perceived ease of use and perceived usefulness may influence the attitudes of individuals towards adopting and utilising new technologies. Thus, the use of SNSs technologies for exchanging knowledge and information among postgraduate students in the selected universities in Tanzania was directly influenced by their positive attitudes on the usefulness and perceived ease of use for their academic purposes. Therefore, through SNSs postgraduate students would access educational information which enabled them to expand their knowledge base and improving the quality of their academic works and making them more informed.

6.5.5 Personal expectations

This sub-section addressed personal expectations of individuals and their influence on the use of SNSs at the selected universities. The findings indicated that 77(45%), of the postgraduate students and 14(46%) of the academic staff indicated that those personal expectations attracted postgraduate students to utilise SNSs for exchanging knowledge and information. The findings were corroborated by the responses from the heads of departments interviewed (4, 50%) who had a view that personal expectations was one among the various factors that influenced postgraduate students to use SNSs for exchanging knowledge and information. Therefore, the use of SNSs among postgraduate students in the selected universities in Tanzania had increased as a result of their expectations to access various types of knowledge and information required for their academic activities. Individual expectations had attracted more postgraduate students in the selected universities in Tanzania to share information and knowledge they owned with expectations of gaining access to knowledge and information that other postgraduate students also possessed.

Contrarily, the study carried out in Palestine by El-Ghorrah (2016) found that some of the factors affected the utilisation of SNSs are unrealistic expectations of the technology adopters on what technology can and cannot accomplish for them. However, the study conducted in China and United States by Koh, Tang, and Gan (2018) revealed that individuals with low self-efficacy had higher perceptions of pessimistic outcomes expectations therefore they avoided engaging in online social networks compared to those with high self-efficacy. Thus, postgraduate students were influenced to use SNSs for exchanging knowledge and information with expectations that they would be able to locate various types of knowledge and information posted by others that were required in their studies but also, they used SNSs for their social purposes such as entertainment during free class hours.

6.5.6 University culture

In general, culture is the totality of beliefs, norms and traditions of a group of people. Culture refers to the shared attitudes and behaviour of employees in an organisation (Mlanga 2013). The findings obtained from postgraduate students indicated that 74(43.3%) mentioned that university culture influenced students to use SNSs for sharing knowledge and information and 12(40%) of academic staff indicated that culture

influenced postgraduate students to utilise SNSs. The findings of the study were corroborated by most of the interview participants (5, 62.5%) who confirmed that sharing of knowledge and information among postgraduate students had been enhanced because it was the university culture.

This study revealed that the culture of sharing knowledge and information among postgraduate students in the selected universities in Tanzania had been growing in the past few years as a result of the initiatives done by academic staff to involve students in SNSs to facilitate the sharing of knowledge and information to enable the learning process. The findings concur with the study conducted in Malawi by Chipeta (2018) which indicated that organisational culture promoted knowledge and information sharing practices among employees through trust and openness. A study conducted in Kenya by Chebii (2017) recommended that organisations planning to achieve better performance should inculcate the culture of exchanging knowledge and information across the organisation.

The study conducted in Nigeria by Chidiebere (2014) found that a knowledge sharing culture influenced the behavioural intention among postgraduate students to exchange knowledge and information they own. The findings of the study are in agreement with the TAM 2 model under its element cultural context. That is when the use of technology is extended into the cultural aspect. That is to say, every university had its own culture and way of doing things; therefore, it was the role of management of Universities in Tanzania to instil the culture of exchanging knowledge and information among postgraduate students to enable them to attain better academic performance, become more knowledgeable and for the Universities to attain their competitive advantages.

6.5.7 Perceived ease of use

Perceived ease of use is the extent to which individuals recognize that they can adapt and use technology with fewer efforts. Findings obtained through questionnaires from 71(41.5%) postgraduate students and 17(56.7%) of the academic staff indicated that perceived ease of use of SNSs is among the factors that influenced the utilisation of SNSs among postgraduate students. Findings obtained from the majority of the heads of academic departments (7, 87.5%) who were interviewed indicated that postgraduate students in the selected universities in Tanzania preferred to use SNSs for exchanging knowledge and information because they perceived using SNSs to be easy.

The findings are in agreement with the TAM model by Davis (1989) which states that individuals will be willing to adopt and use technology when fewer efforts are required to use such technology. A study done in the United States of America by Sago (2013:8) found that perceived ease of use was the major factor that influenced marketers in utilising SNSs. This study also established that, postgraduate students utilised SNSs in sharing of knowledge and information in all spheres of human life including social, political, economic, and for enjoyment. Therefore, perceived ease of use was among the factors that influenced postgraduate students at the selected universities in Tanzania to utilise SNSs because the technology did not require much effort to learn how to use them.

6.5.8 Perceived usefulness

This sub-section addresses how the perceived usefulness of SNSs technology influenced the decision of postgraduate students to use them for sharing knowledge and information. The findings obtained from 71(41.5%) postgraduate students and 17(56.7%) academic staff established that perceived usefulness was one amongst several factors that influenced postgraduate students to use SNSs for knowledge and information exchange in the selected universities in Tanzania. The findings were also confirmed by the majority interviewee participants (7, 87.5%) who accepted that perceived usefulness had a direct influence on the use of SNSs among postgraduate students. Perceived usefulness had a direct associated with improving student's academic performance, facilitation of online collaboration with other research scholars both at national and international levels, enhanced class participation and facilitation on the availability of online tutorials where students could learn various issues in their own time.

The findings are in agreement with the TAM model by Davis (1989) because its variable,-perceived usefulness- articulates that, users are willing to adopt and use new technology once perceived useful is reciprocated by the increased usage of SNSs by postgraduate students and this is attributed to the benefits they gained from the use of SNSs. The studies done in the United States of America by Sago (2013) and another study conducted in Pakistan by Abbas *et al.*, (2019) found that technology perceived usefulness influenced Universities students' decisions towards the use of SNSs. Another study conducted in Palestine by El-Ghorrah (2016) found that factors such as perceived

usefulness, educational compatibility, perceived ease of use, and SNSs trust were the factors that motivated users of the SNSs in donating and collecting knowledge and information. Thus, perceived usefulness had an influence on the use of SNSs among postgraduate students in the selected universities in Tanzania because of their functionalities which enabled them in personal learning, enhancing skills of searching information and knowledge for solving various academic and social problems and making them well informed of the global issues and advancements in science and technologies.

6.5.9 Skills of using SNSs

This sub-section addresses the skills that postgraduate students possess in the use of SNSs for knowledge collection and donation. In the 21st century, it is required that university students should equip themselves with technologies to enable them to communicate with the global in all aspects of human lives not only in education (Barbas *et al.*, 2014). The findings obtained through questionnaires from 62(36.3%) postgraduate students and 21(70%) academic staff indicated that skills of using SNSs was one of the factors that attracted postgraduate students to utilise SNSs for exchanging knowledge and information. The findings of the study were also supported by most of the interview participants (5, 62.5%) who indicated that postgraduate students had the skills of using SNSs.

This study established that, postgraduate students in the selected universities in Tanzania possessed skills of using SNSs which enabled them to share knowledge and information among themselves. Also, the majority of postgraduate students had the ability to create, share content and comment on the SNSs platform. However, few of them possessed skills of searching, accessing relevant information, identifying the authenticity of the information and evaluating and sharing the knowledge and information obtained.

The findings concur with Mushonga (2014) who suggested that while utilising SNSs, users should be capable of searching, accessing, and synthesising content for sharing knowledge and information in a more usable form. These skills can be acquired through self-learning, conferences, workshops and consultation (Semode, Ejitagha and Baro 2017). The findings concur with the TAM 2 model's variable perceived ease of use.

That is to say, the skills that postgraduate students had acquired through self-learning and attending training sessions organised by the Universities' staff determined their ability to use SNSs for sharing knowledge and information among themselves.

6.5.10 Motivation

Motivation is amongst the factors that influenced postgraduate students in the selected universities in Tanzania to utilise SNSs for exchanging knowledge and information. Motivation is an intrinsic force to provide and receive knowledge and information influenced by both internal and external factors (Sriratanaviriyakul and El-Den 2017:291). The findings of this study revealed that postgraduate students in the selected universities in Tanzania were motivated to share knowledge and information with each other after they had realised the usefulness of exchanging knowledge and information, especially for their academic purposes. The findings are in line with the study conducted in Australia by Sriratanaviriyakul and El-Den (2017:291) which revealed that the motivation to use SNSs for exchanging knowledge and information was influenced by factors such as the prior experience of the students and their characters.

The findings were supported by 96(56.1%) of the postgraduate students and 20(66.7%) of the academic staff. The findings were supported by most of the interview participants (6, 75%) who had a view that postgraduate students in the selected universities had been motivated to share knowledge and information they own with others. A study conducted in Asia by Ghadirian (2014) found that student's readiness to engage in knowledge and information exchange practices was motivated by the benefits they expected to gain in their studies.

The findings of the study concur with the TAM 2 model constructs which state that experience and voluntariness have a direct relationship with perceived usefulness. That is to say, the experiences that postgraduate had gained on using SNSs motivated them to donate and collect knowledge and information among themselves. While voluntariness is an intrinsic factor of postgraduate students that motivated them to use SNSs for sharing knowledge and information they possessed after they had realized the benefits accrued out of sharing practices. Thus, the motivation of postgraduate students to use SNSs for sharing knowledge and information was directly linked to their prior

experiences and intrinsic factors that made them willing to make their knowledge and information available to others.

6.5.11 Presence of technology

The presence of technology influenced the use of SNSs in exchanging knowledge and information in the selected universities in Tanzania. Wang (2014) asserts that technologies have proven to be effective in Universities and provided opportunities to both academic staff and students to transfer and collect knowledge and information in the quickest possible manner. Ghadirian *et al.*, (2014:42) hold a view that technology support in Universities highly influences students in utilising SNSs for knowledge and information sharing.

This study established that the increased number of postgraduate students with smartphones, tablets and personal laptops at the Universities had accelerated the utilisation of SNSs in exchanging knowledge and information. SNSs enabled instant messaging among the users and therefore, it did not require students to use desktop computers every time they want to get connected with their colleagues or peers. The study indicated that a majority of postgraduate students 95(55.6%) and 18(60%) of the academic staff revealed that the presence of technology influenced the decisions of postgraduate students to use SNSs technologies. The findings were corroborated by most of the interview participants (7, 87.5%) who indicated that the presence of technologies attracted postgraduate students to utilise SNSs for donating and collecting knowledge and information among themselves. The findings concur with the study conducted in Pakistan by Naqvi, Naqvi and Miao (2020) which found that technology had improved SNSs and enabled users to communicate in many ways.

The findings also, agree with TRA theory variables internal and external environmental factors which included time resources and social support. This is to say if postgraduate students were given time for independent study, they were expected to use SNSs to search for materials for their educational purposes. Social support is associated with provision of training on the use of SNSs among postgraduate students, technical staff to offer help in case of difficulties in using ICT facilities and management of universities would ensure payment is made to the internet subscribers and purchase of ICT facilities. Thus, utilisation of SNSs' technologies for sharing knowledge and information among

postgraduate students was attributed by some factors included support from the management of Universities', students' skills in the use of the SNSs and the benefits that they acquired through using SNSs such as getting connected to both national and international students with whom they would also exchange knowledge and information for the benefits of their studies.

6.5.12 Management support

The management support segment aimed at understanding how the management of universities support the utilisation of SNSs for knowledge and information sharing among postgraduate students at the selected universities in Tanzania. Amongst the integral goals of Universities are to create and disseminate knowledge to support the utilisation of SNSs in sharing knowledge and information to enhance student's academic performance and maintain their competitive advantage. Adzharuddin and Kander (2018:671) affirm that organisation management should support the utilisation of SNSs to allow the smooth flow of knowledge and information among the employees to enhance productivity. Siljanovska (2015:85) advances that organisations that ensure effective communication through SNSs have more staff with satisfaction and motivation.

This finding of the study indicated that 48(28.1%) postgraduate students and 13(43.3%) of the academic staff revealed that management support influenced the utilisation of SNSs among postgraduate students. This was supported by a small number of the interview participants (3, 37.5%) who had a view that management support attracted postgraduates to utilise SNSs for exchanging knowledge and information. The findings of the study revealed that there was little support from the university's management regarding the utilisation of SNSs for exchanging knowledge at some of the selected universities. The study established that at some selected universities for the study the use of SNSs was discouraged by the management of universities although, students and some academic staff were using them for exchanging knowledge and information but, they were not officially recognized by the top management. Some management of universities did not trust the authenticity of the SNSs therefore; they had developed negative attitudes towards them.

The findings of the study are in line with TRA's element of social support. That is to say, management of universities were expected to provide support such as formulating SNSs' policies to guide its proper usage, campaigning for the utilisation of SNSs among postgraduate students and academic staff, to ensure functional ICT facilities were in place, regular training was in place, technical staff were in place to offer assistance in case of difficulties in using the resources and ensure internet connectivity is available around the Universities all the time. The findings of the study also, concur with the TAM 2 model's construct perceived usefulness (Davis 1989). That is to say, if management of universities perceived the utilisation of SNSs in sharing knowledge and information was not useful then, they would not support its usage. Thus, if the top management perceived the use of SNSs negatively they would not provide their social support which would, in turn, hamper their utilisation among postgraduate students at the selected universities in Tanzania which could also affect the students' academic achievement.

6.5.13 Policy requirements

The policy is a detailed and purposive plan of action to address a particular problem (Cochran and Malone 2014:3). The study findings indicated that postgraduate students utilised SNSs for donating and collecting knowledge as part of their academic life. This was indicated by 33(19.3%) of the postgraduate students and 13(43.3%) of the academic staff. The findings were confirmed by the few of the heads of departments who were involved in an interview (2, 25%) who affirmed that postgraduate students utilised SNSs because it was the policy requirements. The finding of the study established that no specific policies were guiding the utilisation of SNSs in all selected universities. Postgraduate students were using SNSs because of the need of keeping in touch with their friends and for the purpose of sharing knowledge and information but it was not a policy requirement.

Thus, students were not in any way required the available policies to use SNSs in sharing and knowledge information with their friends. Therefore, students at the selected universities formed groups to facilitate sharing of knowledge and information among themselves and academic staff in the teaching and learning process. A study conducted in Malaysia by Ghazali *et al.*, (2016) revealed that there was no specific policy that provided guidelines to the academic staff on the proper use of SNSs.

Therefore, Universities should have SNSs specific policies and the formulation should go hand in hand with training to develop trust and group engagement among stakeholders (Dahri and Yunus 2017).

The findings of the study concur with TRA's constructs perceived behavioural control which integrates external and internal environment factors that include social support. In the context of this study, social support included the formulation of specific policies by the management of universities' to facilitate the utilisation of SNSs among postgraduate students to enhance knowledge and information sharing practices. The literature review has shown that policies on the use of SNSs play significant roles towards ensuring the proper utilisation of SNSs among postgraduate students and the academic staff. Therefore, those Universities could formulate SNSs' specific policies to ensure the use of SNSs was officially recognized by the Universities community as well as to facilitate its usage. Failure to formulate specific SNSs policies to guide the proper utilisation of SNSs would result in its misuse which would affect not only students but, the image of the Universities respectively.

6.6 Factors affecting the use of SNSs for knowledge and information sharing

This sub-question addresses objective four of the study by examining factors that affected SNSs usage among postgraduate students. The findings of the study presented in Table 5.38 and Table 5.39 show that there were various challenges facing postgraduate students in utilisation of SNSs such as internet, training, technology and facilities, skills, insecurity, power sources, knowledge sharing culture, trust, awareness on the use of SNSs, policies that guide the use of SNSs, management support and the tendency of hoarding knowledge. Each factor is discussed in detail in the next sub-sections.

6.6.1 Internet connectivity

The utilisation of SNSs for exchanging knowledge and information among postgraduate students in Universities depend on the availability of reliable internet connectivity. This is because students who use their laptops, tablets and smartphones, depended on the subscribed university internet services since some of them they couldn't afford the costs involved in buying internet bundles. The findings of this study established that some selected universities for the study experienced the absence of internet connectivity. The

students relied on their bundles to use SNSs for donating and collecting knowledge and information with their friends and peers. Additionally, this study revealed that some students couldn't afford to buy internet bundles due to financial constraints. This situation affected the utilisation of SNSs for sharing knowledge and information among postgraduate students in the selected universities in Tanzania.

The findings obtained from 67.8% of the postgraduate students' and 76.7% of the academic staff indicated that internet connectivity was a serious challenge that affected the use of SNSs for knowledge and information sharing at their Universities. The findings of the study were supported by all (8, 100%) heads of the academic departments who demonstrated that internet connectivity was a critical challenge in the selected universities in Tanzania which also affected the use of SNSs in knowledge and information sharing among the postgraduate students. Similarly, the findings from the study conducted in Tanzania by Mchome (2017) revealed that unreliable internet affected the utilisation of SNSs among secondary schools' students.

Byanyuma *et al.*, (2018:76), affirmed that internet connectivity is still a challenge in Tanzania despite the presence of internet connectivity available through submarine cables such as SEACOM, EASSy, and TEAMS. Statements from Byanyuma *et al.*, (2018) substantiate the persistence of the internet connectivity problems in several Universities in Tanzania. Thus, the problem of internet connectivity was caused by the inability of internet subscribers to meet the demand due to the high number of customers. This had been a serious problem in most of selected universities in Tanzania because even the national ICT broadband backbone project led by the government which intended to install fibre cable across Tanzania to optimise the utilisation of ICT in the country has proved a failure.

6.6.2 Training on the use of SNSs

Training equips students with skills on how best they can use SNSs for exchanging knowledge and information for their academic endeavours. Lack of training affected the effective utilisation of SNSs among postgraduate students because some of them had limited knowledge on the use of the SNSs technologies. Training would equip students with skills in searching, retrieving, evaluating, synthesising and sharing the obtained information and knowledge ethically. This study established that training on the use of

SNSs was offered although they were not regular in the selected universities in Tanzania. This study further revealed that, although SNSs were utilised in exchanging knowledge and information among postgraduate students and academic staff, they were not formally recognized in some of the selected universities. The findings of the study also showed that even in Universities where training were organised and conducted, they were not attended by all students which in turn affected their ability to use SNSs for exchanging knowledge and information.

The findings of the study were affirmed by 82(48%) postgraduate students and 20 (66.7%) academic staff who indicated that there was lack of training on the use of SNSs in the selected universities in Tanzania. The findings were supported by a small number of the heads of academic departments (3, 37.5%) who were involved in an interview and revealed that there was lack of training to equip postgraduate students with the skills of using SNSs. The findings are supported by a study conducted in Iran by Souteh *et al.*, (2017) which revealed that lack of capacity building among staff affected knowledge and information sharing practices at Iranian ministry of sports. Therefore, organisations planning to implement SNSs should take into considerations training to create awareness to all employees on the procedures and the do and don'ts of utilising SNSs (Haddud, Dugger and Gill 2016).

Thus, lack of training posed a challenge to the Universities towards equipping students with skills of utilising SNSs which also affected knowledge and information sharing practices. Universities were expected to put in place regular training sessions to enhance the level of skills of postgraduates in using SNSs which would, in turn, helped them in sharing knowledge and information required for their studies and attain better academic grades and enrich their knowledge level. Students were also expected to attend the training session organised by the Universities to learn how best they would utilise SNSs for their academic activities. Failure to attend training affected students' ability to navigate various SNSs to access knowledge and information of their needs.

6.6.3 Facilities and technology to support the use of SNSs

Implementation of SNSs at the Universities requires the availability of enough ICT facilities to facilitate the use of SNSs for knowledge and information sharing practices. Lack of ICT facilities in the selected universities affected knowledge and information

sharing practices among the postgraduate students, this was indicated by 80(46.8%) of the postgraduate students and 16(53.3%) academic staff. The findings were supported by most of the heads of academic departments who were interviewed (7, 87.5%) and indicated that lack of functional ICT facilities affected the utilisation of SNSs in knowledge and information sharing in the selected universities in Tanzania. This study established that at some Universities there were no enough facilities to facilitate knowledge and information exchange such as computers, LCD projectors, and video-conferencing compared to the number of enrolled postgraduate students. Whilst, in other Universities computers and other ICT facilities, were not functioning properly which affected the utilisation of SNSs in exchanging knowledge and information. Besides, the study revealed that some Universities had ICT facilities in place, in good order, and matched with the number of postgraduate students that were enrolled.

The findings are similar to a study conducted in Tanzania by Charles and Nawe (2013) which revealed that a low development level in technology and lack of ICT facilities affected the implementation of knowledge management and knowledge and information sharing at the Universities. The study conducted in Ethiopia by Kiros, Mamo and Tesema (2018), on the factors impeding the implementation of KM on organisational performance revealed that lack of ICT facilities and ICT skills affected the implementation of knowledge management systems and knowledge sharing respectively. Also, the study conducted in Kenya by Yusuf and Wanjau (2014:15) realized that the state of the art in the application of ICT and staff capacity affected knowledge management and sharing practices in organisations. That is to say, the absence of ICT facilities and ICT technical staff to offer help to the users affected the utilisation of SNSs in sharing knowledge and information.

6.6.4 Skills on the use of SNSs for knowledge and information sharing

Skills are paramount for the students to be able to use SNSs for knowledge and information sharing. This is due to the fact that if students possessed skills, they would use various SNSs depending on their needs. Therefore, SNSs were useful platform for exchanging knowledge and information to keep postgraduate students knowledgeable. As presented in Table 5.38 and Table 5.39 of Chapter 5, this study established that, postgraduate students in the selected universities in Tanzania possessed basic skills of using SNSs for exchanging knowledge and information. However, some postgraduate

students lacked skills in using SNSs in accessing and sharing knowledge and information. Findings obtained from 79(46.2%) postgraduate students and 18(60%) of the academic staff established that lack of skills among some of the postgraduate students were among the factors affected the use of SNSs in knowledge and information sharing. The findings of the study were corroborated by a minority of the heads of academic departments (3, 37.5%) who were involved in an interview and stated that some postgraduate students lacked skills in using SNSs for knowledge and information sharing purposes.

The findings are in line with the TAM 2 model by Davis (1989), which indicated two factors, including perceived ease of use and perceived usefulness, to determine the adoption and use of technology by individuals. In this context, possession of the required skills would have influenced perceived ease of use of SNSs among postgraduate students and it would accelerate the utilisation of SNSs for exchanging information and knowledge for their academic purposes. This means that a lack of skills resulted in perceived difficulties in the use of SNSs hence underutilisation of SNSs in exchanging information and knowledge among postgraduate students.

The studies conducted by Barbas *et al.*, (2014) and Georgia by Gersamia and Toradze (2017) on ICT skills of colleges students, revealed that students can enhance skills of using SNSs for interaction, communicating and improving their level of ICT skills through continuous usage of SNSs. Thus, lack of skills affected the proper utilisation of SNSs for knowledge and information sharing since navigating various SNSs required skills for postgraduate students to understand the authenticity and the reliable sources of the information before they would use them for their academic purposes.

6.6.5 Insecurity

Insecurity is the extent to which users are susceptible to harm resulting from their usage of SNSs. This study as presented in Table 5.38 and Table 5.39, indicated that 78(45.6%) of the postgraduate students and 12(40%) of the academic staff revealed that insecurity of information is one of the factors that affected the effective utilisation of SNSs in knowledge and information sharing among postgraduate students. The findings of the study were supported by most of the heads of academic departments involved in interviews (5, 62.5%) who confirmed that insecurity of the information resulted in postgraduate students being threatened about sharing knowledge and information they

owned with the fear that the information would be misused by others. This study established that some of the postgraduate students were not willing to share knowledge and information with their peers and friends because they feared the insecurity and privacy of their knowledge and information. This means, some postgraduate students were not willing to share knowledge and information through SNSs believing that there was a possibility of other users to misuse their information. In the studies conducted in Oman by Al-Harrasi and Al-Badi (2014) and Athukorala (2018) in China it was found that amongst the challenges faced by students in using SNSs is the insecurity of their privacy. Therefore, students preferred to use SNSs that take into consideration their security issues.

Also, a study carried out in Egypt by Labib and Mostafa (2015) indicated that one of the challenges of integrating SNSs in an educational setting is the safety and privacy of the users. Literature shows that security, awareness of the characteristics of SNSs, understanding, the number and nature of group members, and types and information to be shared, are the important factors towards the utilisation of SNSs for exchanging knowledge and information (Grabner-Kräuter and Bitter 2015). This implied that security issues had direct effects on the utilisation of SNSs in exchanging knowledge and information among postgraduate students in the selected universities in Tanzania. However, the study also revealed that the issue of security and privacy of users was not a matter of concern to some postgraduate students. They had been using SNSs without any fear of their privacy and security because they lacked awareness that the knowledge and information that they put into the public domain could be misused by others.

6.6.6 Power sources

The utilisation of SNSs in Universities depends on the availability of reliable power sources. The findings obtained from 75(43.9%) of the postgraduate students and 19(63.3%) of academic staff revealed that lack of reliable power in Universities affected the utilisation of SNSs in sharing knowledge and information. The findings were confirmed by a majority of the heads of academic departments (7, 87.5%) who were involved in interviews who indicated that power failure had been a serious challenge faced by most Universities in Tanzania which affected the utilisation of SNSs in knowledge and information sharing among postgraduate students. This study established that unreliable power sources affected the majority of desktop computer

users because they heavily depended on power to use SNSs. Additionally, the study also revealed that unreliable power also affected personal laptop users because power cuts may occur during training sessions, hence LCD projectors or even laptops could not function which affected the utilisation of SNSs in exchanging knowledge and information among postgraduate students and their lecturers.

The study further, established that users of smartphone technologies are not affected by the power cut problems because if they have their smartphones full charged, they can continue using SNSs for collecting and donating knowledge and information among their peers and friends. Thus, an unreliable power source affected the majority of SNSs users in the selected universities in Tanzania because some of them did not have in place powerful generators to sustain power failure problems for a long time. This is sometimes a national problem resulting from shortage of water in rivers where electricity is generated by hydropower.

6.6.7 Knowledge and information sharing culture

As summarised in Table 5.38 and Table 5.39 of Chapter 5 the findings obtained from 66(38.6%) of the postgraduate students and 17(56%) of the academic staff established that lack of organisational culture in practising knowledge and information sharing affected the utilisation of SNSs for exchanging knowledge and information among the postgraduate students. The findings of the study were corroborated by findings from small number of the heads of academic departments (3, 37.5%) involved in interviews who stated that absence of a knowledge sharing culture in Universities for the study affected the use of SNSs in knowledge and information sharing because students were not used to so.

This study established that some Universities had no culture of exchanging knowledge and information through the use of SNSs. Additionally, this study revealed that the lack of organisational culture in exchanging knowledge and information is associated with the lack of formal recognition of SNSs by the management of universities. This situation affected the sharing of knowledge and information from knowledge owners to the knowledge receivers to enable them to make informed decisions. Jabbary and Madhoshi (2014:136) highlighted that organisational culture may affect positively or negatively the utilisation of SNSs in the academic environment.

Celep, Konakli and Kuyumcu (2014) noted that students utilise SNSs to get educational benefits from them therefore, it requires instructors also to develop a culture of using SNSs in academic work to obtain the desired outcomes. Corcoran and Duane (2018) identified the following factors that determine organisational culture: strategies of the organization, attitudes of management towards SNSs and organisational structure. Another study done in Bangladesh by Islam and Khan (2014) found that the attitudes of the users towards knowledge and information exchange may affect the effective utilisation of ICT in knowledge and information sharing. Ahmed *et al.*, (2019) affirm that organisational environment; nature of information and knowledge to be shared and awareness strategies deployed may promote the culture of using SNSs for exchanging information and knowledge among postgraduate students. Thus, developing the culture of exchanging knowledge and information among postgraduate students would enhance the utilisation of SNSs in transferring knowledge and information which would enable them to improve their academic performance and strengthen their knowledge base.

6.6.8 Lack of trust

The respondents were quizzed to explain how lack of trust affected the use of SNSs in knowledge and information sharing. Findings obtained from 65(38%) postgraduate students and 13(43.3%) academic staff indicated that lack of trust among postgraduate students affected the use of SNSs for knowledge and information sharing purposes at the selected universities for the study. The findings were supported by the majority of the heads of the academic departments (6, 75%) involved in the interview who revealed that some of postgraduate students lacked trust and therefore they were not ready to make their knowledge and information available to others because of the fear about security and privacy. The finding of the study established that lack of trust among some postgraduate students affected their willingness to make their knowledge and information available to others. Some students feared that their information and knowledge would be misused by their colleagues or other online users and therefore, they were not ready to share knowledge and information they possessed with others with the fear of cyber bullying.

6.6.9 Lack of awareness

The respondents were asked to explain how lack of awareness affected the use of SNSs in knowledge and information sharing. The findings of the study obtained from 61(35.7%) postgraduate students and 19(63.3%) of the academic staff revealed lack of awareness affected the utilisation of SNSs for knowledge and information sharing among the postgraduate students in the selected universities for the study because some of the postgraduate students were not aware that SNSs can facilitate the sharing of knowledge and information. The findings obtained through interview from a small number of the heads of academic departments (2, 25%) revealed that lack of awareness is associated with tendency of not attending training organized by Universities. The findings of the study established that some of the postgraduate students had no awareness that SNSs would be used for accessing and sharing knowledge and information with their friends and peers which could also enable them to improve their academic performance. Therefore, they were using SNSs for non academic related matters including watching movies, playing games and other entertainment.

6.6.10 Policies to guide the use of SNSs

The absence of policies guiding the utilisation of SNSs for exchanging knowledge and information in Universities was raised by 60(35.1%) postgraduate students and 14(46.75) academic staff who filled out questionnaires. The findings were corroborated by all (8, 100%) heads of academic departments involved in an interview who stated that Universities had no specific policies to guide the utilisation of SNSs in knowledge and information sharing among postgraduate students. This study established that the selected universities had no stand-alone policies on the utilisation of SNSs for exchanging information and knowledge. Additionally, this study revealed that the use of SNSs for exchanging information and knowledge was stated in general university documents such as university ICT policies, students guide books, library policies and other Universities' policies and guidelines. Thus, the absence of specific policies guiding the utilisation of SNSs for sharing information and knowledge affected the sharing of knowledge and information using SNSs among postgraduate students in the selected universities in Tanzania.

A study conducted in Tanzania by Maiga (2017) found that there was the absence of policies to guide the utilisation of SNSs for knowledge and information sharing in Universities which affected the effective use of SNSs. Igwe and Ononye (2020) opine that to achieve effective utilisation of SNSs for exchanging various types of knowledge and information, public stakeholders should be involved in the policy formulation process. Epure, Mohamed and Mihaes (2017) advances that Universities should put in place better strategies to resolve various obstacles that affected the utilisation of SNSs in Universities. That is to say, the absence of policies on the use of SNSs in the selected universities in Tanzania affected the effective utilisation of SNSs technologies to promote knowledge and information sharing among postgraduate students.

6.6.11 Management support

Ellison, Gibbs and Weber (2015) affirm that utilisation of SNSs for exchanging information and knowledge in organisations will be determined by its affordability on both individuals and organisations. The findings obtained from 59(34.5%) of the postgraduate students and 11(36.7%) members of academic staff indicated that lack of support from management affected the utilisation of SNSs in exchanging information and knowledge among postgraduate students in the selected universities in Tanzania. The findings were confirmed by the majority of the heads of academic departments (5, 62.5%) involved in an interview who revealed that some of the managements of universities had perceived SNSs usage negatively and therefore they did not support its utilisation in Universities.

The findings of the study established that at some selected universities in Tanzania, SNSs it was not officially recognized by the management that the technology could facilitate the sharing of knowledge and information among the students. Some Universities top officials had perceived SNSs negatively, that they wasted the time of students, that they are used for non-academic purposes and therefore they cannot be accepted formally as a platform for sharing information and knowledge.

Additionally, this study revealed that at some Universities, SNSs were used by both lecturers and students to keep in touch as far as academics work was concerned. However, it has not been stated anywhere in university's policies that were consulted that those students and lecturers were obliged to use SNSs for exchanging knowledge

and information. The reasons for utilising SNSs among lecturers and students included the quick flow of knowledge, enhanced online collaboration, and reduced cost of accessing knowledge and information. El-Ghorrah (2016) affirms that top management support had a strong influence on the utilisation of SNSs for information and knowledge sharing among university students. A local study carried out by Maiga (2017) found that Universities had no departments or units responsible for promoting knowledge and information exchange practices.

6.6.12 Knowledge hoarding

The tendency of hoarding knowledge and information amongst the postgraduate students was raised by 47(27.5%) postgraduate students and 11(36.7%) of the academic staff. The findings of the study were revealed by a minority of the heads of academic departments (1, 12.5%) involved in interviews who stated that the tendency of hoarding knowledge among some postgraduate students affected the use of SNSs in knowledge and information sharing because some students were not ready to share knowledge and information they owned having the fear that their colleagues would perform better than them.

This study established that although the majority of postgraduate students agreed that they were willing to exchange information with their peers and friends, some postgraduate students were not ready to make their knowledge and information available to others. In addition, this study also revealed that some students decided to hoard knowledge and information they owned with a fear that their friends and peers would perform better academically when making their information and knowledge available to them while others were concerned about their privacy and security. The study further indicated that the tendency of hoarding knowledge was also caused by a lack of trust among postgraduate students on the SNSs. That is to say, for postgraduate students to effectively use SNSs for sharing knowledge and information they would be willing to make their knowledge available to others. The tendency of hoarding knowledge resulted in the underutilisation of SNSs in knowledge and information sharing. This tendency also slowed the sharing and creation of new knowledge at the selected universities in Tanzania.

6.7 Level of usage of social networking sites for knowledge and information sharing

The fifth objective of this study was to examine the level of postgraduate usage of SNSs for knowledge and information sharing among postgraduate students. This objective was addressed through four sub-headings namely, the frequency of using SNSs among postgraduate students, benefits of using SNSs for academic purposes, attitudes of postgraduate towards SNSs and perception of students towards the use of SNSs.

6.7.1 The frequency of using SNSs among postgraduate students

The first section discusses the frequency with which postgraduate students utilised SNSs for knowledge and information sharing purposes. The findings indicated that a majority of postgraduate students 85(49.7%) often used SNSs, 11(36.7%) of the academic staff indicated that postgraduate students most often used SNSs for accessing knowledge and information. The findings were confirmed by the findings from most of the heads of academic departments (7, 87.5%) who were interviewed and stated that postgraduate students in the selected universities in Tanzania used SNSs frequently because they were able to access knowledge and information they needed for their studies.

The findings indicated that postgraduate students utilised SNSs for accessing knowledge and information regarding their studies as well as other social purposes and for entertainment. The frequency of use of the SNSs was directly linked with the benefits that postgraduate students gained out of them such as improved quality of their class assignments, the reduced cost of accessing information and knowledge, quick access and flow of knowledge and information, distance factors in accessing information was also eliminated. The study in addition, established that most of the postgraduate students in the selected universities in Tanzania used SNSs in their daily lives even for non educational purposes. The study also established that frequency of use of SNSs was associated with the perceived usefulness of SNSs among postgraduate students.

6.7.2 Benefits of using SNSs for academic purposes

The second sub-section discusses the benefits of using SNSs for academic purposes. The literature reviewed indicated that the use of SNSs in Universities enhanced active participation and collaborative learning among students (Solek-Borowska 2015). The

findings of the study obtained from the majority of postgraduate students 136(99.5%), and 26(86.7%) of academic staff indicated that SNSs provided several benefits to postgraduate students such as enhanced students' academic performance, help in generation of new knowledge, enhanced timely communication, they provided an avenue to meet other research scholars online, enhance the relationship with other research scholars at both national and international levels, reduced the cost of accessing academic knowledge and information, enhanced collaboration and peer to peer learning, improved the quality of academic works, students felt comfortable to express their views through SNSs, they kept students well informed and knowledgeable, strengthened individual well being and self-esteem and provided access and quick response and enabled the rapid spread of knowledge and information. The findings were corroborated by the majority of the heads of academic departments involved in interviews (7, 87.5%) and revealed that SNSs offered several benefits to postgraduate students such as improved class participation, enhanced knowledge among students, improved academic achievement and producing well informed postgraduate students.

The findings of this study implied that if properly used in academic settings, SNSs would provide several benefits to both postgraduate students and academic staff and would enable them in improving their academic performance. The findings of the study concur with results obtained by a local study conducted by Shembilu (2013) which revealed that the adoption of SNSs in Universities provided students with avenues for knowledge and information creation and dissemination. Similarly, another study conducted in Tanzania by Mchome (2017) revealed that utilisation of SNSs had enabled students in improving their academic performance, sharing of class notes, in saving time in accessing knowledge and information and had also promoted private learning.

Other studies that noted the benefits of using SNSs in educational and other contexts include various studies (Chikono, 2018; Njiraine, 2019; Nunes, Kanwal, and Arif 2017; Al-Husseini and Elbeltagi, 2015; Maiga, 2017; Ajie, 2019; Haq and Haque, 2018; Alhawary, Abu-Rumman and Alshamaileh, 2017; Razi, Habibulah and Hussin, 2019, Mosha 2017, and Seem, 2018). This is to say, if the selected universities in Tanzania properly planned and implemented the use of SNSs for donating and collecting information and knowledge among postgraduate students, it would improve students' academic achievements through collaborative learning. Additionally, it would facilitate

the learning process between lecturers and students. Also, it would enable Universities to attain their competitive advantages. Thus, the benefits resulted from the use of SNSs among postgraduate students determined the level of usage in sharing knowledge and information because every time students were thinking of accessing knowledge and information for their academic purposes, they utilised SNSs.

6.7.3 Attitudes of postgraduate students towards SNSs usage

This section discusses the attitudes of postgraduate students towards the use of SNSs for knowledge and information sharing. The findings of the study obtained from the majority of postgraduate students 158(92.4%) and 27(90%) of the academic staff indicated that, postgraduate students had positive attitudes towards the use of SNSs. The findings of the study were confirmed by the majority of the heads of departments (6, 75%) who stated that postgraduate students had developed positive attitudes towards SNSs usage as a result of the advantages that these offered to them in their studies and other aspects of their lives. Findings of the study indicated that postgraduate students developed positive attitudes towards SNSs because of the number of advantages that were offered to them by their use, such as quick access to information which enabled them to improve the quality of their academic works such as research or class assignments which in turn helped them to excel in their academic career path.

The findings of the study concur with the TRA theory by Fishbein and Azen (1975) which states that a person starts to generate beliefs about the result of a particular behaviour and this may determine his/her intention towards such behaviour. Thus, since postgraduates had developed positive attitudes towards the use of SNSs in exchanging knowledge and information they were using them with expectations of obtaining positive results including attaining better grades in their studies, keeping in touch with their friends and peers, and for entertainment. The findings of this study are also, in line with the TAM 2 model by Davis (1989) which asserts that the attitudes of the users on adoption and use of technology are the major determining factors towards their decisions to use the new technology. That is to say, the positive attitudes that postgraduate students had developed towards the use of SNSs determined their actual use of SNSs technologies in exchanging knowledge and information.

The findings of the study agree with the results of the study conducted in Nigeria by Omorogbe and Iguodala (2018) which found that the utilisation of SNSs was influenced by the positive attitudes that students had developed towards SNSs' technologies. Another study carried out in Saudi Arabia by Alsolamy (2017) indicated that members of academic staff had positive attitudes on the use of SNSs for educational purposes. In a study conducted in South Africa by Matikiti, Mpinganjira and Roberts-Lombard (2017) it was revealed that perceived usefulness, that was measured through the advantages that SNSs offer determined the attitudes of precursors towards utilisation of SNSs. Thus, the positive attitudes that postgraduate students developed towards the use of SNSs determined the frequency of their use in sharing knowledge and information required for their academic and social purposes.

6.7.4 Perceptions of postgraduate students on the use of SNSs

The last sub-section discusses the perception of postgraduate students towards the use of SNSs for knowledge and information sharing. Findings of the study indicated that the majority of postgraduate students 101(59.1%) and 14(46.7%) of the academic staff perceived SNSs to be useful for exchanging knowledge and information. The findings of the study were supported by the majority of interviewee participants (5, 62.5%) who agreed that postgraduates had perceived the use of SNSs as a platform for knowledge and information sharing to be very useful. The finding of the study showed that postgraduate students perceived the use of SNSs to be useful because they provided them with avenues to interact, share knowledge and information and for enjoyment. It also, enabled them to improve their academic grades and attain better academic performance.

The findings of the study are in line with the TAM model by Davis (1989) which states that the utilisation of technology is influenced by the perceived usefulness and perceived ease of use of such technology by an individual user. Most of SNSs requires less effort to learn how to use them and therefore, no intensive training was required. The majority of postgraduate students consulted their colleagues on how to use SNSs' technology in case of difficulties therefore the use of SNSs for knowledge and information sharing purposes had become part and parcel of a students' lives as a result of the perceived ease of use. Perceived usefulness is associated with the benefits that SNSs' technologies offered to postgraduate students such as online collaboration with

their peers and friends, access to information, enjoyment, improving the quality of their class assignment and enhanced academic performance.

The finding of the study also agrees with the TRA theory by Fishbein and Ajzen (1975) through its constructs control beliefs and perceived behavioural control, that is a person generates beliefs on factors for success/failure while performing a given behaviour. These beliefs cause a perception of ease/difficulties in performing a certain action. Thus, once postgraduate students perceived the use of SNSs for donating and collecting to be easy they would utilise SNSs technologies for their academic and social purposes. The study conducted in Saudi Arabia by Mohammad and Tamimi (2017) revealed that there was agreement among the SNSs users that, if online social networks are properly utilised, they can offer various advantages to students. Another study conducted by Neir and Zayer (2015) indicated that students' perceptions towards SNSs' usage for academic purposes are one of the factors that lecturers put into consideration before engaging them for classroom activities.

Another study carried out by Orgaz, Moral and Dominguez (2018) showed that students' attitudes towards technology influenced their perceptions on the use of SNSs for exchanging knowledge and information related to their studies. On the contrary, a study conducted in Bangladesh by Shohrowardhy and Hassan (2014) found that the majority of students were not attracted to use SNSs for educational purposes but, for enjoyment and social purposes. In a study carried out in Nigeria by Aiyebilehin and Omekwu (2019) it was indicated that, the technical skills that librarians possessed determined their behaviour towards the use of SNSs. That is to say, the positive perceptions that postgraduate students developed towards the use of SNSs determined their level of utilisation of SNSs for sharing knowledge and information in the selected universities in Tanzania. In other words, the frequency of use of SNSs was directly associated with perceived usefulness and perceived ease of use of SNSs in exchanging knowledge and information among postgraduate students.

6.8 Strategies to enhance the use of social networking sites for knowledge and information sharing among postgraduate students

The last objective of this study identified strategies that would enhance the utilisation of SNSs for knowledge and information sharing among postgraduate students in the selected universities in Tanzania. Findings of the study presented in Table 5.47 and Table 5.48 of chapter 5 indicated several strategies that were proposed to enhance the utilisation of SNSs in the selected universities in Tanzania including putting in place ICT facilities to facilitate the use of SNS in knowledge and information sharing, provision of training on the use of SNSs, formulation of policies to guide SNSs' usage, ensuring availability of internet connectivity around the Universities, putting in place awareness campaigns to market the use of SNSs in knowledge and information sharing, Management of universities support towards adoption and use of the SNSs, security issues should be addressed to protect users of the SNSs, putting in place stable power generators, instilling a knowledge sharing culture among postgraduate students, ensure trust among the SNSs users, abandon the tendency of hoarding knowledge, putting in place incentives and rewards to promote SNSs usage. Each strategy is discussed in detail in the next sub-headings.

6.8.1 Need of ICT facilities to facilitate knowledge and information sharing

The literature reviewed indicated that knowledge and information sharing at the Universities in Tanzania can be effectively achieved if there is an availability of ICT facilities. Anatory (2017) affirms that the deployment of ICT has facilitated the learning process in Tanzania. It has also resolved challenges imposed by the distance among the students and academic staff. Byanyuma *et al.*, (2018) assert that the application of ICT aimed at eliminating factors that negatively affected the education system in Tanzania. On the other hands Kowero (2012) states that the digital divide gap can only be dealt with, by putting in place proper strategies that will lead to the utilisation of the Tanzania national ICT policy, which will, in turn, enhance the integration of ICT's including the use of SNSs in the education system.

The application of ICT in Tanzania has been also observed in a study conducted by Angello and Wema (2010) which found that like any developing nation, Tanzania is integrating the application of ICT in its education sector. Another local study conducted by Ngimi (2013) revealed that the use of ICT in education captures the attention of

students in learning, also it motivates the majority of students to engage in learning to share knowledge which in turn improved their academic performance. This was affirmed by the majority of postgraduate students 125(73.1%), and the majority of academic staff 21(70%). The strategies were also supported by all (8, 100%) of the heads of academic departments who were involved in interviews and they recommended that Universities should put in place enough ICT facilities to facilitate the use of SNSs in knowledge and information sharing. Thus, the selected universities in Tanzania were expected to put in place the required ICT facilities to promote the utilisation of SNSs technologies in knowledge and information sharing among the postgraduate students to enable them to attain better academic performance and to facilitate the learning process at Universities.

6.8.2 Training on the use of SNSs in knowledge and information sharing

Another strategy aimed at promoting the utilisation of SNSs that was identified in this study was training on the use of SNSs for information and knowledge exchange among postgraduate students. This was mentioned by the majority of the postgraduate students 116(67.8%) and academic staff 23(76.7%). The findings were also corroborated by the majority of the heads of academic departments (7, 87.5%) who were involved in interviews who stated that training was important in order to equip postgraduate students with skills of using SNSs for their educational purposes. Haddud, Dugger and Gill (2016) assert that training enables users of the SNSs to be equipped with the skills on the proper use of the platform while receiving and transferring knowledge and information. The study conducted by Cetinkaya and Rashid (2018) concluded that conducting training with employees in organisations on the proper use of SNSs can enhance employee's productivity and therefore organisations can benefit from the SNSs technologies.

In a study carried out in Ghana by Okyireh and Okyireh (2016) it was found that job efficiency was achieved by employees as a result of the experiences they had acquired through training sessions organised by the employer. A study carried out by Donelan (2016) suggested that Universities promoting the utilisation of SNSs in exchanging knowledge and information should plan to put in place practical training sessions to create awareness to the users on the advantages that SNSs can offer in education. On the contrary, a study conducted by Silic (2016) on understanding the negative side of SNSs

indicated that training on user's security was insufficient and therefore, users were unaware of the potential risks that may occur in the course of using SNSs.

6.8.3 Formulation of policies to guide the use of SNSs at the Universities

The findings obtained from the postgraduate students 115(67.3%) and the academic staff that took part 24(80%), indicated that specific policies on SNSs should be formulated to achieve effective information and knowledge exchanges in Universities. The findings were supported by all (8, 100%) of the heads of academic departments who were involved in the interviews and recommended that Universities should formulate policies that will provide guidance on the use of SNSs among postgraduate students. Ghazali *et al.*, (2016) affirm that policymakers should formulate policies that focus on utilising ICT including the use of SNSs' technology in education among students. The study conducted in Nigeria by Igwe and Ononye (2020) concluded that organisations should come up with policies that provide clear procedures on the utilisation of SNSs in information and knowledge exchange taking into consideration best practices of the collaborative platforms.

The study conducted by Epure, Mohamed, Mihaes (2017) concluded that policy formulators and Universities' top management understands the benefits that SNSs offer in education therefore, they will find alternative ways of eliminating the challenges of using SNSs at different stages of creating and sharing knowledge and information. The local study conducted in Tanzania by Maiga (2017) mentioned that university policy on knowledge sharing is one of the factors that influence knowledge and information sharing behaviour among academic staff. Dahri and Yunus (2017) affirm that internal policies should be in place so that knowledge and information to be shared through SNSs gets approval from the organisations top management. However, requesting approval from the management may bring about bureaucracy and cause a delay in the sharing of knowledge and information from the knowledge owners to those in needs. Therefore, policy should state clearly the procedures of using SNSs among the users to avoid any form of misuse and eliminate bureaucracy.

6.8.4 Availability of reliable internet at the Universities

Availability of reliable internet is another factor mentioned by the majority of postgraduate students 113(66.1%) and the academic staff 27(90%). The findings obtained from all (8, 100%) of the heads of academic departments who were involved in an interview suggested that Universities should ensure the presence of reliable internet connectivity to facilitate the use of SNSs in knowledge and information sharing and to guide its proper use among the students. The literature reviewed indicated that the presence of reliable internet in organisations facilitates communications. Perbawaningsih (2013) affirms that the internet is frequently used by students and lecturers to download educational materials; it also promotes students to students' and students to lecturers' interactions.

In a study conducted in African Universities by Mhlanga (2013) it was revealed that internet connectivity was a great problem that also affected knowledge collection and donation practices among the university community. The local study conducted by Maiga (2017) found unreliable internet connectivity affected knowledge and information sharing practices in Universities in Tanzania. On the contrary, a study conducted in Lagos-Nigeria by Oni and Uko (2016) established that Universities had in place internet services to facilitate knowledge and information creation and sharing. Thus, the selected universities in Tanzania should put into effect efforts to ensure there is the availability of reliable internet within the Universities' environment to facilitate the sharing of knowledge and information among the postgraduate students to enable them improve their academic performance.

This study established that the availability of internet connectivity in the selected universities in Tanzania would provide several benefits to the students, lecturers and the Universities in particular. The following were the benefits identified enhanced timely communication among students to students and students with their lecturers. Additionally, the study established that the availability of internet connectivity would reduce the cost of accessing knowledge and information among postgraduate students. This study further revealed that the availability of reliable internet connectivity would make the learning process easier and enable more online collaboration among postgraduate students which would also strengthen their knowledge base.

6.8.5 Awareness campaign to market the use of SNSs at the Universities

Findings of the study obtained from 102(59.6%) of the postgraduate students and 22(73.3%) of the academic staff revealed that there was a need for an awareness campaign to market the use of SNSs at the Universities. The findings were supported by most of the heads of academic departments (7, 87.5%) who were involved in the interview and stated that awareness campaigns were required to be in place to promote the usage of SNSs in exchanging knowledge and information. This study established that to achieve effective utilisation of SNSs in exchanging knowledge and information among the postgraduate students in the selected universities in Tanzania, awareness strategies need to be in place to inform the whole university community on the importance of using SNSs in an educational setting. Various ways of awareness creation would be deployed by the Universities including the use of brochures, leaflets, and information literacy programs, use of the Universities' notice boards, seminars and workshops, public lectures, and the use of media. The use of online social networks such as YouTube allowed the sharing of video clips which could provide postgraduate students and Universities staff procedures of using SNSs in exchanging knowledge and information.

6.8.6 Management support towards utilisation of SNSs

This finding of the study obtained from 88(51.5%) postgraduate students and 17(56.7%) of the academic staff revealed that Universities' top management play critical roles in the adoption and effective utilisation of SNSs in sharing knowledge and information among postgraduate students. The findings were also supported by the majority of the heads of academic departments (6, 75%) who were involved in an interview and revealed that support from the Universities' top management may guarantee the use of SNSs in knowledge and information sharing in the selected universities in Tanzania.

This implied that since management of Universities are the policy and decision-makers in all university matters therefore, their positive intention towards the utilisation of SNSs in the selected universities in Tanzania could lead to the actual use of the SNSs' technologies. Universities' top management should support the use of SNSs through formally recognizing SNSs as media for knowledge and information sharing. Additionally, support would be in terms of formulating policies that would guide

students and staff of the Universities on the proper procedures of using SNSs for sharing information and knowledge.

Also, management of Universities should support the use of SNSs in Universities through acquiring the required ICT facilities such as computers, projectors, video-conferencing, generators, and through subscribing to the internet services providers to ensure there is the availability of a reliable internet service to enable students and the Universities staff to use SNSs. This will further facilitate in the sharing of knowledge and information on academic-related matters among the postgraduate students. Once lecturers and students are connected through SNSs in exchanging knowledge and information they created at the Universities, it would enhance the academic performance of postgraduate students and enable Universities to attain their competitive advantages.

6.8.7 Security of SNSs users

Security is a major concern of the SNSs users because it may determine their behaviour on whether they should utilise SNSs for sharing knowledge and information or not. Findings were obtained from 86(50.3%) postgraduate students and 18(60%) of the academic staff. The findings were also indicated by a majority of the heads of academic departments (7, 87.5%) who were involved in the interview who recommend that Universities should put in place security measures to protect the SNSs' users. The literature reviewed indicated that users that are guaranteed security of their privacy or identity developed more trust in using SNSs for exchanging information and knowledge than those without such a guarantee (Grabner-Krauter and Bitter 2015).

The study conducted by Abdul-Ridha and Jader (2018) revealed that once employees are assured of their security, they tend to develop trust of each other in the organisation which also influence their willingness and intention to share knowledge and information which can improve work productivity. Another study conducted in Oman by Al-Harrasi and Al-Badi (2014) revealed that despite the fact that the number of SNSs; users increased among college students, they did not trust any source in terms of their security.

6.8.8 Stable power generators should be in place

Power problems had affected information and knowledge exchange in the selected universities in Tanzania as indicated in Table 5.38 and Table 5.39 of chapter 5. Findings of the study indicated that 83(48.5%) of the postgraduate students 20(66.7%) of the academic staff revealed that absence of stable power generators in the selected universities in Tanzania affected knowledge and information sharing practices. The findings were mentioned by most of the heads of academic departments (6, 75%) who were involved in interviews who recommended that selected universities for the study should put in place stable power generators to solve power-cut challenges and enhance sharing of knowledge and information since availability of internet connectivity depends on the availability of power. This study established that power failure affected not only desktop computer users but also, personal laptops users and students using tablets. This is due to the fact that the absence of power for example, in a server room would cause the unavailability of internet connectivity around the Universities therefore, it required postgraduate students to buy bundles to be able to donate and collect information and knowledge through their smartphones.

6.8.9 Inculcate knowledge sharing culture among postgraduate students

Another strategy that was pointed out by respondents and participants to improve knowledge sharing practices in selected universities for the study was instilling a culture of knowledge and information sharing among postgraduate students. The findings of the study obtained from 79(46.2%) of the postgraduate students and 21(70%) of the academic staff recommended that Universities should inculcate the culture of sharing knowledge and information among postgraduate students to facilitate the creation of new knowledge and its sharing. The findings were supported by all (8, 100%) of the heads of academic departments who were involved in the interview and agreed that there is a need to build a culture of knowledge and information sharing among the postgraduate students which would enable the creation of new knowledge in Universities and production of competent and knowledgeable graduates.

Chipeta (2018) affirms that one way of cultivating a knowledge and information sharing culture is to establish norms regarding knowledge and information sharing. The study conducted in Nigeria by Karim and Majid (2018) affirmed that one of the factors affecting information and knowledge sharing in academics is the lack of organisational

culture. Mutabi, Mwanja, and Ndeto (2018) in their study that was conducted in Kenya found that there was a culture of exchanging knowledge and information among private Universities students more than among those from public Universities. Another study carried out in Kenya by Wanangeye and George (2016) revealed that there was a lack of a knowledge and information sharing culture among library staff which affected the implementation of knowledge management practices.

In a study conducted in Nigeria by Ononye and Igwe (2019) it was concluded that organisations should promote the culture of exchanging information and knowledge to promote creativity and innovations resulting from experiences and skills sharing. Thus, selected universities for the study were expected to form norms of sharing information and knowledge to influence more postgraduate students to collect and make their knowledge and information available to others. Additionally, the study indicated that the culture of exchanging information and knowledge would strengthen the knowledge level of postgraduate students which would also help them in enriching their knowledge base.

6.8.10 Ensuring trust among SNSs users

Another factor that Universities need to ensure is trust among the SNSs users. This was indicated by 77(45%) of the postgraduate students and 19(63.3%) of the academic staff. The recommendations were also given by most of the heads of academic departments who were involved in interviews and revealed that Universities should find ways of building trust among postgraduate students to influence their willingness to share knowledge and information they possessed with others. Bush (2018) stated that the trust that SNSs' users had towards their members influenced their decisions to share knowledge and information with expectations that they would also gain access to knowledge and information owned by others. Grabner-Krauter, and Bitter (2015) assert that trust can be categorised into different levels including initiation stage, building the trust when users are on the SNSs, state of strengthening the trust, when users are on the SNSs and have built the trust, and the last stage is when users may lose trust in the SNSs. A study done in Oman by Maia *et al.*, (2018) affirmed that trust was one of the factors that influenced users of the products to get involved in e-social commerce. Another study conducted in Oman by Al-Harrasi and Al-Badi (2014) indicated that

students used SNSs to communicate with their peers, friends and families, but they did not trust SNSs in doing financial transactions.

6.8.11 Abandon culture of hoarding knowledge

Universities should discourage the culture of hoarding knowledge among postgraduate students. This suggestion was obtained from 65(38%) of the postgraduate students and 15(50%) of the academic staff who filled in the questionnaires. The findings were also indicated by a small number of the heads of academic departments who were involved in an interview and recommended the Universities' management to advise postgraduate students to abandon the culture of hoarding knowledge to promote sharing of knowledge through SNSs. This study established that there was a tendency of accumulating knowledge and information among some postgraduate students in the selected universities in Tanzania without sharing them. This situation affected the sharing of knowledge and information from the knowledge and information owners to students who are in need of such knowledge. In addition, the tendency of hoarding knowledge affects the creation of new knowledge and information among postgraduate students.

Also, the study established that the behaviour of hoarding knowledge affected the utilisation of SNSs as a platform for knowledge and information sharing. This study further, revealed that the culture of accumulating knowledge and information without sharing it with other postgraduate students affected knowledge sharing practices at the selected universities in Tanzania as a result of mistrust that postgraduates had developed among themselves.

6.8.12 Incentives and rewards should be in place to motivate the use of SNSs

Another strategy pointed out by respondents and participants was the provision of incentives and rewards to the postgraduate students who are effective users of SNSs. This was mentioned by 60(35.1%) of the postgraduate students and 14(46.7%) of the academic staff. The findings were also supported by the majority of the heads of academic departments who were involved in an interview and recommended the Universities to put in place rewards as the catalyst of influencing more postgraduate students to engage in knowledge and information sharing behaviour.

This study established that some postgraduate students were not motivated to share knowledge and information they possessed with others due to various reasons such as lack of trust, negative attitudes, and lack of skills. However, the presence of incentives and rewards to the best users of SNSs would influence their willingness and intention to exchange knowledge and information through SNSs. It is not necessarily rewards to be in the form of money, rewards would be offered by giving prizes or certificates of appreciation to the postgraduate students who frequently use SNSs for their academic purposes.

6.9 Chapter summary

This chapter aimed to interpret and discuss the study findings. The study indicated that there were various types of knowledge and information that postgraduate students preferred to share at the selected universities in Tanzania. It included procedural, conceptual, declarative, explicit and metacognitive knowledge depending on their needs. The study also revealed that Universities visited for the study had no stand-alone policies to guide the proper utilisation of the SNSs in exchanging knowledge and information, the aspects of using SNSs were included in other Universities' policies and procedures, and students' guide books which affected the utilisation of SNSs in knowledge and information sharing among postgraduate students.

This study established that, postgraduate students in Universities visited for the study had the skills of using SNSs for exchanging knowledge and information. The study also revealed that there were various factors that influenced postgraduate students to use SNSs, these factors included personal interaction, educational compatibility, trust, positive attitudes towards SNSs, personal expectations, the culture of the Universities, perceived usefulness and perceived ease of use, skills, presence of technology and motivation. Various factors affected the use of SNSs were identified such as unreliable internet connectivity, lack of training, lack of ICT facilities, lack of skills, insecurity, unreliable power sources, absence of knowledge and information sharing culture, absence of SNSs policies, lack of management support, and the tendency of hoarding knowledge.

The study further revealed that the use of SNSs provided several benefits to the postgraduate students such as timely access to information, cost reduction in accessing

knowledge and information, enhanced academic performance, creation of new knowledge and strengthened knowledge base of the students. Finally, the study indicated that postgraduate students had positive attitudes and they had perceived positively the use of SNSs for exchanging knowledge and information. They also perceived SNSs to be useful in their academic because they provided them with the avenue to access and collect information and knowledge they needed.

Various strategies were suggested by the respondents and participants to achieve effective utilisation of SNSs in the selected universities in Tanzania such as purchase of ICT facilities to facilitate the use of SNSs among postgraduate students, provision of training on the use of SNSs, formulation of a stand-alone policy that would guide the utilisation of SNSs, Universities should ensure the availability of reliable internet connectivity, putting in place an awareness campaign, management support for adoption and use of SNSs, ensuring the security of the SNSs; users, buying stable power generators, instil the culture of knowledge sharing among postgraduate students, ensure trust among postgraduate students, abandon a culture of hoarding knowledge and putting in place incentives and rewards to motivate more postgraduate students to use SNSs in sharing knowledge and information. The next chapter summarises, concludes, recommends and proposes the framework for the implementation of knowledge and information sharing through SNSs among postgraduate students in the selected universities in Tanzania.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS OF THE STUDY

7.1 Introduction

The previous chapter presented the discussion of findings. This chapter provides a summary, conclusion and recommendations on the use of SNSs for knowledge and information sharing among postgraduate students at selected universities in Tanzania. Summary, conclusion and recommendations emanate from the study findings. In giving recommendations, the researcher is trying to help the selected universities in Tanzania with directions on how best they can achieve effective use of SNSs for exchanging knowledge and information among the postgraduate students to help them in strengthening their knowledge base, attaining better performance and to ensure Universities' competitive advantages.

7.2 Summary of the study findings

This section provides a summary of the findings of the study emanating from the objectives of the study.

7.2.1 Types of knowledge and information shared through SNSs

Objective number one of the study aimed at identifying types of knowledge and information that postgraduate students preferred to share through SNSs. The findings of the study established that, postgraduate students at the selected universities preferred to use SNSs for sharing conceptual, procedural, declarative, metacognitive and explicit knowledge. The findings of the study revealed that postgraduate students had awareness of various types of SNSs which would be used for sharing knowledge and information. The findings of the study showed that selected universities for the study had in place knowledge and information sharing practices that enabled postgraduate students to acquire knowledge and information on various aspects of their studies and lives. The study further established that, various strategies were used at the selected universities for the study in the creation of knowledge and information including education, collaboration, interaction, and community of practice. Also, knowledge and information were created through seminars, workshops, public lecturers, and information literacy programmes organised by the Universities' staff.

The findings of the study indicated that the majority of postgraduate students were willing to make their knowledge and information available to others without being forced. The reasons that were identified included possession of skills of using SNSs, knowledge and information sharing culture, motivation, trust, organisation support, self-efficacy, policy requirements, experience sharing, growing academically, finding better ways of doing things, attaining better academic grades, building collective knowledge, filling the knowledge gap, recognition, getting top talent access and promise of rewards. The commonest used SNSs for sharing knowledge and information among postgraduate students at the selected universities included education (classmate), WhatsApp, Research Gate, Google+ and YouTube. The findings of the study also revealed that various ICT facilities were available at the Universities including computers, internet, laptops, printers, LCD projectors, television, scanners, intranet, Video Conferencing, extranet and mobile phones.

The findings of the study revealed that at some selected universities for the study the ICT facilities that were in place were not functioning properly which compromised the utilisation of SNSs for knowledge and information sharing purposes. Also, the study indicated that at some Universities, the number of available computers did not match with the number of enrolled postgraduate students hence some of the postgraduate students were not able to access computers to share knowledge and information with their friends and peers. However, the study findings established that at some Universities the ICT facilities that were in place were functioning properly and were enough compared to the number of enrolled postgraduate students and therefore, students had access to use them for knowledge and information sharing purposes.

7.2.2 Policies guiding knowledge and information sharing practices

The second objective of the study aimed at establishing the availability of policies that guided the use of SNSs for knowledge and information in the selected universities. The findings indicated that the majority of the respondents and participants established that policies were in place that provided the guidelines of using SNSs for knowledge and information sharing purposes. However, the findings of the study indicated that all selected universities for the study had no stand-alone policies to guide the SNSs' usage but, the use of SNSs has been included in other Universities policies and procedures

including ICT policy, students guide books, and other university guidelines and procedures.

The findings of the study also, indicated that postgraduate students had a general awareness of the SNSs' usage policies like any other users of the SNSs' technology as stipulated by the Tanzania Communication Regulatory Authority (TCRA) and other national policies such as Tanzania National ICT Policy, Science and Technology Policy and Education and Training Policy 2014 and that of 1995. The study also, revealed that the majority of postgraduate students had no awareness of the contents of the policies especially on the aspect of SNSs' usage because they had not consulted the policy documents to read them; only a few students had awareness of the aspect of SNSs' usage as articulated in the Universities policies and procedures.

The findings of the study indicated that postgraduate students at the selected universities for the study complied with the SNSs' usage policies because they understand the repercussions of violating the rules as stated in the national policies. Also, the findings indicated that postgraduate students adhered to the policies because lecturers were also part of the group members hence it was difficult for them to misuse the SNSs. The findings of the study further established that at a national level, there were no stand-alone policies that provided guidance on the utilisation of SNSs for knowledge and information sharing among the postgraduate students. The use of SNSs had been stated generally in the reviewed policies. The study also showed that there were no policies at the national level which demanded all Universities in Tanzania to formulate stand-alone SNSs usage policies to facilitate the sharing of knowledge and information among postgraduate students which affected the sharing of knowledge and information.

7.2.3 Level of skills of postgraduate students on the use of SNSs

The third objective of the study assessed the level of skills of postgraduate students on the use of SNSs for exchanging knowledge and information. The findings of the study indicated that postgraduate students at the selected universities were satisfied with the level of skills they possessed on the use of SNSs for sharing knowledge and information because it did not require them to undergo intensive training. The study also showed that training was organised by the Universities to equip postgraduate students with skills of using SNSs for the purpose of facilitating knowledge and information sharing and

enhancing the learning process. However, the trainings were not attended by all postgraduate students which also affected their ability to use SNSs for exchanging knowledge and information. The study further established that training programmes were not regular in the selected universities which also, affected the utilisation of SNSs among the postgraduate students.

The findings of the study also, indicated that the majority of postgraduate students at the selected universities for the study preferred to learn how to use SNSs in their own time instead of attending training sessions organised by the university staff because most of the SNSs were simple to use and one would consult his or her friend in case of difficulties. There were various SNSs that were used by postgraduate students for their private learning on how to do things including the use of YouTube and others. Other methods that were used to equip postgraduate students with the skills of using SNSs include information literacy programmes, attending online short courses lasting less than nine months, and attending courses lasting over nine months.

7.2.4 Factors influencing the use of SNSs for exchanging knowledge and information

The fourth objective of the study examined factors that influenced postgraduate students to use SNSs for knowledge and information sharing. The findings revealed that postgraduate students at the selected universities were influenced by several factors to use SNSs for knowledge and information sharing purposes such as personal interaction, education compatibility, trust among the peers, individual attitudes towards the use of SNSs, personal expectations, university culture, perceived ease of use, perceived usefulness and skills of using SNSs. Interaction is associated with several factors included the attitudes of the individual postgraduate students, skills they had and their beliefs towards SNSs. Educational compatibility was directly linked with their ability to use SNSs to share knowledge and information they needed promptly. Another factor was trust that postgraduates had developed among themselves which also, influenced their decision to use SNSs. The personal expectation that their engagement in SNSs would avail them with knowledge and information they wanted for their educational purposes also attracted their usage behaviour of the SNSs.

Perceived ease of use of the SNSs technologies also, influenced postgraduate students to utilise SNSs for sharing various types of knowledge and information because less time was consumed to learn how to use them. Perceived usefulness of the SNSs for educational purposes including the availability of information and collaboration with friends and peers attracted the majority of postgraduate students to utilise SNSs and finally skills that postgraduate students possessed influenced their SNSs usage behaviour. Factors that limited the utilisation of SNSs for knowledge and information sharing among postgraduate students were also identified. The findings of the study indicated that the following were the factors that affected the use SNSs among postgraduate students in the selected universities. Unreliable internet, lack of training on the use of SNSs, absence of the required technology/facilities, lack of skills among some postgraduate students, insecurity, unreliable power sources, absence of knowledge sharing culture, lack of trust, lack of awareness on the use of SNSs, absence of SNSs usage policies and lack of management support.

7.2.5 Level of usage of social networking sites for knowledge and information sharing

The fifth objective of this study examined the level of usage of SNSs for knowledge and information exchanging among postgraduate students. The findings of the study indicated that the majority of postgraduate students frequently used SNSs for knowledge and information sharing purposes because knowledge was required in their daily lives and for their studies. The findings of the study revealed that postgraduate students utilised SNSs for accessing various kinds of knowledge and information required for social aspects of their lives and for enjoyment. The study also established that there were various benefits that postgraduate students gained out of using SNSs such as enhancement of their knowledge base, enhancement of their academic performance, helped them in the creation of new knowledge and information.

Other benefits resulted from using SNSs were timely communication, provided an avenue for postgraduate students to meet other online research scholars, enhanced collaboration and peer to peer learning, improved quality of academic work, students felt comfortable to express their views through SNSs. Furthermore, SNSs usage benefited postgraduate students by strengthened individual wellbeing and self-esteem, access, quick response and spread of knowledge and information, simplification of the

learning process and time management in accessing to information and knowledge for sharing purposes.

The findings of the study established that, postgraduate students at the selected universities for the study had developed positive attitudes towards the use of SNSs and therefore, they had been using them for exchanging knowledge and information for their education as well as other aspects of their lives. The positive attitudes that postgraduate students developed had resulted from the benefits that they gained out of the SNSs usage. The study also, revealed that postgraduate students at the selected universities had perceived the use of SNSs for knowledge and information sharing to be very useful because they were able to access knowledge and information required for educational purposes which in turn improved their academic performance and enhanced their knowledge base.

7.2.6 Strategies to enhance utilisation of SNSs for knowledge and information sharing

The last objective of this study identified strategies that would enhance the utilisation of SNSs for knowledge and information sharing among postgraduate students. Various strategies were proposed by postgraduate students' respondents, academic staff and heads of academic departments who were involved in an interview. The following strategies were proposed putting in place ICT facilities to facilitate the use of SNS for information and knowledge sharing, Universities should offer training on the use of SNSs, Universities should formulate policies to guide SNSs usage, there should be a reliable internet around the Universities, awareness campaigns are needed to market the usage of SNS, Management of universities should provide support towards the use of the SNSs, security issues should be considered to protect users of the SNSs knowledge sharing culture should be inculcated among postgraduate students, ensuring trust among the SNSs users, Tendency of hoarding knowledge should be abandoned, and incentives and rewards should be in place to promote SNSs' usage.

7.3 Conclusions

The conclusions are drawn from the objectives of the study and the research questions to inform the readers about the lesson that has been learnt from the study findings. The findings of the study indicated that postgraduate students from the selected university

for the study preferred to share procedural and conceptual knowledge relating to their studies but, they also shared declarative, metacognitive and explicit knowledge based on their experiences because the majority had working experiences. The study also, revealed that lack of ICT facilities such as availability of internet connectivity affected knowledge and information sharing practices among the postgraduate students at the selected universities. It was established that absence of stand-alone policy on the use of SNSs compromised its utilisation in knowledge and information sharing among postgraduate students.

Absence of specific policy on the use of SNSs and enough functional ICT facilities denied the right of access of information and knowledge among postgraduate students because were not able to afford the cost of buying bundles for internet connectivity while others were reluctant to share knowledge and information they possessed because of the fear that their security and privacy would be compromised. Lack of a knowledge and information sharing culture at some Universities affected the utilisation of SNSs at some selected universities this situation also affected the country because to achieve national developments it heavily depends on knowledgeable and competent graduates of whom the majority are expected to be postgraduate students.

Training that were offered by the Universities staff to equip postgraduate students with the skills of using SNSs for the purpose of promoting knowledge and information sharing were not attended by all postgraduate students which also affected the effective utilisation of SNSs for knowledge and information sharing purposes because some of the postgraduate students had no skills of using SNSs to share knowledge and information with their friends. The study indicated that at some selected universities training sessions were not regular which in turn affected the utilisation of SNSs by some postgraduate students. The study further, established that lack of management support at some selected universities affected the effective utilisation of SNSs in knowledge and information sharing because some of the management of Universities did not recognize SNSs as formal platform for knowledge and information sharing.

The study also established that postgraduate students in the selected universities preferred to use SNSs and they developed positive attitudes towards them as a result of the benefits they gained out of them including timely access to information, improved quality of their academic work, enjoyments, reduced cost of accessing information and education compatibility. Students also, perceived the use of SNSs to be very useful for their educational purposes and other aspects of their lives. The next section provides conclusions based on the findings of the study.

7.3.1 Conclusions on the types of knowledge and information shared through SNSs among postgraduate students

This section provides the conclusion on the types of knowledge and information that postgraduate students preferred to share in the selected universities in Tanzania. Postgraduate students at the selected universities in Tanzania preferred to share conceptual and procedural knowledge. This is because conceptual and procedural knowledge enabled them to develop an understanding of various concepts and procedures in various subject areas. Competency of conceptual and procedural knowledge enabled postgraduate students in management of their academic-related tasks which in turn enhanced their knowledge level and academic grades. The development of conceptual and procedural knowledge among postgraduate students helped them in the acquisition of declarative knowledge which was very important in problem-solving. Postgraduate students in the selected universities also shared explicit knowledge. The new explicit knowledge was created by postgraduate students through consulting other explicit knowledge shared in several SNSs. Acquisition of new knowledge was observed on the changes among the individual postgraduate students including the way they handled their academic tasks, academic presentations, and writing of research articles.

7.3.2 Conclusions on policies on the use of SNSs for knowledge and information sharing

This section provides a conclusion on policies guiding the use of SNSs for exchanging knowledge and information among postgraduate students at the selected universities. Policies and guidelines were very useful in guiding the proper usage of SNSs for knowledge and information sharing among postgraduate students. Selected universities for the study formulated their ICT policies from national policies such as Tanzania

national ICT Policy 2016, National Science and Technology Policy 1996, Tanzania Education Policy 2014 and that of 1995, and Handbook for standards and guidelines for university education in Tanzania 2019. However, the selected universities had no stand-alone policies on SNSs' usage in place. The use of SNSs was included in Universities' ICT policies and other guidelines. This situation compromised the utilisation of SNSs in sharing knowledge and information among the postgraduate students because some of them were not willing to make their knowledge available to others through SNSs because of the fear of their security and privacy.

7.3.3 Conclusions on the skills of postgraduate students in using SNSs for knowledge and information sharing

This section provides a conclusion on the skills that postgraduate students possessed on the use of SNSs for knowledge and information sharing. A skill was one of the important factors that determined the ability of postgraduate students in utilising SNSs technologies for exchanging knowledge and information. Postgraduate students in the selected universities in Tanzania had skills of using various SNSs because most of the SNSs did not require much effort to learn how to use them. It was also indicated that students sometimes consulted their friends in case of difficulties in using the SNSs hence it became easy for them to be familiar on how to use them. The majority of postgraduate students in the selected universities had acquired skills of using SNSs through personal learning including through the use of YouTube and Facebook while, some postgraduate students had attended information literacy training sessions, seminars, conferences and workshops which equipped them with the necessary skills of utilising SNSs technology for exchanging knowledge and information.

7.3.4 Conclusion based on factors influencing the use of SNSs for knowledge and information sharing

This section provides a conclusion on the factors that influenced postgraduate students to use SNSs for knowledge and information sharing. Postgraduate students at the selected universities in Tanzania were influenced by several factors to use SNSs for knowledge and information sharing. The following factors were identified personal interaction, education compatibility, trust among the peers, individual attitudes towards knowledge and information sharing, personal expectations, university culture, perceived ease of use, perceived usefulness and skills of using SNSs.

It was also found that sharing of information and knowledge through SNSs in Tanzania was a culture of some universities hence postgraduate students were attracted to use SNSs for share knowledge and information to fill their knowledge and information gaps. The study also revealed that perceived ease of use of the SNSs had an influence on SNSs usage among the postgraduate students in the selected universities in Tanzania. Perceived usefulness of the SNSs for educational purposes also, attracted the majority of postgraduate students in the selected universities in Tanzania to utilise SNSs because it enabled easy access to information, online communication and collaborations with friends, peers and family and finally skills that postgraduate students possessed influenced their SNSs' usage behaviour.

7.3.5 Conclusions on the level of usage of SNSs for knowledge and information sharing

This section provides a conclusion on the level of usage of SNSs for exchanging knowledge and information among postgraduate students. The study concluded that postgraduate students in the selected universities in Tanzania developed positive attitudes towards SNSs because of the number of advantages that technology offered to them such as quick access to knowledge and information which enabled them to improve their academic works and excelling in their academic career path. Postgraduate students in the selected universities had perceived the use of SNSs to be very useful because it provided them with avenues to interact, share knowledge and information and for enjoyment. It also enabled them to improve their academic grades and attain better academic performance. Thus, these determined their frequency of use of SNSs for exchanging knowledge and information.

7.3.6 Conclusions regarding strategies to enhance the utilisation of SNSs for knowledge and information sharing

The sixth objective of the study identified strategies for enhancing the use of SNS in sharing knowledge and information. The study revealed that the majority of respondents indicated that to achieve effective utilisation of SNSs among postgraduate students Universities should ensure the availability of reliable internet around the Universities, the SNSs' usage policies should be in place to guide postgraduate students and lecturers when sharing knowledge and information, management of universities should put in place incentives and rewards, there is need to purchase ICT facilities, awareness

campaigns and security issues need to be taken into consideration. Other factors were the need for postgraduate students to abandon the culture of hoarding knowledge, a knowledge and information sharing culture should be inculcated among the postgraduate students, and trust has to be ensured among the SNSs users.

7.4 Recommendations

This study provides recommendations for the improvement of knowledge and information sharing through SNSs among postgraduate students at the Selected universities for the study. The proposed recommendations may be applied with few adjustments in other Universities in Tanzania to ensure they attain effective knowledge and information sharing practices through the use of SNSs.

7.4.1 Use SNSs for sharing academic knowledge and information

This study established that the majority of postgraduate students at the selected universities for the study used SNSs for sharing various types of knowledge such as the declarative, procedural, conceptual, explicit and metacognitive. This study recommends that the management of Universities through their lecturers should advise postgraduate students to spend much of their time using SNSs for accessing and sharing academic knowledge and information which can, in turn, enable them to improve their knowledge level and academic performance respectively. Postgraduate students should not spend much of their time using SNSs for non-academic purposes because this would affect their performance.

7.4.2 Revise the national policies

This study revealed that national policies that were reviewed, such as Tanzania national ICT Policy 2016, Education and Training Policy 2014 and that of 1995, Tanzania Science and Technology Policy 1996 and Standards and Guidelines for University Education in Tanzania, had not instructed Universities in Tanzania to utilise SNSs in facilitating knowledge and information sharing among the postgraduate students; however, the use of SNSs in educational settings had been generally rather than specifically stated in policy documents which had the result that Universities disregarded their utilisation as a formal platform for sharing knowledge and information among postgraduate students at some Universities. This study recommends that the national policies that are in place to be revised to accommodate the requirements for all

Universities to recognize and use SNSs to facilitate the sharing of knowledge and information among postgraduate students.

7.4.3 Formulate Universities stand-alone policies on the SNSs usage

This study established that most of the selected universities for the study had no stand-alone policies to guide the proper use of SNSs in sharing knowledge and information among the postgraduate students. The use of SNSs had been captured in Universities' other guidelines and procedures. This compromised the utilisation of SNSs for knowledge and information sharing among postgraduate students. Thus, this study recommends that Universities should customize and formulate their stand-alone policies from the national policies that guide the use of SNSs in educational contexts. Formulation of institutional stand-alone policies on the use of SNSs would enhance the level of awareness and understanding among the postgraduate students on the use of SNSs in knowledge and information sharing hence promoting its utilisation among them. SNSs usage policies would provide effective ways of utilising such technologies including protecting the users and the image of the Universities. In addition, the presence of policy would attract the trust and willingness of postgraduate students to donate and collect knowledge and information from their friends and peers for their academic purposes, which may, in turn, would promote their academic achievements.

7.4.4 Training on the use of SNSs in Universities

This study results showed that the selected universities had SNSs training for postgraduate students. However, the training sessions were not regular and not attended by all postgraduate students. Therefore, the study recommends that the management of the Universities should encourage postgraduate students to attend SNSs training. Furthermore, the Universities should conduct studies on why postgraduate students were reluctant to attend SNSs training. Also, the Universities should facilitate studies to understand needs assessment of postgraduate students for better tailored training as per their needs. The process would enable postgraduate students to use SNSs for knowledge and information sharing. SNSs usage training increases awareness among the postgraduate students to enhance their academic performance, inculcation of the culture of knowledge sharing and frequent use of SNSs. SNSs training also eliminates the culture of hoarding knowledge and information and inform postgraduate students the risks associated with the use of SNSs.

7.4.5 Universities ICT infrastructure

The study revealed that some selected universities had obsolete ICT infrastructure. For example, some Universities had outdated or malfunctioning computers. Also, the computer ratio was not as per the TCU standards of 1:25 (TCU, 2017). Hence limited access of computers for knowledge and information sharing purposes, considering that not all postgraduate students had smartphones and those who had couldn't afford the costs of buying internet bundles. Therefore, this study recommends that Universities should invest in improving ICT facilities including purchasing new computers, LCD projectors, and Video-Teleconferencing to facilitate the sharing of knowledge and information among postgraduate students.

7.4.6 Internet connectivity around the Universities

The study showed that there was limited internet connectivity at the selected universities in Tanzania. The situation affected the use of SNSs for knowledge and information-sharing purposes. It also denied the right of access of information hence delayed decision making among the postgraduate students. This study recommends that management of the Universities should ensure availability of internet to enable postgraduate students to use SNSs for sharing knowledge and information. This in turn enables them to strengthen their knowledge base and competencies. The study also recommends that, to ensure information and knowledge sharing is achieved among postgraduate students, Universities should ensure the availability of internet connectivity around the Universities.

7.4.7 University management support the use of SNSs at the Universities

This study revealed that university management was responsible for SNSs usage for knowledge and information sharing among the postgraduate students. The findings show that some university management regarded the use of SNSs as the wastage of time. Therefore, they did not formally recognize that SNSs as vehicles of sharing knowledge and information. This study recommends that the University management should offer maximum support to ensure SNSs are utilised at the Universities. The management support can be advocating and officially recognizing the use of SNSs in sharing knowledge and information. Also, motivating postgraduate students to actively participate in using SNSs for knowledge and information sharing for their educational purposes.

7.5 Recommended framework

This study proposed implementation framework for SNSs utilisation. The proposed framework has been derived from the TAM 2 model by Davis (1989) through its variables such as perceived usefulness and perceived ease of use, TRA theory by Fishbein and Ajzen (1975) through its variables' attitudes and subjective norms and SECI Model by Nonaka and Takeuchi (1995) through their variables externalisation, combination and internalisation. Also, variables reviewed from the literature were used to formulate the proposed framework to ensure effective utilisation of SNSs in knowledge and information sharing among the postgraduate students in the selected universities in Tanzania. See Figure 5.8.

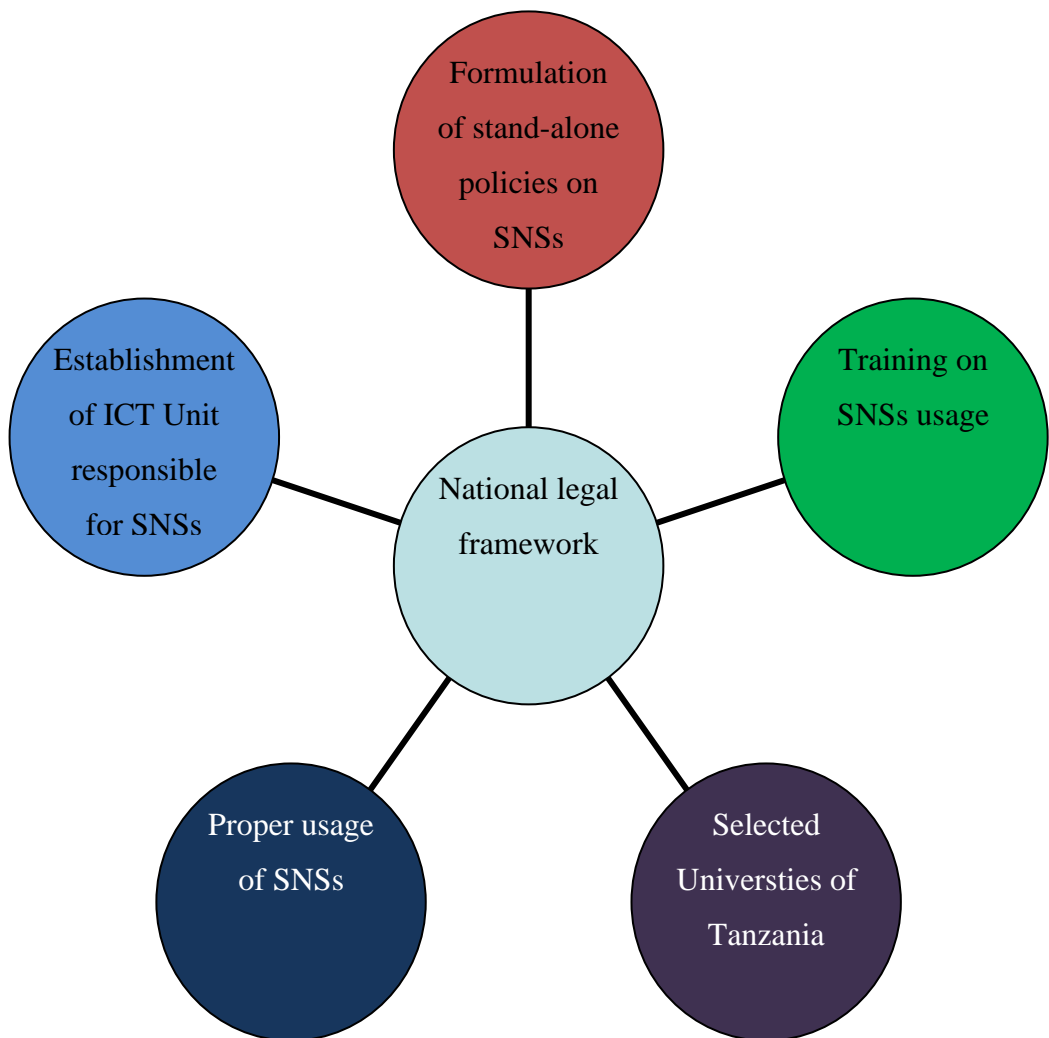


Figure 5.8: Proposed framework for implementation of knowledge and information sharing through SNSs in the selected universities in Tanzania. Field Data: (2022).

Figure 5.8 entails utilisation of SNSs in knowledge and information sharing in the selected universities in Tanzania. The framework serves to effectively share and utilise knowledge and information for educational purposes among postgraduate students. Universities are the agencies to comply with national legal frameworks in educational settings. Universities as the implementing agencies are expected to play their roles to ensure utilisation of SNSs in knowledge and information sharing among the postgraduate students. Also, ICT units should ensure the security and privacy of the SNSs users, including protecting the image of the universities and ensuring their competitiveness.

The framework focused on the national legal framework which entails national legal frameworks such as National ICT Policy 2016, National Science and Technology Policy 1996, and Education and training policy 2014. This proposed framework starts with the national legal frameworks that provide guidance on the use of technologies in educational contexts. The policies generally stated the use of technologies including the use SNSs in Tanzania. However, the policies were silent on whether it is mandatory for all Universities in Tanzania to utilise SNSs in sharing knowledge and information among the postgraduate students. This has affected the utilisation of SNSs in some Universities in Tanzania as SNSs were not formally recognized as platforms for knowledge sharing. While some Universities restricted them with the perception that it is the wastage of time as SNSs are used for non-academic matters. Thus, the proposed framework recommends the national policies be revised to include the aspect that will demand all Universities to formally accept and recognize that SNSs in knowledge and information sharing among the postgraduate students.

The proposed framework is an enabler for the Universities to comply with formulating stand-alone policies on the use of SNSs in knowledge and information sharing. Hence, SNSs usage policies will stipulate how training should be offered to ensure postgraduate students are equipped with the knowledge and skills of using SNSs to search, locate, evaluate, synthesise and share the obtained knowledge and information ethically. This

influences the perceived ease of use of SNSs among the postgraduate students which in turn, increases frequency of use. In reciprocal, the frequency of using SNSs increases social interactions and inculcates the culture of knowledge and information sharing among postgraduate students. Therefore, it will facilitate the creation of new knowledge and information.

The frequency of the SNSs' usage enhances quick access of knowledge and information, flow of knowledge and information, timely communication, improve quality of class assignments and research outputs, informed decision making, and students' academic performance. The benefits influence perceived usefulness of the SNSs, change of attitudes towards the use of SNSs and engaging postgraduate students in using SNSs in sharing knowledge and information to enrich their knowledge and perform better in their studies.

Universities' management should provide support towards improving ICT facilities such as purchasing digital devices, internet connections with reliable internet, intranet and extranet, Video-teleconferencing facilities, television and LCD projectors. Also, University management should establish specific ICT units responsible for ensuring SNSs are properly utilised by the postgraduate students. The units are also responsible for security of the SNSs' users and the systems and ensure the utilisation of SNSs is not compromised. The ICT unit should be managed by professional ICT personnel able to offer technical assistance to postgraduate students. Generally, the framework functions to encourage postgraduate students to share knowledge and information they possess on the SNSs.

7.6 Implications of the study for theory, policy and practice

The findings of this study and the recommended implementation framework for the SNSs' usage for knowledge and information sharing have implications for theory, policy and practice. The recommended framework has its originality from TAM 2 model which states that adoption and use of technology are determined by two factors: perceived ease of use and perceived usefulness of the technology. In the context of this study, once Universities provide training to postgraduate students on the use of SNSs and the related technologies, postgraduate students tend to perceive the use of SNSs as simple which in turn increases their use in sharing knowledge and information required

for their academic purposes. Therefore, the selected universities for the study are expected to invest in ICT infrastructure to ensure facilities for knowledge and information sharing are in place at the Universities. These benefits tend to influence postgraduate students to perceive the use of SNSs to be useful.

The implementation framework has implications for the SECI model which states that new knowledge is created through four phases of socialisation, externalisation, combination and internalisation. Socialisation occurs through interactions among the postgraduate students facilitated by the SNSs. Postgraduate students create and share content in the platform to receive comments and feedback. Therefore, interactions enable postgraduate students to share explicit knowledge through SNSs which also promote the creation of new explicit knowledge and information. The process is a combination and internalisation of the acquired knowledge and information shared by postgraduate students.

The proposed implementation framework has implications for TRA theory which propounds that attitude and subjective norms determine the intention of an individual to perform a given behaviour. That is to say, the positive attitudes that postgraduate students had developed out of benefits of the SNSs had an influence on their attitudes on their use of SNSs in sharing knowledge and information. Formulation of a stand-alone policy that provides guidance on the use of SNSs in knowledge and information sharing should be obtained from the study and the recommended implementation framework. The policy would be utilised to provide guidance on the proper use of the SNSs in sharing knowledge and information. This is to protect the reputation of the Universities, to ensure security and privacy of the SNSs users and to attain Universities competitive advantages. Therefore, this study is important because it provides the framework to ensure Universities utilise SNSs to enhancing knowledge and information sharing. In turn, it creates competent and qualified graduates capable of taking various assignments in the development of the country.

7.7 SUGGESTIONS FOR FURTHER STUDIES

This study investigated the knowledge and information sharing through social networking sites among postgraduate students in the selected universities in Tanzania. This study is limited but to some extent grants opportunities for further studies. The suggestions for further studies were derived from the literature consulted, research and knowledge left out from the conclusions of the study. The study established that, postgraduate students at the selected universities preferred to share various types of knowledge and information including procedural, conceptual, declarative, metacognitive and explicit knowledge. Further studies on the types of knowledge and information shared among the postgraduate students and their influence on students' academic performance is required to provide an in-depth understanding of the roles that knowledge and information play in educational settings.

This study established that selected universities for the study had no stand-alone policies to guide the use of SNSs for knowledge and information sharing among the postgraduate students. Thus, further studies on SNSs usage policies and their implications in knowledge and information sharing is required to provide an insight on the importance of policies in the knowledge and information sharing in Universities. Also, further research is required to investigate the influence of skills on the use of SNSs and their impacts on students' academic performance. This study was conducted in four selected universities in northern Tanzania involving only one private University, therefore a comparative study of private and government-based Universities in other parts in Tanzania is suggested to provide an in-depth understanding of how knowledge and information sharing is practised in the two categories of Universities in Tanzania.

7.8 Overall conclusion

The study revealed that postgraduate students at the selected universities preferred to share various types of knowledge and information such as conceptual, procedural, declarative, metacognitive and explicit. The study established that the selected universities had no stand-alone SNSs usage policies which affected sharing knowledge and information among postgraduate students. Furthermore, the study found that postgraduate students at the selected universities possessed necessary skills of using SNSs in knowledge and information sharing and the use of SNSs was influenced by several factors such as social and environmental factors, timely access to knowledge

and information of their needs, cost reduction in accessing knowledge and information, educational compatibility, enhanced students performance, improved quality of academic works, enhanced knowledge level, informed decision making and enjoyment.

The study also revealed various challenges faced by postgraduate students in the use of SNSs for knowledge and information sharing. They include absence of SNSs usage policies, unreliable internet connectivity, lack of skills, insecurity, lack of stable power sources and lack of trust among the postgraduate students. Finally, the study proposed the implementation framework for the implementation of SNSs usage for knowledge and information sharing in Universities in Tanzania. The study also, provided areas for further studies.

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APPENDICES

Appendix I: Table of determining a sample size

Table 3: Table for determining sample size from a given population

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Source: Krejcie and Morgan (1970).

Note. —N is population size.

S is sample size.

Appendix II: Letter seeking permission to conduct research in MoCU

Msafiri Jaffar Ponera
P.OBox 474-Moshi

19th March 2021.

Vice Chancellor,
Moshi Co-operative University (MoCU)
P.OBox-474
Moshi

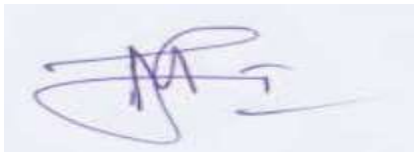
Re: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR INSTITUTION

I am kindly requesting permission to conduct research on Knowledge Sharing through Social Networking Sites in your institution. I am a PhD student at the University of South Africa and I work at the Moshi Co-operative University (MoCU). My research title is “Knowledge Sharing through Social Networking Sites among Postgraduate Students of selected universities in Tanzania”.

I am intending to obtain information from, Postgraduate students, lecturers and academic heads of departments through the use of questionnaires, focus group discussion and in depth-interview.

The study aims at ensuring SNSs are integrated in Universities to enable knowledge sharing with the view of improving student’s academic performance. The study will also enhance the formulation of the policy that will ensure SNSs are deployed in Universities to facilitate the transfer of knowledge among the members of the university community. I have attached my research ethical clearance certificate from my university for your consideration.

With Co-operative greetings!



Msafiri Jaffar Ponera
+255-716641808

Appendix III: Letter seeking permission to conduct research in IAA

Msafiri Jaffar Ponera
P.OBox 474-Moshi

19th March 2021.

Principal,
Institute of Accountancy Arusha (IAA)
P. OBox-2798
Arusha

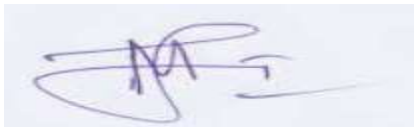
Re: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR INSTITUTION

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The study aims at ensuring SNSs are integrated in Universities to enable knowledge sharing with the view of improving student’s academic performance. The study will also enhance the formulation of the policy that will ensure SNSs are deployed in Universities to facilitate the transfer of knowledge among the members of the university community. I have attached my research ethical clearance certificate from my university for your consideration.

With Co-operative greetings!



Msafiri Jaffar Ponera
+255-716641808

Appendix IV: Letter seeking permission to conduct research in MWECAU

Msafiri Jaffar Ponera
P.OBox 474-Moshi

19th March 2021.

Vice Chancellor,
Mwenge Catholic University (MWECAU)
P. OBox-1226
Moshi

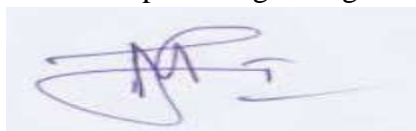
Re: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR INSTITUTION

I am kindly requesting permission to conduct research on Knowledge Sharing through Social Networking Sites in your institution. I am a PhD student at the University of South Africa and I work at the Moshi Co-operative University (MoCU). My research title is “Knowledge Sharing through Social Networking Sites among Postgraduate Students of selected universities in Tanzania”.

I am intending to obtain information from, Postgraduate students, lecturers and academic heads of departments through the use of questionnaires, focus group discussion and in depth-interview.

The study aims at ensuring SNSs are integrated in Universities to enable knowledge sharing with the view of improving student’s academic performance. The study will also enhance the formulation of the policy that will ensure SNSs are deployed in Universities to facilitate the transfer of knowledge among the members of the university community. I have attached my research ethical clearance certificate from my University for your consideration.

With Co-operative greetings!



Msafiri Jaffar Ponera
+255-716641808

Appendix V: Letter seeking permission to conduct research in NM-AIST

Msafiri Jaffar Ponera

P.OBox 474-Moshi

19th March 2021.

Vice Chancellor,
Nelson Mandela African Institution of Science and Technology (NM-AIST)
P. OBox-447
Arusha

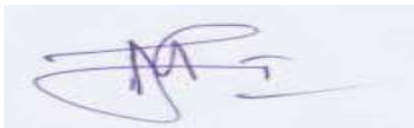
Re: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR INSTITUTION

I am kindly requesting permission to conduct research on Knowledge Sharing through Social Networking Sites in your institution. I am a PhD student at the University of South Africa and I work at the Moshi Co-operative University (MoCU). My research title is “Knowledge Sharing through Social Networking Sites among Postgraduate Students of selected universities in Tanzania”.

I am intending to obtain information from, Postgraduate students, lecturers and academic heads of departments through the use of questionnaires, focus group discussion and in depth-interview.

The study aims at ensuring SNSs are integrated in Universities to enable knowledge sharing with the view of improving student’s academic performance. The study will also enhance the formulation of the policy that will ensure SNSs are deployed in Universities to facilitate the transfer of knowledge among the members of the university community. I have attached my research ethical clearance certificate from my university for your consideration.

With Co-operative greetings!



Msafiri Jaffar Ponera
+255-71664180

Appendix VI: Letter of permission to conduct research at MoCU



In reply, indicate: Ref. No: W/PF/9/1013

Date: 23 Machi 2021

Bw. Jaffar Msafiri Ponera (1826811),
Chuo Kikuu cha Ushirika Moshi,
S.L.P. 474,
MOSHI

**Yah: MAOMBI YA RUHUSA YA KUFANYA UTAFITI CHUO KIKUU CHA
USHIRIKA MOSHI**

Tafadhali rejea barua yako ya tarehe 19/03/2021 yenye kichwa cha habari hapo juu.

Tunapenda kukufahamisha kuwa ombi lako la kufanya utafiti limekubaliwa. Tunakutakia kila la kheri.

Pamoja na Salaam za Ushirika,

Massambu M. Daud
Kny: MAKAMU MKUU WA CHUO

Appendix VII: Letter of permission to conduct research at MWECAU

MWENGE CATHOLIC UNIVERSITY (MWECAU)
"Lux Mundi- Light of the World"

P. O. Box 1226
Moshi - Tanzania.
Tel: +255-272974110



Fax: +255-272974108
Email: mwengeuniversity@gmail.com
Web- Site: www.mwecau.ac.tz

OUR REF: MWECAU/DVCAA/RE/VOL.I/13

20th April, 2021

Msafiri Jaffar Ponera
P. O. Box 474
Moshi - TANZANIA.

Dear Msafiri,

RE: PERMISSION TO CONDUCT RESEARCH AT MWENGE CATHOLIC UNIVERSITY

MWECAU acknowledges receipt of your letter dated 19th March, 2021 regarding the above subject.

By this letter, permission is hereby granted to you, to collect data for your Research Project at Mwenge Catholic University on condition that you will share the findings with MWECAU upon completion of your report writing and all costs involved will be your responsibility.

On arrival for data collection you should report to the office of the Students' Government (MWECAUSO) and the office of the Dean of students for assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Henry S. Laswai".

Prof. Henry S. Laswai
Deputy Vice Chancellor Academic, Research and Consultancy



cc. The Dean of Students – MWECAU - to kindly assist
cc. MWECAUSO – to kindly attend to his needs

Appendix VIII: Letter of permission to conduct research at NM-AIST

**THE NELSON MANDELA
AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY
(NM-AIST)**

Office of the Vice Chancellor

Direct Line: +255 272970001
Fax: +255 272970016

E-mail: vc@nm-aist.ac.tz



Tengeru
P.O. Box 447
23311 Arusha

TANZANIA
Website: www.nm-aist.ac.tz

Our Ref. No:BJ.199/809/01/87

Date: 27th April, 2021

Msafiri Jaffar Ponera

P.O.BOX 474,

MOSHI.

RE: REQUEST TO CONDUCT RESEARCH AT NM-AIST

Reference is made to your letter dated 19th April, 2021 concerning the above heading.

This is to inform you that, permission for the above request is granted. NM-AIST has appointed Head Academics as a contact person during conducting your research activities.

His details are as shown below.

Name: Efraim Kosia
Phone: 0753517059
Email: efraim.kosia@nm-aist.ac.tz

I wish you a success and best of luck.

Regards,


/ Prof. Emmanuel J. Luoga
Vice Chancellor

Appendix IX: Letter of permission to conduct research at IAA



Institute of Accountancy Arusha

P.O. Box 2706, 160499, Arusha, Tanzania
Telephone: +255 27 2970232 Music: +255 763 462109 Telex: 90089 IAA TZ
Fax: +255 27 2970234 Email: iaa@iaa.ac.tz Website: www.iaa.ac.tz

IAA/DS/238/VOL II

1st April 2021

Msaifei Jafar Ponera

P.O. Box 474

0716641808

Moshi

RE: ACCEPTED TO CONDUCT RESEARCH IN OUR INSTITUTION

The heading above is of concern.

With reference to your letter dated 19th March 2021, The Institute of Accountancy Arusha would like to inform you that, your application has been accepted to conduct research on Knowledge Sharing through Social Networking Sites in our institution. Upon your arrival please visit the office of the DPS for further clarification.

Wishing you all the best.

Yours Sincerely,

INSTITUTE OF ACCOUNTANCY ARUSHA


Zuhura M. Ally

FOR RECTOR

CC: DPS



ALL COMMUNICATION TO BE ADDRESSED TO THE RECTOR

Appendix X: Ethical clearance from the University of South Africa



DEPARTMENT OF INFORMATION SCIENCE ETHICS REVIEW COMMITTEE

31 August 2020

Dear Msafiri Jaffar Ponera

Decision:

**Ethics Approval from 31
August 2020 to 31 August
2025**

DIS Registration #: Rec-31082020

References #: 2020-DIS-0025

Name: MS Ponera

Student #: 67117449

Researcher(s): Msafiri Jaffar Ponera

67117449@mylife.unisa.ac.za

+255 716641808

Supervisor(s): Prof P Ngulube

ngulup@unisa.ac.za

012 429 2832

KNOWLEDGE SHARING THROUGH SOCIAL NETWORKING SITES
AMONG POSTGRADUATE STUDENTS OF SELECTED UNIVERSITIES IN
TANZANIA

Appendix XI: Questionnaire for postgraduate students

Introduction

My name is Msafiri Jaffar Ponera a PhD student at University of South Africa (UNISA), South Africa. I am researching on “Knowledge and information sharing through social networking sites (SNSs) among postgraduate students of the selected universities in Tanzania”. You have been selected to participate in this study because you belong to this group and you posse’s important information which will enable me completing my study. I recognize the busy time table you have, but please help me. I am kindly, requesting you to answer questions provided to you. All responses will be treated with confidentiality and anonymity.

Please answer the following questions by:

Inserting a tick (√) in the provided boxes when selecting a correct answer OR

Providing answers in the space provided

Entering (NIL) in the box provided, if the question is not applicable

Demographic

Tick the appropriate answer in the box provided

1. Gender of the respondents

1= Female		2=Male	
-----------	--	--------	--

2. Age group

1=18-27		2=28-37	
3=38-47		4=48-57	
5=58 Years and above			

3. Level of study

1=PhD		3=Postgraduate Diploma(PGD)	
2=Master Degree			

4. Indicate the name of the university where you are currently studying

1=MoCU		3=NM-AIST	
2=MWECAU		4=TUMA	

5= IAA			
--------	--	--	--

Part B: Responses based on the research objectives

Types of knowledge and information shared through SNSs among postgraduate students
(Tick all that are appropriate)

5.	The following are the types of knowledge and information that are shared at your university?		
1=Factual knowledge		2= Conceptual knowledge	
3=Procedural knowledge		4=Metacognitive knowledge i.e Strategic knowledge, contextual knowledge, conditional knowledge, self-knowledge	
5=Scientific information		6=Technological information	
7=development information		8=Empirical information	
9=Stimulatory information		10=Policy information	
11=Directive information		12. Other	

6.	To what extent are you aware of the knowledge and information sharing concept?		
1=Very great extent		5=Not aware	
2= A great extent			
3=A moderate extent			
4=A small extent			

7.	Does your university engage in knowledge and information creation and sharing?		
1=Yes		2= No	
3= I don't know			

8.	If your answer in question 7 is “Yes” please provide the ways through which knowledge is created and at your university		
1= Practice		2= Collaboration	
3= Interaction		4= Education	
5= Other			

9. If your answer in question 7 is “No” please provide the reasons why?.....

.....

10.	Do you share knowledge with other students?		
1=Yes		2= No	

11. If your answer in question 10 is “No” please provide the reasons.....

.....

12.	If your answer in question 10 is “Yes” please provide the reasons		
1= Knowledge sharing culture		2= Trust	
3= Self-Efficacy		4= Motivation	
5= Organisational support		6= Policy requirement	
7= Possession of skills		Other=	

13	Tick the mostly preferred SNSs (Tick all that apply)	
1	Education (classmate)	
2	Research (Research Gate)	
3	Live Journal	
4	Books (Shelfari)	
5	LinkedIn	

6	Wiki spaces	
7	Facebook	
8	My creativity community	
9	Google+	
10	YouTube	
11	My life	
12	Twitter	
13	Badoo	
14	My space	
15	WhatsApp	
16	Bebo	
17	Other=	

14.	What ICT facilities are available at your university that supports knowledge sharing? (Tick all that apply)	
1=Computers	2= Laptops	
3= Scanners	4=Printer	
5=Internet	6=Television	
7= Video Tele-Conference	8=LCD projectors	
9=Intranet	9=Extranet	
Other=		

Attitudes for using SNSs for knowledge and information sharing

15.	What is your attitude towards the use of social networking sites for knowledge and information sharing?	
1=Very positive	2= Positive	
3= Neutral	4=Negative	
5=Very negative		

(c) Perception on the use of SNSs for knowledge and information sharing

16.	How do you perceive the use of social networking sites for knowledge and information sharing?		
1=Very useful		2= Useful	
3= Neutral		4=Useless	
5=Not useful			

(d) Policy guiding knowledge and information sharing practices

17.	Does your university have in place policies that guide knowledge and information creation and sharing practices?		
1=Yes		2= No	
3= I don't know			

18.	To what extent are you aware of the policy guiding the usage of SNSs at your university?		
1=Very great extent		3=A moderate extent	
2= A great extent		4=A small extent	
5=I am not aware			

19.	If your answer in question 17 is "Yes"do you adhere to the policy while using SNSs in exchanging knowledge and information?		
1=Yes		2= No	
3= I don't know			

(e) Level of skills on the use of SNSs for knowledge and information sharing

20 (a).	Are you satisfied with the level of skills that you possess on the use of SNSs for knowledge and information sharing?		
1=Very Satisfied		2= Satisfied	

3=Neutral		4=Dissatisfied	
4= Very dissatisfied			

21.	Have you ever received any training on the use of Social networking sites for knowledge and information sharing?		
1=Yes		2= No	

22.	If your answer in question 20 is “Yes”, please indicate how you received the training (Tick all that apply)		
1= Through information literacy training offered by the university staff		2= Through attending short courses lasting less than nine months	
3= Through attending courses lasting over nine months		4= self study	
5= Other			

(f) Factors influencing the use of SNSs for knowledge and information sharing

23.	The following are the factors influencing your decision towards using SNSs for knowledge and information sharing? (Tick all that apply)	
1	Trust among postgraduate students	
2	Motivation	
3	Perceived ease of use	
4	Perceived usefulness	
5	Educational compatibility	
6	Personal expectations	
7	Personal interaction	
8	Presence of technology	
9	Skills of using SNSs	
10	University culture	

11	Management support	
12	Policy requirement	
13	Individual attitudes towards knowledge sharing	
14	Other=	

(g) Level of usage of SNSs for knowledge sharing

24.	How often do you use SNSs for sharing knowledge and information?		
1=Most often		2= often	
3= Occasionally		4= Rarely	
5= Not at all			

25.	The following are the benefits of SNSs in your academic activities? (Tick all that apply)	
1	Provide an avenue to meet other research scholars online	
2	Enable to increase their knowledge	
3	Enhance academic performance	
4	Students feel comfortable to express their views through SNSs	
5	Enhance timely communication	
6	Enhance relationship with other research scholars	
7	Enhance collaboration and peer to peer learning	
8	Reduce the cost of accessing academic information	
9	Improve the quality of academic works	
10	Help in generation of new knowledge	
11	Strengthen individual well being and self esteem	
12	Other=	

26.	What challenges do you encounter in the use of social networking sites for knowledge and information sharing? (Tick all that apply)	
1	Lack of skills on the use of SNSs for Knowledge sharing	
2	Lack of training on the use of SNSs for KS	
3	Absence of the required technology/facilities	
4	Absence of policy regarding knowledge sharing	

5	Lack of awareness on the use of SNSs for knowledge sharing	
6	Unreliable internet	
7	Lack of trust	
8	Unreliable power sources	
9	Insecurity	
10	Absence of knowledge sharing culture	
11	Lack of management support	
12	Tendency of hoarding knowledge	
13	Other=	

(h) Recommendations towards ensuring effective and efficient knowledge and information sharing through social networking sites

27.	How can knowledge and information sharing through SNSs be achieved at your university?(Tick all that apply)	
1.	University should formulate policies to guide SNSs usage	
2.	University should put in place ICT facilities to facilitate the use of SNSs for KS	
3.	University should offer training on the use of SNSs	
4.	Awareness campaign are needed to market the usage of SNSs for KS	
5.	There should a reliable internet around the University	
6.	Knowledge sharing culture should be inculcated among postgraduate students	
7.	Stable power or generators should be in place	
8.	University management should provide support towards integration of the SNSs	
9.	Tendency of hoarding knowledge should be abandoned	
10	Security issues should be considered to protect users of the SNSs	
11	Incentives and rewards should be in place to promote SNSs usage	
12	Ensure trust among the SNSs users	
13	Other=	

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION

Appendix XII: Questionnaire for academic Staff

Introduction

My name is Msafiri Jaffar Ponera a PhD student at University of South Africa (UNISA), South Africa. I am researching on “Knowledge and information sharing through social networking sites (SNSs) among postgraduate students at the selected universities in Tanzania”. You have been selected to participate in this study because you belong to this group and you possess important information which will enable me completing my study. I recognize the busy time table you have, but please help me. I am kindly, requesting you to answer questions provided to you. All responses will be treated with confidentiality and anonymity.

Please answer the following questions by:

Inserting a tick (✓) in the provided boxes when selecting a correct answer OR

Providing answers in the space provided

Entering (NIL) in the box provided, if the question is not applicable

Demographic

Tick the appropriate answer in the box provided

1. Gender of the respondents

1= Female		2=Male	
-----------	--	--------	--

2. Age group

1=18-27 Years		3=38-47 Years	
2=28-37 Years		4=48-57 Years	
5= 58 Years and above			

3. Level of education

1=PhD		3=Postgraduate (PGD)	
2=Master Degree		4=Bachelor Degree	

4. Indicate the name of the university where you are currently working

1=MoCU		3=NM-AIST	
--------	--	-----------	--

2=MWECAU		4=TUMA	
5= IAA			

Part B: Responses based on the research objectives

Types of knowledge shared through SNSs among postgraduate students (Tick all that are appropriate)

5.	The following are the types of knowledge that are shared at your university? (Tick all that apply)		
1=Factual knowledge		2= Conceptual knowledge	
3=Procedural knowledge		4=Metacognitive knowledge	

6.	Does your university have in place strategies that promote knowledge and information sharing among postgraduate students?		
1=Yes		2= No	
3= I don't know			

7.	The following are the ways used for knowledge creation at your university. (Tick all that apply)		
1= Practice		2= Collaboration	
3= Interaction		4= Education	
5= Other			

8.	If your answer in question 6 is "No" the following are the reasons for not practicing knowledge and information sharing at your university. (Tick all that apply)		
1= Lack of ICT facilities		2= Lack of policies	
3= Lack of skills		4= Unreliable internet connectivity	
5=Negative perception towards SNSs		6=Negative attitude towards SNSs	
7=Lack of trust		8= Lack of awareness	

9=Lack of motivation		10=unwillingness to share knowledge	
5= Other			

9.	Are the postgraduate students willing to share knowledge?		
1=Yes		2= No	

9. If your answer in question 9 is “No” please provide the reasons.....

10.	If your answer in question 9 is “Yes” the following are the reasons for their willingness to share knowledge and information. ((Tick all that apply))		
1= Self-efficacy		2=Find better ways of doing things	
3= Recognition		4= To attain better academic grades	
5=Promise of rewards		6= To grow academic wise	
7=To build collective knowledge		8= To fill the knowledge gap	
9=getting top talent access		10=Experience sharing	
11. Other			

11.	Are you aware of social networking sites are that can be used for knowledge and information sharing?		
1=Yes		2= No	
3= I don't know			

12.	If your answer in question 11 is yes, please indicate which are the most preferred social networking sites for knowledge and information sharing among postgraduate students? (Tick all that apply)		
1	Education (classmate)		
2	Research (Research Gate)		
3	Live Journal		

4	Books (Shelfari)	
5	LinkedIn	
6	Wiki spaces	
7	Facebook	
8	My creativity community	
9	Google+	
10	YouTube	
11	My life	
12	Twitter	
13	Badoo	
14	My space	
15	Whatsapp	
16	Bebo	
17	Other	

13.	How often do you engage postgraduate students in using SNSs for knowledge and information sharing?		
1=Most often		2= often	
3= Occasionally		4= Rarely	
5= Not at all			

14	Does your university provide training to the students to promote the usage of SNSs for knowledge and information sharing?		
1=Yes		2= No	
3= I don't know			

15. If your answer in question 14 above is “No” please provide the reasons.....
.....
.....

16.	If your answer in question 14 is “Yes”, please indicate how training is offered (Tick all that apply)
-----	---

1= Through information literacy training offered by the university staff		2= Through attending short courses lasting less than nine months	
3= Through attending courses lasting over nine months		4= self study	
5= Other			

17.	What ICT facilities are available at your university that supports knowledge and information sharing? (Tick all that apply)		
1=Computers		2= Laptops	
3= Scanners		4=Printer	
5=Internet		6=Television	
7= Video Tele-Conference		8=LCD projectors	
9=Intranet		10=Extranet	
11. Other			

(b) Attitudes of students on the use of SNSs for knowledge sharing

18.	In your view, what is the attitude of postgraduate students towards the use of social networking sites for knowledge and information sharing?		
1=Very positive		2= Positive	
3= Neutral		4=Negative	
5=Very negative			

(c) Perception of postgraduate students on the use of SNSs for knowledge sharing

19.	In your view, what is the perception of postgraduate students towards the use of social networking sites for knowledge and information sharing?		
1=Very positive		2= Positive	
3= Neutral		4=Negative	

5=Very negative			
-----------------	--	--	--

(d) Policy guiding knowledge sharing practices

20.	Does your university have in place policies that guide the use of SNSs for knowledge and information sharing practices?		
1=Yes		2= No	
3= I don't know			

21.	To what extent are you aware of the policy guiding the usage of SNSs at your university?		
1=Very great extent		3=A moderate extent	
2= A great extent		4=A small extent	
5=I am not aware			

22.	If your answer in question 20 is "Yes" do postgraduate students adhere to the policy while using SNSs?		
1=Yes		2= No	
3= I don't know			

(e) Level of skills of postgraduate students on the use of SNSs for knowledge and information sharing

21.	Are you satisfied with the level of skills that postgraduate students possess on the use of SNSs for knowledge and information sharing?		
1=Satisfied		2=Very satisfied	
3=Neither satisfied nor dissatisfied		4=Dissatisfied	
5= Very dissatisfied			

(f) Factors influencing the use of SNSs for knowledge and information sharing among postgraduate students

22.	What are the factors influencing decision towards using SNSs for knowledge and information sharing among postgraduate students? ((Tick		
-----	--	--	--

	all that apply)	
1	Trust among postgraduate students	
2	Motivation	
3	Perceived ease of use	
4	Perceived usefulness	
5	Educational compatibility	
6	Personal expectations	
7	Personal interaction	
8	Presence of technology	
9	Skills of using SNSs	
10	University culture	
11	Management support	
12	Policy requirement	
13	Individual attitudes towards knowledge sharing	
14	Other	

23.	What are the benefits of SNSs in academic activities? (Tick all that apply)	
1	Provide an avenue to meet other research scholars online	
2	Enable to increase their knowledge	
3	Enhance academic performance	
4	Students feel comfortable to express their views through SNSs	
5	Enhance timely communication	
6	Enhance relationship with other research scholars	
7	Enhance collaboration and peer to peer learning	
8	Reduce the cost of accessing academic information	
9	Improve the quality of academic works	
10	Help in generation of new knowledge	
11	Strengthen individual well being and self esteem	
12.	Other	

(g) Level of usage of SNSs for knowledge and information sharing

24.	How often do you use SNSs for knowledge and information sharing?		
1=Most often		2= often	
3= Occasionally		4= Rarely	
5= Not at all			

25.	What challenges do postgraduate students encounter in the use of social networking sites for knowledge sharing? (Tick all that apply)
1	Lack of skills on the use of SNSs for Knowledge sharing
2	Lack of training on the use of SNSs for KS
3	Absence of the required technology/facilities
4	Absence of policy regarding knowledge sharing
5	Lack of awareness on the use of SNSs for knowledge sharing
6	Unreliable internet
7	Lack of trust
8	Unreliable power sources
9	Insecurity
10	Absence of knowledge sharing culture
11	Lack of management support
12	Tendency of hoarding knowledge
13	Other

(h) Recommendations towards ensuring effective and efficient knowledge and information sharing through social networking sites

25.	How can knowledge and information sharing through SNSs be achieved at your university? (Tick all that apply)
1.	University should formulate policies to guide SNSs usage
2.	University should put in place ICT facilities to facilitate the use of SNSs for KS
3.	University should offer training on the use of SNSs
4.	Awareness campaign are needed to market the usage of SNSs for KS
5.	There should a reliable internet around the University
6.	Knowledge sharing culture should be inculcated among postgraduate students

7.	Stable power or generators should be in place	
8.	University management should provide support towards integration of the SNSs	
9.	Tendency of hoarding knowledge should be abandoned	
10	Security issues should be considered to protect users of the SNSs	
11	Incentives and rewards should be in place to promote SNSs usage	
12	Ensure trust among the SNSs users	
13	Other	

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION

Appendix XIII: Interview guide for heads of academic departments

Dear participants,

I am a PhD student in the Information Science programme at the University of South Africa in South Africa. I am conducting a study on Knowledge and information sharing through social networking sites among postgraduate students of the selected universities in Tanzania. You have been selected to participate in this study because you belong to this group and you possess important information which will enable me completing my study. I recognize the busy time table you have, but please help me. I am kindly, requesting you to answer questions provided to you. All responses will be treated with confidentiality and anonymity.

1. Age
2. Gender.....
3. For how long you have been serving as head of academic department?
4. Level of education attained.....
5. What is your understanding by knowledge and information sharing?
6. What are the perceived major reasons for knowledge sharing among postgraduate students?
7. What knowledge and information sharing practices does your university employ?
8. There are various types of knowledge that are created at the university. Which one is frequently created and shared by postgraduate students?
9. Does your university use social networking sites to support knowledge and information sharing among postgraduate students?
10. What is the attitude of postgraduate students towards the use of SNSs for knowledge and information sharing?

11. How do postgraduate students perceive the use of SNSs for knowledge sharing and information sharing?
12. What policies are in place to supports knowledge and information sharing through SNSs in your university?
13. How do you determine the level of skills of postgraduate students on the use of SNSs for knowledge and information sharing at your university?
14. What factors affecting the use of SNSs for knowledge and information sharing at your university?
15. What measures should be taken to ensure effective and efficient knowledge and information sharing through SNSs is achieved?

Appendix XIV: Document consulted in this study

The following documents were reviewed to address questions and provide insights to the findings collected through questionnaires and interviews.

Tanzania national ICT Policy 2016

National Science and technology policy for Tanzania 1996

Tanzania education policy 2014

Handbook for standards and guidelines for university education in Tanzania 2019

IAA ICT policy 2021

MoCU ICT policy 2019

NM-AIST ICT policy 2016

Appendix XV: Respondent informed consent form

I.....affirm that the researcher requested my consent to participate in this study and has informed me the purpose, procedure, and the expected benefits of the study. I asked a number of questions to the researcher to get more elaborations and I am ready to take part in the study.

I know that taking part in this study is voluntary and therefore, I am free to withdraw at any point when I decide to do so. I understand that the final product of this study is the preparation of scientific publications such as thesis, journal articles, conference paper, and so on and that my involvement in the study and information I have provided will be treated with confidentiality.

I accept or do not accept to get involved in this study

Participant/respondent full names.....

Participant/respondent signature.....

Date:

Researcher's full names.....

Researchers' signature.....

Date: