STRATEGIES USED BY THE UNIVERSITY OF ZULULAND FOR DOCUMENTING, DISSEMINATING AND ACCESSING INDIGENOUS KNOWLEDGE

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2021

DECLARATION

I certify that I have read and comprehended the University's postgraduate research rules and norms, and that I have adhered to their requirements to the best of my knowledge and belief.

I declare that this proposal is the result of my own work and effort, with the exception of supervisory assistance. To the best of my knowledge and belief, all sources of information have been identified in accordance with academic standards. I further certify that the proposed research will be original, and that the material to be reviewed has not, in whole or in part, been submitted for a degree at this or any other university.

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I am confident that I have provided the applicant with the required supervision for this thesis and that it complies with the University's postgraduate research thesis standards.

I have read and approved the final version of this proposal and it is submitted with my consent.

Prof D. N. Ocholla

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Signature

Dr P. N. Dlamini

……

2022

DEDICATION

Firstly, I dedicate this thesis to His Majesty the Lord God Mighty King for being with me when working on this research document thus far:

"*7. Blessed is the man who trusts in the Lord, whose trust is the Lord. 8. He is like a tree planted by water, that sends out its roots by the stream, and does not fear when heat comes, for its leaves remain green, and is not anxious in the year of drought, for it does not cease to bear fruit."*

(Jeremiah 17:7)

I also dedicate this work to my beautiful wife Precious Gugulethu Buthelezi, my two sons Sifundo Sibahle 'Chule' Buthelezi, and Solwazi Snazo Qalokuhle Buthelezi and my lovely daughter Nkosenhle Mpathwenhle Buthelezi, who have been around me during this period, have always supported and motivated me to do my work tirelessly. Moreover, I thank them for leading me through the challenging time of my study.

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ABSTRACT

Indigenous knowledge is a type of knowledge that is specific to a community and was developed for the survival of rural communities. Furthermore, it is defined as a concept of culture as a way of life of a given people. The study's goal was to assess the University of Zululand's practices for documenting, sharing, and accessing indigenous knowledge. Five (5) research objectives led the study: to establish how IK is developed at the University of Zululand; to determine how IK is documented at the University of Zululand; to determine how IK is accessed or shared, both internally and externally, at the researched institution; to identify challenges that IK faces at the University of Zululand; and to suggest the strategies for IK development at the University of Zululand.

The research was guided by Nonaka's (1994) SECI model which depicts four key elements, which are: socialisation, internalisation, combination and externalisation. The study adopted both interpretivist and positivist research paradigms. Ultimately, qualitative and quantitative research methods were used. The qualitative research approach was used to collect data from academic and non-academic staff members. Interviews were conducted with 18 academic staff members and 5 with support staff members. An in-depth literature review, interviews and document analysis formed part of the qualitative content analysis. The quantitative research approach was used to collect data from IK theses and dissertations from UNIZULU Institutional Repository between 2009-2019.

The study recommended that strategies need to be adopted by the University of Zululand for documenting, disseminating and accessing IK included the following: the recognition of the importance of the IK; having the relevant structures in place; putting in place the guiding documents to regulate the whole IK process, the inclusion of IK in the curricula and outline the marketing methods that can promote the IK. The results of the study revealed that many departments and faculties across the University of Zululand were involved in the creation of IK-related content. The study identified teaching and learning; research activities and community engagement as the creation/development The Faculty of Arts, more especially the department of African Languages, was noted to be more involved in the creation of IK related content including indigenous History; cultural activities practice. Additionally, the most involved academic in the creation of IK-related content was identified within the Department of African languages. Noticeably, IsiZulu was the most widely used term in theses and dissertations. The documentation of the content related to IK in the University of Zululand is

done frequently, but is not readily known. While IK is created/developed and documented by different departments, there is a lack of interest among content owners in sharing the knowledge. Furthermore, language seems to be a barrier as IK is easily communicated using vernacular language and the shortage of proper tools for recording and capturing. This study contributes to current literature and discourse on indigenous knowledge systems and its documentation; adds fresh data, information, and knowledge on IK research, particularly in South Africa; and proposes practical solutions on the documentation and application for IK development. One of the study recommendations is the need for IKS policy to be in place at the University of Zululand. The study was limited to the University of Zululand only, yet a study of this nature needs to be conducted across the province of KwaZulu-Natal. The study will be of great use to academics, researchers, students, all departments in the University of Zululand and in South Africa. The full thesis is available in the University of Zululand Institutional Repository and other publications from the thesis.

Keywords: Knowledge creation, indigenous knowledge, tacit knowledge, SECI model, information and communication technology, University of Zululand, UNIZULU

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List of abbreviations and acronyms

AIK	African Indigenous knowledge
CD	Compact Disc
CIKARD	Centre for Indigenous Knowledge for Agriculture and Rural Development
DVC	Deputy Vice-Chancellor
DVD	Digital Versatile Disc
IIRR	International Institute of Rural Reconstruction
IK	Indigenous Knowledge
IK	Indigenous Knowledge System
IR	Institutional Repository
KCM	Knowledge Creation Model
KM	Knowledge Management
KZN	KwaZulu-Natal
PA	Participant from Academic staff
PhD	Doctor of Philosophy
PNA	Participant from Non-Academic staff
RO	Research Office
SECI	Socialisation, Externalisation, Combination and Internalisation
UKZN	University of KwaZulu-Natal
UNESCO	United Nations Education Science and Cultural Organization
UNIZULU IR	University of Zululand Institutional Repository
UNIZULU	University of Zululand
USA	United States of America
WIPO	World Intellectual Property Organisation

CHAPTER ONE

INTRODUCTION AND THE BACKGROUND OF THE STUDY

1.1 Introduction

There is no one way of defining Indigenous Knowledge (IK). For example, Muchenje and Goronga (2015: 540) write that "before examining traditional or indigenous knowledge, there is a need to define culture". They define the concept of culture as a way of life of a given people. The term 'indigenous' means the local or native to the country, the people of the society concerned (Claxton, 2010). To emphasize, 'indigenous' means things originating from a particular place and native to the place. IK is defined by the National Research Foundation (2014) as a complex set of knowledge and technologies that exist and have been formed around the specific conditions of inhabitants and communities indigenous to a given geographical location. Favier, de Jesus, Navarro, and Warren (1995: 479) also define it as a society's knowledge base that supports communication and decision-making. While indigenous knowledge (IK) refers to localised forms of knowledge that are unique to a specific culture and community, Indigenous Knowledge Systems (IKS) refer to localised forms of knowledge that are unique to a given society and community. In essence, these concepts, culture, indigenous lore and tradition are interrelated and complement each other. Furthermore, Lindh and Haider (2010) admit that the two terms, IK and traditional knowledge. are often used synonymously.

The emphasis on oral transmission has led to distortions in the concept of indigenous knowledge (IK), which is usually unwritten and preserved in the memory of elders. To reap the benefits of IK, it must be documented and shared as appropriate. Local groups possess a sophisticated and well-developed knowledge system, as evidenced by the available documentation (Sithole, 2006: 3). For example, it's assumed that a large portion of IK is preserved in the memories of elders, but this knowledge will eventually be lost as people age and pass away (Dlamini, 2016; Lwoga, 2009; Ngulube, 2002). Possibly because it has been passed down orally from one generation to the next for so long, indigenous knowledge (IK) may and should be taught in a language that is understood by different societies (Sithole 2006: 3).

IK possesses a number of advantages. According to Hirwade and Hirwade (2012), appreciating IK contributes to the development of traditional uniqueness and the increased application of such knowledge toward achieving social and improvement goals such as sustainable agriculture, affordable and appropriate public health, and biodiversity protection. The two

authors admit that local people have acquired extensive skills in growing local food, preserving it, and enduring in demanding settings for some time; they have a vast knowledge of the different types of harvests to plough, and they are fully aware of the right time to sow and weed, they know the types of plants that are venomous, they also have a vast knowledge of normal common diseases in plants, livestock, and humans; they know how to keep the environment in balance; they are familiar with indigenous practices, sciences, and technologies; and they know how to maintain the environment duplication.

It has been mentioned in the Institutional Advancement Conference (2013) that "African universities must be used as spaces to reclaim African identity and to aid in decolonising the mindsets of Africans if we are to preserve the accumulated indigenous knowledge during the continent's history". Department of Science and Technology (DST) (2004: 35) proposed the need to develop clear knowledge validation frameworks that inform the education system and the establishment of Indigenous Knowledge System Centres within the universities to document and promote IK. Based on the aforementioned statements, the researcher has identified a need to assess the status of the documentation, dissemination and access to IK at the University of Zululand (UNIZULU).

1.1.1 Conceptual setting

1.1.1.1 Documentation of Indigenous Knowledge

Indigenous knowledge has historically been transmitted orally from one generation to another, putting it at risk of extinction if the issue of preserving and documenting it is not addressed (Sarkhel, 2016). On the one hand, Sithole (2007) attests that documentation serves as a safeguard against exploitation by players other than their real originators. Ngulube (2002), for example, considers documentation as a means of making indigenous knowledge widely accessible to experts in the development sector, in addition to serving the preservation goal. Masuku and Pasipamire (2014) have a dissenting view as they argue that archivists and librarians are running the risk of imposing themselves on a system that naturally preserves itself. In face of the challenges that these collecting professionals encounter trying to document IK. They further argue that IK should be left to preserve itself as it has always done. Nevertheless, both critiques on opportunities and risks posed by the documentation of IK were observed by the researcher who agrees with the two opinions but they complement each other if they can be balanced with the critical policies and intellectual property rights which may need to be instilled in both IK holders and the IK documentarists.

Another important factor as Sithole (2006) suggests, IK should be offered in languages that are understood by different cultures in order to avoid it becoming culturally distinctive. Additionally, it is vital to document and make it available in a variety of languages to facilitate access. World Intellectual Property Organization (WIPO) (2017) emphasises the need for documentation as a component of an overall strategy for the protection of IK. Additionally, WIPO (2017) notes that IK documentation can take a variety of forms, including textual registries and files, video, photos, and audio recordings; in indigenous or other languages; and utilising current or more traditional technologies (digital versus written filing). Panday, Mittal, and Sharma (2017:3) observe that there are insufficient or no transcribed records of such information's recording and transmission, even though such knowledge systems are critical for progress. Indigenous knowledge is captured using technology such as cell phones, digital cameras, and tape recorders, while it is stored and disseminated using CD-ROMs, and computers with databases (Dlamini, 2016). Documentation is extremely useful in practically every aspect of human existence, including physical well-being, animal health, livestock management, food, husbandry, and forestry, to name a few.

Several rural communities have a strong belief in the importance of IK, which is the knowledge held by local people that are utilised to make decisions at the community level on agricultural and cultural practices, as well as health care and food preparation (Makinde & Shorunke, 2013: n.p.). Indigenous Knowledge (IK) is locally based knowledge, so the researcher addresses the translation of the language of Indigenous Knowledge as it becomes more global in order to make it easier for others to access it. If you are going to document IK, you will have to take into account a number of elements. Knowledge holders may be wary of documenting and disseminating their expertise for fear that it will be misused, against them, in the future. In this context, WIPO (2017) recommends the engagement of the legal framework to govern the use of IK like other kinds of Western knowledge. In such a legal framework, intellectual property rights may be included but not limited. IK holders can ensure that they preserve exclusive IP rights on the use of their cultural heritage if they record and document their cultural heritage with World Intellectual Property Organization (WIPO). Holders of traditional knowledge have a strategy in place at WIPO to help them identify and protect their IP interests when their knowledge is documented or captured in any other way.

1.1.1.2 Dissemination

Indigenous knowledge dissemination needs owners or originators with the vision and motivation to create, adapt or exchange it (Akinde, 2008). Dlamini (2016) emphasises the critical role of Information Communication Technology (ICT) tools in disseminating IK during the management process. Institutional Repositories and periodicals are tools used by the information distributors like the University of Zululand library. Additionally, both authors emphasise the importance of supplementing IK gathering and storage with proper dissemination and exchange among interested parties via newsletters, journals, and other relevant media. Akinde (2008) on a digital note further, highlight that there is a gap between those who are connected and those who are not, called the digital divide, as it focuses on access to computers and the Internet. This information supply gap means that the poor and the marginalised are not able to access information and services that would have helped them improve their lives. ICT can disarm social stereotypes and prejudices and empower members of disadvantaged language communities and other minority groups, it can also play an important role in assisting underserved communities to access critical information. The researcher opted to disseminate indigenous knowledge using both ICT tools and the print materials like books and journals.

1.1.1.3 Accessing/sharing

The primary aim of all information management activities is to provide access to collections and materials (Ngulube, 2002; Sarkhel, 2016). Access to information and knowledge is concerned with the policies relating to public domain information, community access points (including such access in libraries), alternative software models (open-source and free software) and development of the digital public library services (Sarkhel, 2016). Library professionals have a long tradition during which they have developed significant skills in the organization of knowledge. They can draw upon professional knowledge and skills in making IK accessible and, by implication, utilized. The University of Zululand can use its library as one of the main tools for accessing indigenous knowledge. Nevertheless, there are problems related to access to IK as compounded by a lack of standardized indexing terms and by inconsistent indexing policies. The library also can play a pivotal role to assist the University in such collaboration processes including open access.

1.1.2 Contextual Background – University of Zululand IK Environment

The University of Zululand is an inclusive institution of higher education that offers around 252 accredited educational programs by the Department of Higher Education and Training (DHET) which include degrees, diplomas, and certificate courses through its four colleges of

arts, education, science, and agriculture, as well as commerce, administration, and law. Based on the University of Zululand (2020:4), facts and figures of the actual statistics for the student profile enrolment trends of the University of Zululand generally, it consisted of 16 891 students which include 15 603 undergraduates and 1 288 postgraduates. The total number of females was 9 637 while for males the number is 7 254 (University of Zululand 2020). The university had a total number of 17 133 African students, according to the above-mentioned statistics, and a few other races. As highlighted (see section: 3.2), the main reason for promoting, documenting as well as providing wide accessibility of IK at the University of Zululand is that there are departments with direct and indirect links to promoting IK. These include: African Languages and Culture, Information Studies, Botany and Zoology (academic departments), as well as the University Research Committee and library and information services support department.

The University IK is generated through research; teaching and learning that involve students, academic staff members, and support staff members. The University Research Committee in general coordinates and promotes research within the University and the Library and information service departments contribute through collecting, storing and disseminating information that includes IK, largely located in the UZulu Collection and Institutional Repository, in particular in the form of theses and dissertations in the University of Zululand. Unfortunately, the IK activities of the University are not widely known.

The IK environment at the University of Zululand is relatively unknown. In that regard, the DST, (2004:33) highlights the critical role of information centres in promoting local knowledge. In addition, the University of Zululand Library's mission is to support the University of Zululand's teaching, learning, and research functions, as well as the needs of the community in its immediate vicinity who can benefit from the library without jeopardising its primary clientele's privileges (University of Zululand, 2010: 28). The materials containing IK content are available across the library, but particularly at the UZulu Collection section. This area houses material relating to Zulu studies, theses and dissertations, the land, people, and history of KwaZulu-Natal, as well as additional material used to preserve and share this type of knowledge. This is a restricted-access area for material preservation. Additionally, the UNIZULU Library features an Institutional Repository (IR), a specialised database for university-produced materials. All the departments described above generate, gather, store, and disseminate IK in a variety of ways.

1.2 Problem Statement

The documentation of and access to IK is currently drawing much attention in tertiary institutions in South Africa. The researcher acknowledges that there are activities on the documentation of IK at the University of Zululand at the moment (see Section 2). Notably, there are IK-related documents in the university library, but it is not clear how documentation, sharing and access take place and what challenges are involved. According to Nkondo (2012), a lack of understanding about whether universities are involved in the creation or development of IK puts the knowledge at risk of not being recognized in tertiary institutions. Additionally, it also seems that there is no proper policy in place regarding the documentation, sharing and access of IK. The University of Zululand IKS strategies documenting, disseminating and accessing for IK is not known. The level and extent of access to and use of IK at the University are unknown. Also, how IK is created, documented, and shared is unknown. This study recognises that limited studies are focusing on IK development within universities in South Africa, despite the advice that the African universities must be used to reclaim African identity (Institutional Advancement Conference, 2013).

The current study assessed the method by which IK is documented, communicated, and made accessible at the University of Zululand and among key players involved in the process of IK generation. The researcher raised a concern that IK documentation is inadequate at the University of Zululand, despite evidence that IK is on the verge of extinction if appropriate control measures are not applied. The fundamental research question is what documentation and dissemination mechanisms are in place at the University of Zululand for indigenous knowledge.

1.3 Purpose of the study

The purpose of the study comprises the aim of the study and the objectives of the study.

1.3.1 Aim of the Study

The study aims to explore the strategies for documenting, disseminating and accessing IK at the University of Zululand.

1.3.2 Objectives of the Study

The purpose of the study was achieved by the following objectives:

- To establish how IK is created at the University of Zululand.
- To explore how IK is documented at the University of Zululand.

- To examine how IK is accessed or shared internally and externally in the studied institution.
- To identify opportunities and challenges facing IK at the University of Zululand.
- To suggest a strategy for the development of IK at the University of Zululand.

1.5 Research Questions

To accomplish the study's precise objectives, the following research interrogations were addressed:

- How is IK created at the University of Zululand?
- What is the extent and status of documenting IK at the University of Zululand?
- How is IK information accessed and shared at the University of Zululand and externally?
- What are the challenges that are experienced by the University of Zululand in documenting IK?
- What strategies need to be developed for the documentation of IK by the University of Zululand?

1.6 Significance and Contribution of the Study

It should be stated that the significance of a study is determined by its addition to research and knowledge (Kwake, 2007:18). In that light, the current study will contribute to both the theory and practice of IK. Theoretically, the study will add to the existing body of literature by contributing new findings. The goal is that these new findings will shed light on the documentation and promotion of IK. In practice, the study will benefit IK custodians, especially academic institutions, communities and government at large, in the form of documentation, promotion, preservation and dissemination of IK. The study is likely to shed light on the status of IK at the University of Zululand. The results and recommendations will help the institution make future decisions regarding the development of IK. Moreover, the study will also help national governments, public and academic libraries as well as tertiary institutions that are fully involved in the management of IKS.

The literature reveals that there is not much that has been done concerning the documentation of IK. There are still some debates in the country about the methods of increasing the documentation of IK. In this regard, the relevant departments of the institution, both academic

and support, have to be introduced to the IK documentation practice. Usually, such processes firstly require both parties to be provided with appropriate training. For a smooth process, the academic departments need to be the key to promoting IK documentation by including IK in the curriculum and encouraging IK-based research programmes. The policymakers also need to come up with a legal framework that will regulate the process of documenting, disseminating and accessing IK.

1.7 Literature Review

The literature review of the study included the creation/development of indigenous knowledge existing methods of documentation and disseminating of African indigenous knowledge (AIK); challenges faced when documenting indigenous knowledge systems; strategies for documenting; and disseminating IK gaps in the reviewed literature and the summary.

Journals, conference proceedings, research publications, official government documents, and books were examined and reviewed for the study. The sources discussed how indigenous knowledge is formed, how indigenous information is documented, how indigenous knowledge is accessed and shared the issues facing indigenous knowledge, and a strategy for indigenous knowledge development (see section 2.3 in chapter 2). Finally, the study incorporated Nonaka's Knowledge Creation Theory (1994). Chapter Two contains the literature review.

1.8 Scope and Limitation of the Study

The present study covers the strategies used by the University of Zululand in documenting, disseminating and accessing Indigenous Knowledge. The study has considered different individuals from selected departments that deal with the creation, documentation and provision of access to information which includes Indigenous Knowledge. Furthermore, the study covered the examination of present strategies used to create and document IK in the studied institution, while it also considered the opportunities and challenges experienced in the process concerned with different suggestions and recommendations.

This study largely applied the qualitative research approach through a case study of IK status at the University of Zululand. Semi-structured interviews were focused on library staff and academics. Bibliometric/content analysis was used for quantitative data collection from UNIZULU Institutional Repository (IR). The study covered only document- and knowledge-based departments which include Research and Innovation, the Library and Information Services and selected academic departments. The selection was based on the purposive sampling technique.

1.8.1 Scope

The purpose of this study was to explore the strategies for documenting, sharing, and accessing indigenous knowledge at the University of Zululand in the South African province of KwaZulu-Natal. This section will be updated and finalised following the data gathering.

1.8.2 Limitation of the Study

The study was limited to the strategies, used at the University of Zululand for documenting, disseminating and accessing indigenous knowledge. Further, it covers the period from 2009 to 2019.

1.9 Research Methodology

Methodology is a research plan of action (Kumar, 2014: 122; Neuman, 2003: 68). A research methodology analyses the procedure that the researcher will use in carrying out his/her study and is considered the logic a researcher employs to answer research questions (Mason, 2002). Mason (2002) also points out that methodology underpins the way a research project is designed to answer and give meaning to the research questions. In that regard, research methodology focuses on the whole process of gathering data and the methods used to gather that data. Additionally, it focuses on the kind of tools that must be used and how they should be used (Babbie & Mouton, 2001). Based on the definitions given above, research methodology is therefore concerned with the methods of understanding and giving meaning to an environment. The research method for this study is the case study (see section 3.4. Chapter 3) The philosophical perspectives (see section 3.3 Chapter 3) for this study are as follows:

- Paradigms
- philosophical perspectives
- interpretivism
- positivism
- research approach
- research methods, target population
- sampling data collection instruments
- data presentation and analysis
- validity and
- reliability.

1.10. Ethical Considerations

Ethical consideration is important in every study. Notably, where freedom of action is involved, research practice can have adverse effects on the participants by causing serious problems to the subjects and the community in general (Hammond & Wellington, 2013: 59-60). Arguably,

1.11 Knowledge Dissemination

This study will be made available in the University of Zululand Institutional Repository. The knowledge will also be disseminated through seminars, conferences, and internal workshops such as those organised by the University of Zululand, the Library and Information Association of South Africa (LIASA) and other forums to which the researcher will be invited. To reach a much wider audience, it is intended that the findings will be published in major local and international journals.

1.12 Definition of Key Terms

Indigenous – the word indigenous can be defined as something natural or native to a place. It can also refer to an animal, a culture, a language or indeed knowledge. As far as this study is concerned, indigenous means those people who have an experience of their way of life in a particular community.

Knowledge – refers to something that one knows, familiarity gained by experience. Knowledge means facts that are known by an experienced person in a particular organisation or community.

Indigenous Knowledge – Indigenous Knowledge is defined as an experimental, region-specific body of knowledge and practices related to medicine, healing, hunting, fishing, gathering, agriculture, conflict, education, and environmental conservation evolved by indigenous people (Chisenga, 2002: 94; Ngulube, 2002: 61). Additionally, it might be a form of indigenous knowledge that is unique to a certain culture or society.

Documentation of Indigenous Knowledge: This refers to the process of preserving intangible cultural assets, such as Indigenous Knowledge practices. Documentation, in this context, attempts to secure the preservation, use, and growth of traditional knowledge by current and future generations of peoples and communities within a traditional setting. The majority of the documentation projects started thus far appear to have a safeguarding objective. In this view, documentation may also include distributing, promoting, rejuvenating, and repatriating Indigenous Knowledge.

1.13 Structure of the dissertation

This thesis covers the following chapters:

Chapter One: Introduction

There are many important things to know about this study in Chapter One. For example, the chapter explains how the study came to be and what it is all about. It mentions the problem

statement, the aims, objectives, and research questions, how important they are, and how the literature review has helped.

Chapter Two: Theoretical Framework and Literature Review

The chapter opened by reviewing the literature on the theoretical framework that underlies the study. The study also investigated literature relating to how indigenous knowledge is formed, the documentation of IK, modes of accessing or sharing indigenous knowledge, issues facing IK and strategies for the growth of IK.

Chapter Three: Research Methodology

This chapter discusses the study's methodology and design. It describes the survey research method, the qualitative and quantitative approaches that were employed, the study population, the sampling procedures that were used, and the devices used to collect data. The techniques for data collecting and analysis will also be discussed.

Chapter Four: Data Presentation and Analysis

This chapter presents and analyses data gathered through interviews and observations with members of the departments responsible for the establishment and maintenance of IK and IKS centres.

Chapter Five: Discussions

Chapter Five discusses the critical findings in relation to the research objectives and questions.

Chapter Six: Summary, Conclusions and Recommendations

This concludes the research report's final chapter. It contains a summary, conclusions, and suggestions based on the study's findings. Additionally, suggestions for additional research will be made.

1.14. Summary of the Chapter

In this chapter, the study's conceptual setting is introduced. There have been several discussions and definitions of indigenous knowledge (IK) and the documentation of such knowledge at the University of Zululand and elsewhere. It has been examined in detail: the problem statement, the objectives and the research questions of the study in this chapter. In addition, it addresses the preliminary literature evaluation, research methodology, study population, data collection instruments, data analysis and interpretation, and ethical issues for the study, as well as the

thesis's recommended framework. After that, the study's theoretical underpinnings and comprehensive analysis of the relevant literature are examined.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Introduction

The study's introduction and context were covered in the preceding chapter. Section 1.4 and 1.5 of a dissertation provide a synopsis of related works that are discussed in this chapter. A literature review is an analysis of research conducted and published on a topic by recognised scholars and researchers to show readers the extent and depth of knowledge and perceptions on a topic, as well as the strengths and weaknesses of such work (Pautasso, 2013). It does not comprise merely a list or summary of the literature; it is guided by the study objective, objectives, and questions, as well as the topic or issues under consideration. A literature review expands a researcher's knowledge of a subject and allows him or her to develop and demonstrate skills in other areas (Fry, Scammell & Barker, 2017).

In developing the literature review, this chapter begins with a theoretical framework to anchor the study followed by five key research objectives which were used. These key research objectives are: (i) creation of IK-related content; (ii) documentation of IK-related content; (iii) Sharing and accessing IK-related content; (iv) Challenges facing the documentation of IK-related content. Finally, a strategy is suggested for the development of IK-related content.

2.2 Theoretical Framework

The theoretical framework is examined in this section of the chapter. One of the most important components of the research process is establishing a theoretical framework, which is often overlooked in masters' research projects. The most challenging, although not impossible, component of the proposal is locating an appropriate theoretical framework for the dissertation (Iqbal, 2007). Choosing a master's degree's theoretical framework that is both correct and reliable is understandably difficult.

Using a theoretical framework as a starting point for a research project is thought to be the most effective way to gather information. In that light, theoretical frameworks serve as the construction and support for the rationale for the study, the problem statement, the purpose, the significance, and the research questions (Grant & Osanloo, 2014; Ocholla & Le Roux, 2011). The theoretical framework provides a grounding base, or an anchor, for the literature review, and most importantly, the methods and analysis (Grant & Osanloo, 2014). In theory, a theoretical framework is regarded as a methodical approach that clearly describes the relationship between the research variables (Awang, 2010).

There are several theories used in Library and Information Science research which are found on the website: www.is.theorize.org (Ocholla & Le Roux, 2011). A few examples of theories used in knowledge management and indigenous knowledge are as follows:

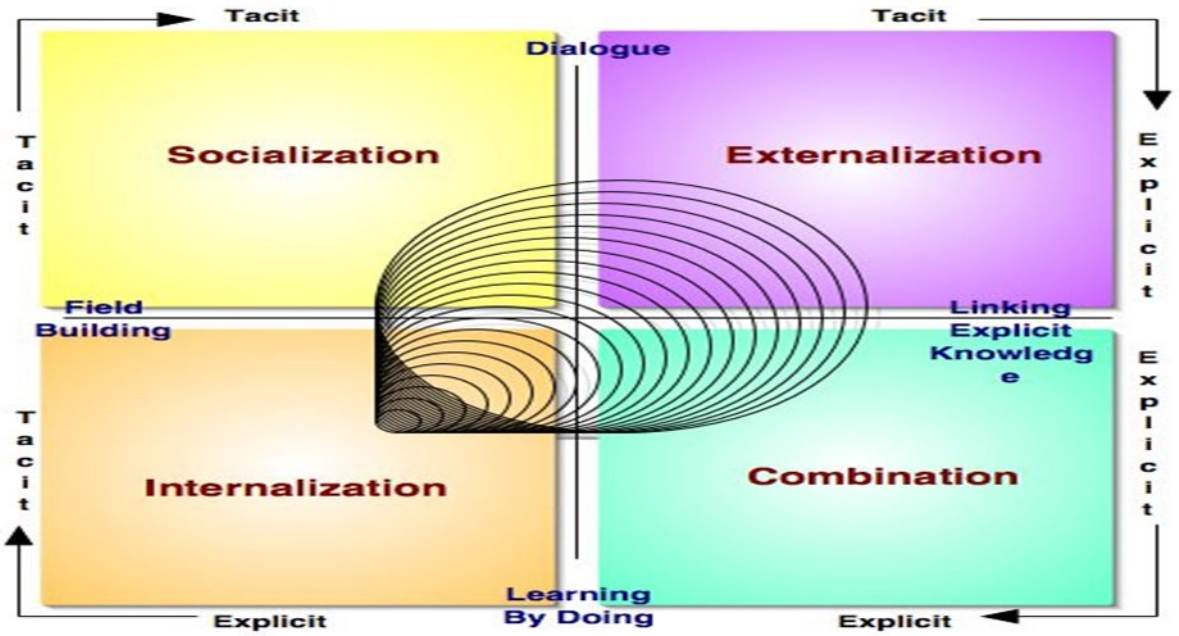
- The 4I Theoretical Framework of Organizational Learning. This theory has four major elements, namely intuiting, interpreting, integrating, and institutionalising (Crossan *and* Guatto, 1999).
- Earl's model (Earl, 1989). This model deals with stages through which organisations pass in planning their information systems.
- Bandura's Social Learning Theory (1977). This theory looks at how people analyse and/or judge themselves based on their cognitive experiences and ideals.
- Boisot's Model of Information and Spatial Information (1998). This model helps individuals digest data and information, according to the theory, and it is through the actions that people take as a result of emotional models which affect individual knowledge.
- Theory of Knowledge Creation. Nonaka (1994) came up with this idea. It lays out exactly how the four parts of personal knowledge management might be applied. Socialisation, internalisation, and combination are all examples of this process.

The focus of this chapter is the documenting of indigenous knowledge (IK) and a framework for IK implementation. Information production theory was used in this study because it examines how tacit knowledge may be documented for future generations. Furthermore, the theory supports the study's goals, which are centred on IK documentation.

2.2.1 What is Knowledge Creation?

According to Nonaka's (1994) Socialisation, Externalisation Combination and Internalisation (SECI) model of knowledge creation, knowledge is constantly transmitted, combined, and converted as users practise, interact, and learn. This strategy has the advantage of being extensively implemented in businesses and rural communities (Dlamini, 2017). Simply stated, by showing that knowledge is a form of personified/private/distinct knowledge that cannot be expressed, these researchers pave the way for recognising knowledge as a form of knowledge with immense potential and value in a corporate organisational setting (Adesina & Ocholla, 2019). There are four components to this hypothesis: socialisation, externalisation, fusion, and internalisation. This strategy is frequently used in organisations/institutions and communities to ensure the management of knowledge by accumulating and publicising data (Nonaka, 1994).

Figure 2.1: Primary components of the knowledge creation theory (Source: Nonaka, 1994): an articulating key elements of the Knowledge Creation Theory (KCT)
The graphic below illustrates the four components of knowledge generation, as defined by its originator, Nonaka (1994).



2.2.1.1.1 Socialisation

Nonaka (1994) defines socialisation as the method by which shared experiences result in the formation of communal implicit knowledge. A successful socialisation technique necessitates the establishment of an "interaction field" in which people share experiences and space while also establishing communal unspoken ideas or personified skills. Embedded knowledge is formed through informal interaction, which is why Hoegl and Schulze (2008) and Marley (2012) concur that socialising results in the generation of new tacit information.

Nonaka and Konno (1998) propose that tacit knowledge, which cannot be stated in writing, can be communicated between individuals through cooperative behaviour. For example, for immigrants to have an understanding of a culture, they may have to spend time together or even live in the same neighbourhood. Conversion is a tacit to tacit part of the socialisation process (Mosoti and Masheka 2010), for example, observing an important person doing something, and then imitating what the person is doing. Similarly, Bratianu and Orzea (2010) define socialisation as an opportunity for individuals to share their experiences and learn directly from one another. Hemmecke and Stary (2003) and Holmqvist (1999) also hold this idea, which they refer to as "tacit knowledge practices" which means information sharing is profoundly ingrained in societies. According to Holmqvist (1999) and Marley (1999), experience drives

this type of information transfer (2012). When people share their information in this manner, it is consistent with the socialising process.

According to Hemmecke and Stary (2003), knowledge sharing is possible only when socially embedded tacit knowledge is partially converted into explicit knowledge. Nonaka and Konno (1998) define this as the act of directly communicating one's thoughts or images to coworkers or subordinates in order to share one's expertise. Individuals communicate their views, feelings, and experiences through this technique, which contributes to the dismantling of barriers and the development of a sense of mutual respect and cooperation (Nonaka and Konno, 1998). Nonaka and Konno (1998) assert that humans must interact face to face to exchange tacit information. Clark (2004), on the other hand, concurs with Nonaka and Konno (1998) by stating that socialisation is a process that involves observation, imitation, and practice. As a result, Clark (2004:2) asserts that the critical factor is exchanging experiences, which is why information transfer might be perplexing for the receiver.

It is important to emphasise that corporate culture, as well as the balance between individual rivalry and collaboration, are crucial components in the process of socialisation. The need of socialising beyond informal discussions and neutral word exchanges has also been stressed, as previously stated. As a result, it is necessary to awaken deeper layers of experience and stored knowledge (Bratianu & Orzea, 2010; Holste & Fields, 2010; Marra, 2004).

According to Hong (2010:6), in order for socialisation to be effective, one must spend a significant amount of time each day participating in social events, working in a team structure, and developing close and long-term professional relationships with co-workers. As a result, it is possible to argue that the company is more than just a place to work; it is also a cohesive social community with deep emotional links and a shared identity. In other words, it acts as a storehouse for hidden knowledge that is shared with other employees who are interested in learning new skills or broadening their expertise. Tactic information can only be conveyed during socialisation if the self is released to become the wider self that includes the other's tacit knowledge, as Nonaka and Konno (1998) indicate.

2.2.1.1.2 Externalisation

Knowledge generation is a two-step process that includes externalisation (Nonaka, 1994). This is accomplished when tacit knowledge is turned into explicit knowledge (Bratianu & Orzea, 2010; Marley, 2012; Nonaka, 1994). According to Nonaka and Konno (1998) and Clark (2004), two key factors contribute to externalisation: techniques to aid in the expression of one's ideas

or images in words and concepts as well as figurative language (such as analogies and narratives) and visuals, and the translation of tacit knowledge held by customers and experts into easily understandable forms.

Externalisation, according to Scharmer (1996), is the act of transforming tacit knowledge into explicit information in the form of concepts and/or diagrams, frequently through the use of sketches. Externalisation, in the words of Marley (2012), is advantageous since it increases the availability of tacit knowledge. Externalisation, as defined by Nonaka and Konno (1998), Mosoti and Masheka (2010 & 2012), and Marley (2012), is the process by which tacit information becomes explicit (that is, doing it and then describing it). According to Bratianu and Orzea, it is feasible to exchange, disseminate, and transfer knowledge to others via verbal and nonverbal language once it becomes apparent (2010).

Nonaka (1997) asserts that discourse is a critical technique for expressing ideas during the externalisation process. Instantaneous feedback and simultaneous sharing of ideas facilitate the interchange of ideas and beliefs in face-to-face interaction. On the contrary, Hemmecke and Stary (2003) feel that tacit information is not generally acknowledged as articulable and view externalisation as a procedure of changing unspoken information to unequivocal information. Nonaka and Konno (1998) and Marley (2012), on the other hand, consider the externalisation process's impacts as enabling people from varied backgrounds to exchange obtained or acquired tacit information.

Taboo information, in the words and visuals of Marley (2012), must be written down and made understandable. The use of groupware, databases, radio, television, the Internet, and flash drives among other technologies has been shown to help externalise tacit knowledge. ICT tools are utilised in this field to manage indigenous knowledge for future use. Last but not least, the strategies of externalisation include recording the individual and communal work practices while also capturing personal, historical, social and material settings of knowledge. Adaptability and reflection of knowledge dynamics in work activities and diverse organisational settings, particularly between communities and various levels of knowledge-management maturity, are other important components. According to Bratianu and Orzea (2010), externalisation minimises overall knowledge entropy by structuring and integrating newly-acquired knowledge into explicit knowledge structures that already exist.

2.2.1.1.3 Combination

Nonaka (1997) and Sarayreh, Mardawi, and Dmour (2012) propose that 'combination' can be used to communicate explicit knowledge after it has been made explicit. As stated by Nonaka (1994), Scharmer (1996), Bratianu and Orzea (1996), and Bratianu and Orzea (1997), a set of product specifications is an example of a combination of new and existing explicit information (2010), the act of changing one set of clearly defined facts into a different set (Nonaka and Konno, 1998). When fresh information is coupled with current knowledge, new explicit knowledge can be formed. This has been suggested by Nonaka and Takeuchi (1995), Mosoti and Masheka (2010), and Marley (2012). Collection and integration, dissemination, and final editing/processing are all stages of conversion.

Apprehending and assimilating requires obtaining crucial data from both internal and external sources, as well as combining data or knowledge, according to Marley (2012). New information is disseminated and exchanged among the group's members during the dissemination process. Presentations and meetings are excellent venues for this, but there are many more possibilities. Documentation is prepared in the form of documentation and then subjected to a justification procedure throughout the editing and processing phase of the project. To justify the knowledge, it must be consistent with the organisation's knowledge vision. There are many benefits to using this method, according to Nonaka and Konno (1998).

For example, Nonaka (1997), Sarayreh, Mardawi, and Dmour (2012) argue that information technology is most useful when it is used in conjunction with tacit knowledge, which may then be transferred through documents, e-mails and databases. In addition, online networks, groupware, documentation, and databases for maintaining important assets are all examples of systems for explicit knowledge transfer provided by Nonaka and Konno (1998). Thus, a new idea is brought to life by combining it with existing information.

While Nonaka (1997) argues that combination facilitates the cross-organisational flow of information, he goes on to say that it also enables the collection of relevant information from both inside and outside the organisation for distribution, editing, and processing. According to Marley (2012), coordination teams and their activities, as well as the tools of documenting existing information, facilitate or trigger the merger of external and internal knowledge.

2.2.1.1.4 Internalisation

Internalisation is an important aspect of the learning process, according to Nonaka (1994). Externalised knowledge is transformed into tacit knowledge that is shared among the company's employees, according to Nonaka and Konno (1998), Marley (2012), and Sarayreh

Mardawi and Dmour (2012). In the externalisation and combination stages of internalisation, people learn and retain explicit knowledge. After that, practice teaches people the tacit nature of the information they have just been given (Nonaka Konno, 1998 and Marley, 2012). Nonaka (1997) asserts that the owner has the authority to act on tacit information. Humans gain from better comprehension and absorption of information when it is internalised, according to Bratianu and Orzea (2010)

Scholars such as Clark (2004), Hong (2010), and Sarayreh, Mardawi, and Dmour (Sarayreh, Mardawi, and Dmour) share explicit knowledge with tacit knowledge, according to Nonaka (1997). (2012). "Learning by doing" is how Clark (2004) defines internalisation. "Learning by doing or utilising" is an important part of internationalisation, according to both Marley (2012) and Nonaka (1994). The ease with which written, audio, and video files, as well as other forms of conveniently accessed information, can be absorbed into the brain facilitates internalisation. For internalisation, manuals, a form of explicit knowledge, are frequently used. Sarayreh, Mardawi, and Dmour (2012) discovered that internalisation is primarily experienced and that concepts and processes are actualised either by performing or by simulating them. They attribute this finding to the fact that internalisation is predominantly experiential.

Thus, internalisation can be described as the process of assimilating explicit information into a person's tacit knowledge. Experienced employees' tacit knowledge is conveyed to the individual's tacit memory during internalisation. When others are looking, the holder of tacit knowledge can still take action despite the fact that they are being watched.

2.2.2. Critique of Nonaka's Theory

The theory of knowledge formation has been heavily critiqued, yet despite its flaws, it remains powerful in the management of personal knowledge (Lwoga, Ngulube and Stilwell, 2010). According to Nonaka's view, Japanese culture has a deep understanding and usage of the concept of knowledge-creation (Glisby & Holden, 2003). It has also been said that the SECI model is easy to use and suitable for describing the process of knowledge transfer (Adesina & Ocholla, 2019:3). Knowledge generation theory, however, may not apply to various cultures and countries (Bratianu, 2010). Nonaka's theory of knowledge formation, it is suggested, can only be used in the Japanese context and cannot be used in a foreign setting (Snowden, 2007). It is claimed that the Eastern perspective on knowledge is considerably different from the Western approach. Andriessen and Boom (2007) and Harsh (2009) agree. The Western perspective emphasises knowledge that is explicitly stated, whereas the Eastern approach emphasises implicit knowledge. In light of this, it is possible that persons from diverse cultural

backgrounds may have distinct communication strategies because of the influence of their cultural contexts (Dlamini, 2017). There has been much debate about whether or not the idea of knowledge creation (KC) should be used to manage indigenous knowledge found in rural communities in poor nations, although Ngulube (2003) argues that it should be. According to Adesina and Ocholla (2019) and Ngulube (2003), the SECI model has been successfully utilised in a variety of disciplines, including engineering and other fields of research like automobile manufacturing and software engineering, among others. Furthermore, the SECI model has been used in studies in countries all over the world, from Japan to the UK and even Africa (Adesina & Ocholla, 2019)

2.2.3. How can Knowledge Creation be used to Document Indigenous Knowledge?

Adesina and Ocholla (2019) find that the SECI model is utilised for the management of teachers' knowledge; it is also used in training and development programmes to improve teachers' knowledge and behaviour. The SECI model, which has been shown to be effective in the transfer of knowledge, is used in management (Adesina and Ocholla, 2019:12). An online inquiry-based learning support system and a learning management system are both being developed using the SECI concept in educational web programming courses. There are authors (such as Ocholla, Adesina, Brundrett, and Lungka (2019) as well as the aforementioned trio) who argue that the model should take into account context and cultural background while implementing it. This model has been employed in numerous studies. A few examples include Adesina & Ocholla (2019); Dlamini (2017); and Lwoga (2009).

In his study titled "The use of ICT tools in the management of indigenous knowledge in the province of KwaZulu-Natal, South Africa," Dlamini (2017) makes use of Nonaka's theory of knowledge generation. According to his results, owners and ICT users can learn a lot by interacting with one another, participating in group activities, and paying attention to the world around them. Carvings from clay pots, utensils and other items were used by IK and ICT recipients to externalise their tacit knowledge into explicit knowledge for the benefit of the community, on the other hand. To document IK, Dlamini said, one must have both. Village gatherings, group interactions, print media, and ICTs like mobile phones and e-mails are all ways in which personal knowledge is made public. Some models of knowledge management, such as knowledge creation, were shown to be useful in managing indigenous knowledge in rural regions (Dlamini, 2017).

As Lwoga (2009) shows in her research, Nonaka's theory can be applied to bridge the gap between indigenous and non-indigenous knowledge in agricultural development. Farmers'

contacts, group meetings, and observations were found to be effective means of generating new information. Additionally, externalisation was employed by farmers to externalise their tacit knowledge into explicit information for the benefit of society through the use of carvings such as toys, drawings from clay pots, utensils, and others. As Lwoga points out, the farmers' use of village gatherings, group interactions, print media, and modern information and communication technologies (ICTs) like cellphones and e-mail allowed them to share their explicit knowledge. Last but not least, Nonaka explains that internalisation demonstrated that farmers received information from implicit sources rather than explicit sources of knowledge on ICTs. It was found by Lwoga (2009) in rural areas, in particular, that ideas such as knowledge generation were useful to the management of native knowledge.

2.2.4. Application of Nonaka's theory to the current study

A model's usefulness is determined by how well it accomplishes the targeted outcome. In this study, the Knowledge Creation Model (KCM) is relevant as it allows for the documenting of personal knowledge. Tacit/indigenous knowledge is widely regarded as a resource that must be managed and preserved in order to avoid extinction which is possible if proper steps are not taken to protect it (Dlamini, 2017). Because it is in the minds of the elderly, it is necessary to handle IK according to theories of knowledge management (Lwoga, Ngulube & Stilwell, 2010).

IK can be documented, managed, and integrated into other knowledge systems with the use of knowledge management models (Dlamini, 2017; Ngulube & Lwoga, 2007; Lwoga & Ngulube, 2008). As a general rule, the knowledge production model has been shown to be an efficient theoretical model for figuring out how tacit information is transformed into explicit information and back again. The philosophy of knowledge generation suggests that indigenous knowledge should be encoded into information so that it may be effectively managed (Dlamini, 2016). The combination and externalisation of elements are typically used to accomplish this. Utilising theories like knowledge creation in IK documentation, Maponya and Ngulube (2007) claim that one of the benefits of using KM theories such as knowledge creation is that it provides techniques for getting relevant knowledge to key stakeholders in an effective manner.

A method known as externalisation can be used by companies and institutions to document IK using knowledge production theory. Externalisation is a process in which the person who holds tacit information (the knower) converts it into any secondary form (for example, paperwork, photographs, or rock painting) so that another can retrieve it even if the person who is representing it is no longer there. Sharing skills, feelings, experiences and/or local knowledge

by rural communities and institutions and organisations dealing with its documentation since the emergence of the knowledge production theory and specifically the externalisation factor since the externalisation process has made it possible for people from various backgrounds to communicate their previously tacit knowledge, Nonaka and Konno (1998) make the following argument:

Using externalisation as a method to record one's own experience is a useful approach to documenting. Internalisation, according to the researcher, is a critical component of this research since it facilitates the learning and storage of previously recorded and stored knowledge. According to Ngulube (2003), the process of internalization happens when a person uses information gleaned from other sources, such as books, databases, and artefacts, to develop new knowledge that may be shared with others. The process of assimilating shared bodies of knowledge is impossible without internalisation (Nonaka, 1994).

Those who are interested in IK can also benefit from internalisation because it allows them to learn by doing. To put it another way, the more information a person has, the more likely they are to participate in any given activity. When it comes to dancing, for example, local people perform their dances, while others watch and eventually join in. For one thing, Ngulube (2003) argues that internalisation keeps explicit information from becoming stale and irrelevant. As a result, new information is generated through the combination of tacit and explicit knowledge. Research shows that knowledge management models such as the knowledge creation theory recognise that information is a valuable resource and that it should be shared.

2.3 Literature review

2.3.1 Creation of Indigenous Knowledge

Indigenous knowledge is primarily tacit, rooted in the holders' behaviours and experiences. It is frequently transferred via personal dialogue and demonstration between the teacher and the apprentice, between parents and children, and between neighbours (Okorafor, 2010). Indigenous knowledge is transmitted and preserved through a variety of family histories, taboos, symbols, myths or legends, rituals, noises or dances, festivals, proverbs, poetry (praise poetry), theatre, theatre, role plays, and folklore (folk tales) (Anafulu, 2005; Sithole, 2007). Indigenous knowledge is at risk of extinction if it is not preserved and disseminated. In old civilisations, gatekeepers with specialised knowledge were assigned. Indigenous knowledge pervades all aspects of a society's practices. Certain practices, such as arts and crafts, theatre and dance, agriculture, and medicine, are passed through an apprenticeship and tutelage process. In many societies, certain facets of culture are kept inside families or communities and

are only known to a select few (Okorafor, 2010). In certain African societies, for example, diviners' divine gifts are derived from specific lineages within the family and are reserved for family members only (Anafulu, 2005).

- Information and communication technologies (ICTs) have an important role in the creation, storage, and transmission of indigenous knowledge, according to Dlamini and Ocholla (2018). Tape recorders (for documentation), telephones, radios, televisions, newspapers, computers, video cameras, and various forms of information and communication technology (such as e-mails, faxes, CD-ROMs, and CD-ROMs), as well as community gatherings, local newspapers, and other printed materials, are all examples of tools used to create indigenous knowledge in Okorafor (2010). In addition to databases, books, studies, journals, articles, theses, and dissertations, Okorafor (2010) found that indigenous knowledge-related content can be created using these other resources. Anafulu (2005) cites a number of methods by which institutions and organisations can serve as potential generators of IK, including:

- **Oral literacy forms**: Folklore, religious chanting and divination are all examples of oral literacy forms including stories, praise songs, moonlight tales, proverbs and alliteration.

- **Theatre and dance**: Initiation of titles, such as marriage, death, and birth rituals, are common occurrences in theatre and dance.

- **Visual arts and crafts**: Masks and artefacts; portrait and carving; knitting, such as the production of traditional baskets and sleeping mats; dyeing, textiles, ceramics, blacksmithing, metal fabrication, and weather works.

- **Medicine**: is the application of plants and animals, including bitter-tasting therapeutic herbs like chewing sticks: Traditional healers, including herbalists and traditional midwives, bone-setters, traditional psychiatrists, and diviners, use a variety of remedies (Aguwa, 1999).

- **Agriculture**: tiling ground, best times of sowing and reaping and different ways of sowing and planting

2.3.2 Existing methods of documentation and disseminating of African Indigenous Knowledge (AIK)

Documenting traditional knowledge (TK) is now widely discussed as a way of guaranteeing the social, cultural and economic interests of indigenous peoples and local communities. It has emerged as a tool that can help impede further loss of TK, maintain TK over time, support benefit-sharing between holders of TK and those who use it, and ultimately protect TK from unwanted uses (World Intellectual Property Organization (WIPO, 2017). Notably, during the documentation period, TK is collected and organised coherently, following planned actions and activities.

The documentation of AIK has become an unavoidable topic of discussion. Many studies and initiatives in the field of knowledge management have resulted as a result of this. Various authors have proposed a variety of ways for properly documenting AIK. However, as various studies have revealed, the majority of these methods, particularly in the poor world, remain on paper. According to recent studies, the procedures for recording AIK are more applicable and successful in industrialised countries. Warren et al. (1993) add that AIK studies have been archived at national and worldwide centres in the form of databases in the industrialised world, such as the United States. The data in these databases are organised methodically. Warren et al. (1993) go on to say that the collecting and storage of indigenous knowledge should be complemented by effective distribution and exchange among interested parties through newsletters, journals, and other media.

Attempts to document and maintain IK have focused on the documentation and dissemination of best practices that can be transferable across cultures and groups. When indigenous knowledge ceases to be regionally particular, it is critical to document and communicate it in languages understood by other communities. While the process of documenting and communicating IK is thought to be theoretically straightforward, it can be time-consuming, costly, and occasionally unsatisfactory. The necessity of documenting and disseminating indigenous knowledge is to ensure that communities are not deprived as a result, much as the planet requires species' genetic variety (Traore, Sotunsa, & Ojo, 2016; Labelle, 1997).

Most significantly, recording and communication of IK are critical because they provide an accepted method for validating it and safeguarding it against biopiracy and other sorts of abuse. IK should be recognised and commercialised in today's age of globalisation and knowledge societies. The documentation demonstrates that indigenous groups are the custodians of a sophisticated knowledge system. As a result, documentation methods should establish the

source of knowledge and the rights of indigenous groups to profit from the commercialisation of items generated from their communication.

As previously said, IK has been a critical component of development in poor countries. This has been particularly noticeable in the fields of medicine and agriculture. Farmers' wisdom, according to Tabuti et al. (2004), has been crucial for enhancing agricultural productivity and guaranteeing food security in nations such as Swaziland, Tanzania, and Zimbabwe for millennia. In a related trend, numerous studies advocate that AIK be documented and disseminated through Information Communication Technologies (ICTs) (Dlamini, 2017). ICT tools were found to be one of the most effective instruments for recording or capturing IK. Dlamini and Ocholla (2018:27) define efficacy as the amount to which ICT tools, such as the internet, intranet, social media, television, mobile phones, and others, are used to communicate IK and reach a targeted or intended audience. ICT tools transmit IK globally, whereas word of mouth is limited to regions where custodians of IK reside; young people no longer have an interest in IK because they consider it outdated, and the number of holders of the knowledge is dwindling due to old age and incurable diseases, posing a threat to the knowledge's continued existence; (Dlamini & Ocholla, 2018:147).

The use of information and communication technologies (ICTs) in developing nations, according to Dlamini (2017), Lwoga and Ngulube (2008), is critical in facilitating the management and integration of indigenous and external knowledge. Dlamini and Ocholla (2018:149) consider the application of information and communications technology (ICT) for indigenous knowledge management to be a relatively broad area of study. In this regard, they observe that there may be gaps in specific areas such as the Internet, social media, and digitisation that should be anticipated and addressed. Other components that have been mentioned include the importance of ICT awareness in public domains and the importance for ICT owners to actively access and utilise the available technologies. As Dlamini (2018:149) and Ocholla (2018:150) demonstrate, there are a number of issues and obstacles that ICT users and custodians of IK are confronted with as a result of the lack of readily available ICT tools for managing IK. Other examples related to the problems described include, but are not limited to, the fact that ICT tools are expensive to purchase and maintain; a lack of awareness of appropriate tools; a shortage of energy in IK holding communities; and a variety of other factors.

However, Aluma (2010) offers a completely different perspective on AIK documentation. He points out that documentation of IK relating to medicinal plants, herbal concoctions, and the ailments treated (both human and cattle), crop protection, and food preservation has been continuous, but in haphazard ways. He also mentions that a significant amount of basic data has been gathered, "as is" from the practitioners' perspective, with witness evidence of IK that has worked. However, no funding has been found to allow these to be published and shared with others (Aluma, 2010). This brings the discussion over AIK documentation into the open, as various authors have differing opinions on how AIK should be managed. However, the majority of important AIK documentation initiatives, according to the literature examined, are taking place in the developed world. Some centres have become interested in looking at IK as a fundamental component of sustainable agricultural methods, while others have been in charge of investigating and cataloguing existing IK, according to the Center for Indigenous Knowledge for Agriculture and Rural Development (CIKARD). The latter is shown by Iowa State University's Centre for Indigenous Knowledge for Agriculture and Rural Development (CIKARD), which was founded in 1987. CIKARD, a non-profit organisation established in the United States, "focuses its work on documenting and safeguarding indigenous knowledge."

It is also critical to consider the level of IK management that is carried out. It is necessary to examine AIK that has already been documented in order to confirm its efficacy and utility. This helps to dispel any concerns regarding the effectiveness of this IK that might have arisen. Several potential users of traditional medicine, for example, are dissuaded from doing so because they are skeptical about the efficacy and safety of the treatment. In the process of developing and promoting indigenous knowledge through documentation and validation, we run the risk of losing a significant source of IK meaningfulness for the local people, and as a result, IK in the community (Ngulube, 2002). This is in accordance with the findings of (Lwoga et al. 2010), who found that the key stakeholders needed to act in support of IK documentation and preservation by adopting the finest current ways of documenting it in a permanent form and making it accessible to the public. The following are examples of those who may be considered stakeholders:

- Government and NGOs should adopt community-based resource centres that can enhance the flow of IK;
- Focus on an urgent need to apply readily available traditional and modern technologies that respond to local culture; and

- The focus should be on tools that promote oral interaction such as audio-visual technologies.

In addition to preservation, documentation and dissemination of agricultural indigenous practices provide an effective tool for research and innovation. Perhaps this is the primary role of special libraries. Lwoga et al. (2010), on the other hand, noted that research libraries have been relatively inactive in recording AIK. Nakata and Langton (2005) underline the need for libraries to consider indigenous knowledge as a contemporary body of important knowledge, not only as a historical archive.

The IIRR (1996) also reported that AIK could be documented in the form of descriptive texts such as reports, inventories, maps, matrices and decision trees; audio-visuals such as photos, films, videos or audio cassettes as well as dramas, stories, songs, drawings, seasonal pattern charts, daily calendars and so on. Indigenous knowledge could also be stored in local communities, databases, card catalogues, books, journals and other written documents, audio-visuals and museums (IIRR, 1996). All this is the work of libraries and documentation centres.

Therefore, since indigenous knowledge is essential to development, it is often suggested that it must be gathered and documented coherently and systematically (Brokensha et al., 1980; Warren et al., 1993). This IK can therefore be easily tapped and accessed by individuals from various sectors like health and agriculture. It has been observed that more studies of indigenous knowledge have become available and therefore its relevancy to development will have inevitably become self-obvious.

2.3.3 Challenges faced when documenting indigenous knowledge systems

In their writings, scholars such as Moahi (2005), Tella (2007), & Odongo (2009) have identified a number of difficulties related to the recording of indigenous knowledge. It's no surprise that Ngulube (2002) asserted that the most significant problems to the administration and preservation of indigenous knowledge (IK) include concerns connected to methodology, access, intellectual property rights, and the media and formats in which it should be preserved. However, it has been noticed that the vast majority of knowledge management approaches in Africa are oriented toward scientific methodologies rather than other approaches. Based on explicit knowledge, Ngulube (2002) observes that the dominant information management approach in Sub-Saharan Africa, as in many other parts of the world, relies on the acquisition and documentation of explicit knowledge, which is primarily generated by researchers, laboratories, and universities. According to him, such techniques allow limited room for the integration of indigenous knowledge (IK) from local populations into the exogenous

knowledge system. Although some indigenous knowledge (IK) has been preserved in global, regional, and national repositories, local farmers can only gain access to these databases through an intermediary (for example, a researcher, extension officer, or any agricultural actor who has the financial means to access and use these systems).

People's memories and local practices tend to be the primary repository for IK, making it vulnerable to the ravages of time and death. Owners of this knowledge, on the other hand, believe this information to be private and passed down through familial lineage. Mothers and fathers typically pass it on through the generations. This means that within a family, IK is passed on orally and culturally (Tella, 2007). Gender dynamics, politics, power, culture, disputes, opposition and religious views all play a role in the fragmentation of its dissemination (Mudege, 2005). Because IK is so critical to agricultural progress, it must be maintained and kept in the same manner as external knowledge is managed and preserved. An agricultural IK management model needs to be developed before the majority of it is destroyed. In addition, IK is dwindling due to an increase in the number of barriers preventing it from being spread within a community. In Uganda, this loss of IK is all too common. If, for example, the residents of Kaliro District have forgotten how to cultivate traditional food plants to ensure that they will be available to future generations, this is a problem (Tabuti, Dhillion and Lye, 2004). People used to cultivate species like Dioscorea bulbifera to manage them. Documentation and secrecy are two factors that make it difficult to transfer information about Artificial Intelligence (AI).

Odongo (2009), and Singh and Rajoo (1993) stated that one significant problem in recording AIK is the tension between the concept of knowledge transfer and the desire to preserve and promote a locality's cultural variety. Additionally, multiple studies demonstrate that knowledge systems are frequently context-dependent in terms of their physical, economic, and cultural environments. Karter (1993) concurred, stating that IK is anchored in a particular sociocultural milieu. This means that it is difficult to transfer location-specific knowledge between locations. Additionally, it is emphasised that property rights and markets are crucial to the transfer of information (Karter, 1993). He cites the example of a blacksmith who may be hesitant to forgo their knowledge's property rights in order to facilitate its transfer. Additionally, an established system is frequently operational in places with markets for a certain commodity. Rather than that, it was claimed, organisations such as community-based organisations should be bolstered in their efforts to document, protect, and update a knowledge system's natural environment (Karter, 1993). As a result, Karter (1993) emphasises the critical nature of raising awareness among holders of indigenous knowledge systems.

According to Grenier (1998), there are other specific limitations regarding the applications of indigenous knowledge. As with scientific knowledge, however, indigenous knowledge has its limitations. Grenier (1998) further explains that indigenous knowledge is sometimes accepted uncritically because of naive notions that whatever indigenous people do is naturally in harmony with the environment. He highlighted the idea that there is historical and contemporary evidence that indigenous peoples have also committed environmental 'sins' through over-grazing, over-hunting, or over-cultivation of the land. It is misleading to think of indigenous knowledge as always being 'good, 'right', or 'sustainable'. For example, a critical assumption of indigenous knowledge approaches is that local people have a good understanding of the natural resource base because they have lived in the same, or similar, environment for many generations, and have accumulated and passed on knowledge of the natural conditions, soils, vegetation, food and medicinal plants etc. (Grenier, 1998). However, under conditions where the local people are recent migrants from a quite different ecological zone, they may not have much experience with the new environment. In these circumstances, some indigenous knowledge of the people may be helpful, or it may cause problems (e.g., the use of agricultural systems adapted to other ecological zones).

Therefore, it is important, especially when dealing with recent migrants, to evaluate the relevance of different kinds of indigenous knowledge to local conditions. Wider economic and social forces can also erode indigenous knowledge. Pressure on indigenous peoples to integrate with larger societies is often great, and as they become more integrated, the social structures, which generate indigenous knowledge and practices, can break down. The growth of national and international markets, the imposition of educational and religious systems and the impact of various development processes are leading more and more to the 'homogenization' of the world's cultures (Grenier, 1998).

Consequently, indigenous beliefs, values, customs, know-how and practices may be altered and the resulting knowledge base incomplete. Thrupp (1989) on the other hand observed that sometimes indigenous knowledge that was once well adapted and effective for securing a livelihood in a particular environment becomes inappropriate under conditions of environmental degradation (Thrupp, 1989). Agea, Katongole, Waiswa and Nabanoga

(2008) summarised the major limitations of using AIK in the Ugandan context. These were; AIKs lack documentation, they lack proven scientific procedural explanations, AIK is restricted only to those who know, it is believed to be obsolete and out of date, some

unsupportive cultures and some local practices/technologies are time demanding. Although indigenous knowledge systems have a certain amount of flexibility in adapting to ecological change, when change is particularly rapid or drastic, the knowledge associated with them may be rendered unsuitable and possibly damaging in the altered conditions (Grenier,1998). Finally, an often-overlooked feature of indigenous knowledge, which needs to be considered, is that indigenous knowledge unlike scientific knowledge; sometimes the knowledge, that local people rely on, is wrong or even harmful (Thrupp, 1989). Practices based on, for example, mistaken beliefs, faulty experimentation, or inaccurate information can be dangerous and may even be a barrier to improving the wellbeing of indigenous people, (Thrupp, 1989).

Likewise, Agea et al. (2008) also identified some factors limiting the use of indigenous practices and technologies in enhancing household food security in the Ugandan context. One of the major limiting factors to the use of indigenous knowledge in enhancing food security was the lack of documentation. Other limitations included a lack of proven scientific procedural explanations and young peoples' perception that indigenous knowledge is outdated compared with western scientific knowledge and practices. The study recommended that there is a need to build strong awareness programs by extension agents on indigenous knowledge systems for farmers to appreciate its role in enhancing household food security in especially rural areas where the factors of production are scarce. With the rapid environmental, social, economic and political changes occurring in many areas inhabited by indigenous people the danger is that the indigenous knowledge they possess will be overwhelmed and lost forever (Singh, 2006). To this end, it is thus imperative to investigate how AIK can be managed and protected for sustainable agricultural practices in the local communities. The sharing and documentation of IK would enable the local communities to guard against its disappearance and misappropriation by checking to determine whether it is new or has always existed and, therefore, cannot be patented.

Other challenges of documentation of indigenous knowledge are not limited to: firstly, indigenous wisdom was passed down via generations of old and elderly people through the "socialisation" process; ignorance or a lack of understanding of the importance of transferring IK, which is seen as a "instrument of trade”; secondly, transferring and documenting information may result in a loss of "competitiveness"; western ideals have an impact on the spread and use of IK; thirdly, much of IK is limited to rural areas, and "literate populations in metropolitan areas may not want to employ IK to solve their problems"; fourthly, insufficient ways for capturing and documenting IK; fifthly, there is no evidence available about IK's

sources (people) and clans, such as rainmakers, herbalists, circumcision rituals, musicians, storytellers, poets, textile makers, and weavers, among others; sixthly, existence of alternative traditional methods and sources of information to handle challenges previously solved by IK, such as modern medicine, which employs current equipment to solve problems previously solved by IK; seventhly, existence of alternative conventional methods and sources of information to handle difficulties formerly solved by IK, such as contemporary medicine, weather prediction using modern technology, maps, and so on; eighthly, intermarriages are causing some clans thought to be caretakers of specific IK to vanish; ninthly, individuals outside of the groups that own it claim intellectual property rights because they have codified it; tenthly, due to technological obsolescence, there are storage issues; and eleventh, IK is rapidly disappearing due to deforestation and environmental degradation (Moahi, 2005).

2.3.4 Strategies for Documenting and Disseminating AIK

Universities throughout the world are assisting in the promotion of indigenous medical knowledge (Chisita, 2011). According to the South African IKS policy (2005), which was reiterated by Ocholla (2021) and Mosimege (2005), 80 per cent of the people living in Africa rely on indigenous knowledge, primarily for healing and health purposes. Ocholla (2021) stated that IK assisted people in managing the COVID-19 epidemic in several parts of the world and that the World Health Organization (WHO) supported IK. In the opinion of the authors, if this knowledge is effectively managed and taught in higher education institutions (HEIs), it will assist professionals in managing not only information but also indigenous knowledge (IK) that is available in their environment for the development of the surrounding societies.

Indigenous knowledge in agriculture, indigenous knowledge in artwork, and indigenous knowledge in storytelling, through integrating traditional with formal scientific knowledge, for example, the Faculty of Agriculture and Natural Resources of the Africa University seeks to promote a holistic approach to life and recognition for the inviolability of the environment. It intends to achieve this by establishing a dynamic community of learning committed to teaching, research and extension that addresses the challenges of food production to meet the dietary requirements in Africa and encourages income generation to improve the quality of life of current and future generations through improved agricultural practices and the sustainable management of natural resources (Chisita, 2011).

According to Chisita, (2011), libraries in Higher and Tertiary Education have a critical role to play as the engine that drives the natural processes by which members acquire knowledge skills and attitudes and attitudes appropriate to their local life. This is in line with Mbeki, (2005) in

his augural speech at the Association of African Universities conference "…higher education has an important role to play in the economic, social, cultural and political renaissance of our continent and the drive for the development of indigenous knowledge systems (IKS)".

Furthermore, modern technology is an important aspect of repackaging information because Information and Communication Technologies (ICTs) are free from the fetters of time and space. Studies indicate that Libraries need to utilise modern technology to promote access to indigenous knowledge with regard to promoting a culture of knowledge sharing amongst farmers. Tsiko (2004) suggests an alternative to the repackaging of indigenous knowledge through documentation. The author states that this is critical at a time when traditional knowledge is being marginalised by high culture resulting in assimilation and cultural genocide. With due consideration to intellectual property rights, it is imperative to document this knowledge that has practical uses in agriculture, forestry, health and sustainable development. UNESCO (1994) and Chisita (2011) describe the public library as the local centre of information that provides access to all kinds of knowledge and information. Chisita further, describes the role of the librarian as that of "an active intermediary between users and resources."

Libraries need to be proactive and promote community publishing so that communities can document their experiences and market as well as share them with others. Programmes to repackage traditional knowledge will also help to integrate Western and indigenous knowledge to generate knowledge to tackle the environmental challenges concerning land management. Community libraries working with communities and other stakeholders can encourage research, recording and documentation and use of hereditary knowledge systems to showcase how these can be used in managing natural and cultural elements, for example, Public libraries' use of storytelling sessions helps to unlock the great potential encapsulated in indigenous knowledge systems (Chisita, 2011).

2.3.5 Gaps in the reviewed Literature

Several mixed methods and qualitative studies have been conducted on documentation of indigenous knowledge internationally, in Africa and South Africa and will be shared to highlight research gaps that these studies intended to address.

- Adebayo, & Adeyemo, (2017). Documentation and dissemination of indigenous knowledge by library personnel in selected research institutes in Nigeria.

- Dlamini, & Ocholla, (2018). Information and communication technology tools for managing indigenous knowledge in KwaZulu-Natal Province, South Africa.
- Lindh, & Haider, (2010). Development and the documentation of indigenous knowledge: Good intentions in bad company?
- Amunkete, a model for the digital preservation of indigenous knowledge on medicinal plants in Namibia via an e-learning platform.
- Lwoga, Ngulube, Stilwell, (2010). The management of indigenous knowledge with other knowledge systems for agricultural development: Challenges and opportunities for developing countries.
- Lwoga, (2009). Bridging the agricultural knowledge and information divide: The case of selected telecenters and rural radio in Tanzania.

Even though a number of studies have been conducted on the management of indigenous knowledge, the status breadth and depth of IK documentation and management in Higher education institutions, such as the University of Zululand, are not readily known and lacking in the reviewed literature. The studies above focused their attention on libraries, telecentres, and companies, to mention a few. In this study, emphasis is placed on the different methods used by academics to create, document and share indigenous knowledge.

2.4 Summary

Chapter two reviewed literature on IK that is created, how IK is documented, how IK is accessed or shared, challenges facing documentation of IK and strategies for the development of IK. The study utilised the knowledge creation theory by Nonaka (1994). Noticeably, Nonaka's theory was considered to be the best fit for this study. Nonaka's (1994) theory has four key elements that describe how the theory works. These are: socialisation, internalisation, combination and externalisation. The four key elements of Nonaka's theory are very useful in addressing tacit indigenous knowledge. Nonaka's theory is considered one of the best theories which promote the documentation of tacit knowledge to be shared and accessed by those people who value it. Moreover, the theory supports the objectives of the study which focused on the documentation of IK. The review further indigenous knowledge content is documented through technologies in various ways. These ways are not limited to databases, videos, websites, print media, direct mail, public lectures, exhibitions and displays, and exchange, books and journals. The literature also demonstrated that indigenous knowledge-related content is disseminated through conferences and seminars, workshops and publications. Challenges encountered in the

documentation of IK are lack of adequate funds and lack of knowledge. The next chapter discusses the research methodology.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The previous chapter explained the theoretical framework and literature review. This chapter discusses the research design and methodology. A research methodology examines the procedures that the researcher will use to conduct his or her study and is occasionally referred to as the logic by which a researcher answers a research question (Mason, 2002). Mason (2002) also underlines the significance of technique in terms of the way a research project is designed to address and contextualise the research objectives. In this context, methodology encompasses both the complete data collecting process and the methods used to gather the data. Additionally, it highlights the instruments that must be used and their proper application (Babbie & Mouton, 2001). According to the definitions above, methodology refers to the processes through which an environment is comprehended and interpreted. This study employed the case study method (see section 9.4 below). The following parts address the study's philosophical foundations:

3.2 Philosophical Perspectives

Ontology and epistemology stances or paradigms are important philosophical perspectives in both quantitative and qualitative research. The term "ontology" refers to the study of the nature of existence (Saldana & Omasta, 2018: 417). When it comes to epistemology, it's all about the researcher's worldview and how her lenses and angled methods of knowing it shapes how she perceives and understand the world. To put it another way, ontology is concerned with how we come to know and understand the world we live in.

Rather, it is predicated on what can be discovered, what is the foundation of human understanding of reality, and what is known about the universe (Ritchie et al., 2014:2; Saldana & Omasta, 2018: 414). Ontological perspective is a matter of realism and idealism Here, realism maintains that there is a distinct external reality, while idealism contends that reality is fundamentally mind-independent. This study reflects on both realistic and idealistic ontology.

3.2.1. Paradigms

Paradigms are widely accepted by social scientists as a means of defining how people see and understand the world around them (Mertens, 1998). There are patterns that scientists follow within a particular field of study when they assess the subject matter of their work, according to De Vos, Strydom, Fouché, and Delport (2005). Paradigms are another name for the basic frameworks used by researchers to arrange their observations and reasoning (Babbie, 2010).

To put it another way, a research paradigm is the underlying set of assumptions regarding how research components are put together in order to make meaning of research findings (Johnson & Christensen, 2017; Wisker et al. 2007). Constructivism and realist or objectivist ontology influence paradigms (Fraser, 2014; Sarantakos, 2013). Positivism, interpretivism/constructivism, and post-positivism are the three main research paradigms (Pickard, 2013; Cohen, Manion & Morrison, 2007). The three primary research paradigms are discussed in the next section

3.2.1.1 Interpretivism

The research philosophy is known as "interpretivism" seeks to reveal the personal meanings that events and social action have for the people who are doing the studying. Quantitative researchers, on the other hand, adhere more closely to positivism since they place a greater premium on deductive reasoning than does positivism (Edmond & Kennedy 2017: 218). Guided by the interpretivism paradigm, data will be gathered using exploratory and non-structured interviews, where the researcher seeks to learn about participants' ideas and experiences from their perspective in this study (Ritchie et al, 2014; Creswell, 2014). One of the advantages of interpretivism is its philosophical method of enabling people to grasp connotations to conditions and apply those connotations to understand their area, therefore influencing their behaviour (Creswell, 2014).

3.2.1.2 Positivism

There are many similarities between positivism and naturalism when it comes to the social world (Mertens, 1998). Quantitative researchers adhere more closely to positivism since they place a greater premium on deductive reasoning than does positivism (Edmond & Kennedy 2017: 218). As a result, academics see scientists as social observers (Cohen, Manion & Morrison, 2000). Using a value-free method of data collecting, the social environment is investigated within the positivist paradigm (Mertens, 1998). Those who adhere to positivism believe that objectivity is the only truth, and that subjectivity is a deception (Oakley, 2000). Internationally, positivism is a common and established research paradigm. When studying the natural sciences and physical sciences, as well as the social sciences to some extent, positivism is used since it focuses on patterns of behaviour that can be observed in large samples and can therefore be confirmed and predicted mathematically. For the most part, the emphasis in this research paradigm is on maintaining the objectivity of the investigation itself (Creswell, 2014). Positivism emphasises evaluating a priori theories through deductive reasoning in quantitative

research (Edmond & Kennedy, 2017: 218). It will be used to determine the availability of IK documents in the University of Zululand IR for 10 years using bibliometrics (2009 to 2019).

3.3 Research Approach

In general, researchers use quantitative, qualitative, and mixed methods to conduct their work. Inductive, deductive, abductive, and reproductive research methodologies are all examples of social science research methods (Soiferman, 2010). Both qualitative and quantitative research approaches employ these types of logical reasoning.

The abductive method is used for theories, the deductive strategy is used for predictions, and the inductive strategy is used for facts (Flick 2014: 131). According to Blaikie (2010), an abductive research strategy is one that can be utilised to address a variety of different types of issues. Additionally, it explains the "why" question. It presents justifications rather than causes. A research technique based on inductive reasoning seeks to create limited generalisations regarding the distribution of patterns among measured or observed features.

According to Brynard, Hanekom, and Brynard (2014: 24) and Creswell (2014), the inductive approach begins with the actual world and real-world solution and continues with the formulation of a theory. This study largely employs an inductive research approach, as it is guided by the researcher's observations and identification of a problem. The researcher does a literature search for clues or leads to resolving the problem, then makes additional observations and formulates a hypothesis that explains the observed behaviour, as Creswell argues (2014: 5). The case study research design is used in this investigation. The research style was mostly inductive and qualitative, but limited quantitative tools, including bibliometric analysis, will be used for content/document analysis, necessitating the use of deductive methods.

3.4 Research Methods

A researcher also intends to use the case study research method since the study is based on the University of Zululand institution/organisation. Tight (2017: 8) and Stakes et al. (1994) define a case study as the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances. Tight (2017) further highlights that case studies are small-scale research with meaning. This study uses the University of Zululand in investigating the strategies used in documenting the IK as a case study. Yin (2012: 7) is of the view that the case study consists of single and multiple-case studies whereby a multiple-case study uses two or more organisations. The single-case study is used when the researcher is limited to a single organisation. This study consisted of a single case study since one organisation used was the University of Zululand whereby the researcher investigated the

strategies used by the very institution in documenting, disseminating and accessing IK. Thus the study adopts the case study method because it is exploratory and it uses more of a qualitative approach (Yin, 2012: 4). Since the study is largely qualitative, the data collection method used was mainly interviewing.

3.5 Target Population

An investigator must first establish what portion of the general population he or she plans to research before defining the study's target population (Awang, 2010: 56). The actual population of the study is comprised of all University of Zululand individuals and departments participating in the recording of IK throughout ten years using data from the Institutional Repository (IR) and Research Office (RO). In this study, the researcher used a cohort-sequential design because the same cohort was studied across a 10-year period from 2009 to 2019. Using the cohort-sequential approach, it is possible to calculate correlations between measures taken at different points in time and hence make predictions across time (Leedy & Ormrod, 2010: 187). Educators, librarians, researchers, and IK coordinators comprise the workforce. This group was chosen for study because of their engagement in IK management and documentation. Quantitative content analysis and qualitative in-depth interviews were both employed to acquire information from the study's subjects.

3.6 Sampling

Samples are subsets of the population that are intended to be representative of the entire population, and sampling is the technique used to gather samples (Adams & Lawrence, 2015:119). Sampling is a cost-effective method for putting together groupings of cases (Olsen, 2012: 24). Non-probability sampling is one of the two methods of sampling that Edmonds and Kennedy (2017: 19) agree with Olsen, (2012). However, random sampling is an attempt to prevent researchers from selecting specific examples from a predetermined list of cases. For their part, Adams and Lawrence (2015: 127) claim that non-random (non-probability sampling) sampling does not require the identification of all individuals or clusters in a population and instead relies on a random selection approach.

It is important to note that convenience sampling and purposive sampling are examples of non-probability sampling approaches that Edmonds and Kennedy (2017: 20) point out. Purposive sampling, on the other hand, selects participants based on a specific need or purpose, while inconvenient sampling selects participants because they are available and willing. Purposive sampling was chosen by the researcher because the population to be studied was unknown. Purposive sampling is a research technique that focuses on a small subset of the population that

is most likely to have the data needed to answer a research question, either because they already possess that knowledge or because they meet certain criteria established by the researcher (Sekaran, 2003: 277). The sampling frame of the study comprised a total number of 23 participants. The involved participants were considered based on their involvement in the creation/development of the content related to indigenous knowledge. Following the above-mentioned specific research aims, strategy and target population, this study selected the personnel responsible for documenting IK at Zululand University, library and Institutional Repository using this method of sampling.

3.7 Data Collection Instruments

Several data-gathering tools are used in research to acquire data. As such, Marshall and Rossman (2016: 141) demonstrate that qualitative research employs four distinct ways of data collection. They include participating in the setting (questionnaire), witnessing personally, conducting in-depth interviews, and critically analysing records and material culture. According to Neumann (1997:30), each researcher collects data using one or more strategies, and certain techniques are more productive than others when addressing particular types of questions or themes. Numerous methods or instruments are available, and their use is determined by the type of information sought. The researcher employed semi-structured interviews and bibliometric analysis to examine the University of Zululand's strategy for documenting, disseminating, and accessing IK. Rubin and Rubin (2012:8) emphasise the idea of combining in-depth interviewing and content/documentary analysis in qualitative research, and how these two tools complement one another.

Harding (2013: 30) identifies three types of interviews that can be employed in qualitative research: semi-structured interviews, unstructured interviews, and biographical interviews. In a word, this study collected data through a combination of two methods, namely semi-structured interviews and document analysis. The semi-structured interviews were chosen because they provide structure and direction to the interviewer without adopting the quantitative interview or document analysis standardisation method. They were utilised to conduct an analysis of the creation, storage, and dissemination of IK documents, as well as to ascertain the status of IK documentation at the University of Zululand.

According to Flick (2014), documents are standardised artefacts that take the form of notes, case reports, statistics, annual reports, and certificates. On the one hand, documents are often available as printed texts or exclusively in electronic form as a database. On the other hand, document analysis entails evaluating documents such as newspapers, speeches, budgets,

meeting transcripts, personal and public letters, internet posts and blogs, books, and diaries, as well as photographs and visual recordings. Access to documents occurs in the workplace, on the internet, and in archives and libraries (Olsen, 2012:78). From 2009 through 2019, this project analysed IK records from IR (e.g., theses and dissertations) (10yrs) For ten years, bibliometric was utilised to capture, verify, and analyse IK research publications in IR (2009 to 2019). The researcher asked the open-ended question in order to get descriptive answers since the study intended to explore the documentation, dissemination and accession of the IK.

3.8 Data Presentation and Analysis

Participants were interviewed and data were gathered through content/document analysis, and the data were evaluated to gain meaning and organised based on the participants' thoughts, ideas, and views. There are numerous types of data analysis, some of which are more fundamental in nature and others of which are more advanced. The most often used data analysis techniques include descriptive, exploratory, inferential, predictive, and causal analysis. An exploratory data analysis study examines the documentation, diffusion, and access to IK at the University of Zululand. Along with managing and organising qualitative data obtained through semi-structured interviews, document analysis, and Institutional Repository Records, quantitative data was analysed using content analysis.

3.9 Validity and reliability of instruments

Validity and reliability are required for collecting data (Leedy & Ormrod, 2010). Validity and reliability are employed by researchers to ensure the quality of their data. Both instruments contribute to establishing the truthfulness, integrity, and believability of findings (Ndunguru, 2007: 89; Neuman 2011: 188). According to Leedy and Ormrod (2010), validity and reliability are determined through either face or content. This is done to eliminate superfluous materials.

3.9.1 Validity

Authenticity is a synonym for truthfulness (Neuman, 2011: 208). To put it another way, it's about whether or not the research findings accurately portray the scenario. In a nutshell, validity is a stamp of approval for what occurs in the real world. To test an instrument's accuracy and if it measures the notion it was designed to measure is one of the advantages of validity (Leedy & Ormrod, 2010: 155; Neuman, 2011: 208). The supervisors at the department of information studies were a valuable resource for the researcher. It was safe to assume, based on the supervisor's expertise, that the instrument would accurately measure what was intended. As Leedy and Ormrod (2010) put it, "validity is suggested in a situation where the devices utilised for measurement are capable of producing reliable and precise data." This study's validity was

ensured by a variety of methods. As an example, a professional in the field of library and information studies can verify the instruments and do a proper assessment as well as proofreading.

3.9.2 Reliability

Neuman (2011: 208) defines reliability as the degree to which a measuring procedure measures and produces predictable as well as unchangeable data. The author defines reliability in terms of consistency and dependability. Additionally, reliability eliminates bias. Pilot research was done to ensure the study's applicability of reliability. This was done to ensure that the study's primary objectives were met in the manner anticipated. Additionally, Teijlingen and Hundley (2001:1) believe that doing a pilot study identifies in advance whether the primary research objectives will be satisfied and whether the proposed methodologies or instruments would be ineffective or too complex. The pilot research was also employed in the current study to see whether respondents had a firm grasp of the questions that would be asked during the interviews. The study increased the instrument's dependability by conducting interviews with both closed-ended and open-ended questions. It should be noted that the study used only straightforward, direct, and unbiased language in order to achieve the best findings. In June 2016, a pilot research was undertaken.

The researcher's ability to accurately measure what he intends to measure is referred to as validity (Kumar, 2014). According to the findings of Quirk, Mazor, Haley, Wellman, and Keller (2005), validity arises when the study's goal represents the phenomenon being studied in some way. Researchers are concerned about validity and reliability, according to a study's data control measures (Ndunguru, 2007). Thus, they help establish the accuracy, reliability, and plausibility of research findings (Neumann, 2011). To guarantee that the study questions are appropriate, the researcher used an appropriate research data collection tool. As a result, validity was employed in the research to ensure that the results appropriately reflect the circumstances under which they were conducted. There were a number of procedures used to make sure that the findings were accurate, including the verification of the research instruments with relevant studies and professional specialists and the execution of a pilot study to assess the instruments' accuracy.

The consistency of a researcher's methodology across multiple projects and researchers is referred to as "reliability" (Creswell, 2014). In order to determine the validity of the data and subsequent interpretations, the quality of data recording and documentation is critical (Flick, 2014: 482). The instruments' dependability was tested in a pilot study. Additionally, a pilot

study provides cautions about where the major research project could fail, where research protocols may not be followed, or where planned methodologies or instruments are inappropriate or too complicated (Teijlingen & Hundley, 2001).

3.10. Ethical Considerations

In all research, ethics must be taken into account. Research activity can have negative impacts on the subjects and the community as a whole if the participants have the freedom of action (Hammond & Wellington, 2013: 59-60). It is conceivable that in order for research freedom to not infringe on people's rights, research should be directed by unwritten standards and principles. This research followed ethical guidelines given by the University of Zululand and ethical considerations were taken into account while fieldwork is being undertaken. Plagiarism, damage, and violations of others' rights are all prohibited by this agreement for the researcher's use. To protect the respondents' rights, including the right to consent, the right to secrecy, and the right to not have their personal information shared with third parties, the researcher took steps to ensure the respondents' privacy and anonymity (Corbin & Strauss, 2015: 13).

The researcher's honesty was considered an ethical concern as well. In particular, a researcher must adhere to a set of guidelines in order to produce work that is both accurate and comprehensive (Sarantakos in Ikoja, 2002:188). Data collecting and processing, acceptable study methodology, the right interpretation of data, correct reporting, non-fabrication of data, and no criminal wrongdoing are all examples of proper data collection and processing. As a result, the researcher followed ethical guidelines. Data collection of this study was done before the outbreak of the pandemic, hence the researcher did not encounter COVID-19 challenges during the data collection period.

3.11 Methodological limitations/challenges

Limitations are events or circumstances that occur during a study that are beyond the researcher's control. For instance, restrictions frequently restrict the scope of a study and occasionally affect the end outcome and conclusions that can be derived from it (Simon & Goes, 2013). As a result, this study experienced only a few difficulties, which are detailed below:

- It happened that data collection of the research coincided with the writing of examinations. The researcher had difficulty in getting academics for interviews as there were appointments that were postponed several times in order to meet the participants when they were on campus.

- The participants also complained that the research questions were too long as they were taking approximately 35-50 minutes to interview one person. The researcher asked the participants to be patient and at times others left the interviews halfway and requested that it continued the following day.
- Data collection online through an institutional repository was also not easy as the researcher tried several keywords and subjects to ensure that all the required titles were accessed.
- The issue of covid-19 also affected the researcher to continue with data analysis as was isolated for two weeks after contaminating with the virus. The issue of lockdown also affected the researcher in many ways as we were not used to be in in-house for several months. In that light, the progress was slow, it was like the world was coming to an end. The challenges were alleviated in a variety of ways and that culminated in the completion of this study. The research could use virtual communication platforms, for instance, Zoom to reach the supervisors for the necessary meetings. The emails were used for the submission of work and the researcher needed to purchase more bundles of data since there was a lockdown countrywide and the University was closed.

3.12 Summary of the chapter

This chapter outlined the study's research design and methods. Many issues were addressed in this chapter, including research paradigms, research techniques; study populations; sampling procedures; data collection procedures and tools; data processing; pilot studies; validity and reliability; and research ethical considerations.

The chapter addressed some of the most important aspects of the current investigation. It was possible to obtain objective results since the study utilised qualitative and quantitative methods (in the form of semistructured interviews) in equal measure. The validity and dependability of the study's findings were critical in proving their validity, which brought us to our third and last major theme.

Analysis of the study relied on both interview and questionnaire data. Despite the importance of this study's findings, it is important to note that the instruments used in the investigation had a significant impact. In addition, the content analysis influenced the nature, types, and importance of IK in KwaZulu-Natal significantly. Finally, the research aims influenced the data collection. Section 6.4 of the report covers most of the difficulties the researcher encountered (in Chapter 7). The results of the study are detailed in the following section.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The preceding chapter addressed the study's methodology. This chapter discusses the data analysis, which was conducted using information gathered from purposefully selected academics and non-academics at the University of Zululand who are involved in IKS (teaching, research, documentation, and dissemination) and the University of Zululand Institutional Repository, UNIZULU IR (for IK thesis and dissertations). The chapter is comprised of two sections: A and B. Part A contains the transcripts of the interviews conducted with academics and non-academics, whereas Part B contains the results of the IR's content analysis.

4.2. Part A: Data from Academics and Non-Academics

4.2.1. Demographic Profile of the Respondents

Table 4.1 shows four (4) faculties that make up the twenty-three (23) respondents (Arts, Education, Science and Agriculture as well as the DVC office). This study enlisted the participation of fifteen (15) departments interested in IK research. These involved both academic and support departments: the academic departments included African Languages and Culture, Tourism and recreation, Information Studies, Botany, Geography, Nursing Science, Creative Arts, Consumer Sciences, History, Anthropology, Education Science and Technology, as well as Agriculture. Each department had one or two participants depending on the wideness of the department. While the support departments entailed Indigenous Knowledge System Documentation Centre, Library and Information Services, Research and Innovation. Staff members from both academic and non-academic (support staff) departments were chosen as respondents for the study. A total number of nineteen (19) academic staff members participated in the study while four (4) of them were from the Support departments. The respondents and the researcher agreed that the interviews would take place in their respective offices. Respondents were asked to answer structured questions on their personal information, such as their faculty, department, rank, highest educational qualification, gender, and age, as well as open-ended questions that needed narrative responses. Tables 4.1–5.5 provide the gender, affiliation, position/rank, qualification, and age of the research participants.

Table 4.1: Gender (N = 23)

Variable	Frequency	Percentage (%)
Male	13	56.5%
Female	10	43.5%
Total	**23**	**100**

Table 4.1 above presents the gender variables of the study participants. Out of twenty-three (23) participants, findings show that there were more males (13; 56.7%) than females (10; 43.5%).

Table 4.2: Faculty (N = 23)

Variable	Frequency	Percentage (%)
Arts	10	43.5%
Science and Agriculture	9	39.12%
DVC	3	13.04%
Education	1	4.34%
Total	**23**	**100**

Table 4.2 above presents the faculty profile of the respondents. Out of the twenty-three (23) respondents, 10 (43.5%) were from the Faculty of Arts; Science and Agriculture were represented by 9 (39.12%) of the respondents. From the DVC variable, there were 3 (13.04%) participants and all responded. The Faculty of Education had 1 respondent (4.34%). The DVC office was presented under the faculty profile since there were academic support departments that do not fall under the faculty categories.

Table 4.3: Rank/Position (N = 23)

Variable	Frequency	Percentage (%)
Senior lecturer	10	43.5%
Lecturer	8	34.75%
Admin and Coordinator	2	8.7%
Librarian	1	4.35%
Senior Laboratory assistant	1	4.35%
Senior Officer	1	4.35%
Total	**23**	**100**

Out of twenty-three (23) respondents, senior lecturers were 10 (43.5%), lecturers were 8 (34.7%), admin and coordinator were 2 (8.7%), while librarian, senior laboratory assistant, and the senior officer had one respondent each.

Table 4.4: Highest Academic Qualification Profile of the Respondents (N = 23)

Variable	Frequency	Percentage (%)
PhD	14	60.85%
Masters	6	26.10%
Honours	2	8.70%
Basic Degrees	1	4.35%
Total	**23**	**100**

The respondents with PhD degrees were 14 (60.85%), followed by those with master's degrees (6; 26.1%), honours degrees (2; 8.7%) and bachelor's degrees (1; 4.35%).

Table 5.5: Age (N = 23)

Variable	Frequency	Percentage (%)
18-29	1	4.35%
30-39	3	13%
40-49	10	43.5%
50-59	8	34.8%
60 and above	1	4.35%
Total	23	100

Table 4.5 presents the age profile of the participants. The highest age range was 40-49 with 10 (43.5%), followed by the age range of 50-59 (8; 34.8%), age of 30-39 (13%), and the last: 18-29 and 60 and above, with 1 (4.35%) each.

4.2.2 Department

This section represents the departmental profile of participants. This section needs to be noted because the study interviewed both academic and non-academic staff members. Academic staff members have coded PA, while non-academic/support staff were coded PNA. Table 5.6 summarises the departmental outline of the partakers.

Table 4.6: Departmental Profile of the Respondents (N = 23)

Variable	Frequency	Percentage (%)
African Languages and Culture	3	13%
Botany	3	13%
Geography and Environmental Studies	2	8.7%
Information Studies	2	8.7%
Recreation and Tourism	2	8.7%
Research Administration	2	8.7%
Agriculture	1	4%
Anthropology and Development Studies	1	4%
Consumer Sciences	1	4%
Creative Arts	1	4%
History	1	4%
Library and Information Services	1	4%
Nursing	1	4%
Physics	1	4%
Social Sciences in Education	1	4%
Total	**23**	**100**

As noted in Table 4.6, the number of respondents from other departments in the table was one, except three from African Languages and Botany, and two from Geography, Environmental Studies, Information Studies Recreation and Tourism, and Research Administration.

4.2.3. Departmental Involvement in IK creation

The first objective of the study sought to establish how IK is created/developed in your department). The study found it crucial to find out from the participants if they were involved as a department in creating IK in the form of collecting data to document IK, for example; teaching and learning, research, and community outreach programmes. How is IK created/developed in your department? The reason for asking this question was that it could significantly impact recognising the 'creation/development' IKS that could lead to its

documentation. The study's findings showed that 20 (86.9%) academics were involved in creating IK, while only 3 (13%) non-academic participants indicated that they were not directly involved in IK creation. Instead, they deal with the support aspect of the development of IK. For instance, the library provides access to different kinds of information, including that of IK. The non-academic participants highlighted that their involvement was based on supporting academics to ensure IK's efficient creation.

4.2.4 Area of IK the departments are involved with

In what area of IK does your department focus? The study found it important to know the area of IKS speciality of each department and faculty. It is worth noting that not all participants attended to this question. However, it was addressed by only those participants who indicated that they were involved in the creation/development of IKS. In that light, 22 (95.6%) responded to this question. The responses obtained from the participants were recorded as follows:

PA1 said: "*Regarding the content of IK, the department deals with the use of plants*".

PA2 said: "*Conservation of natural resources*".

PA3 said: "*The department is focusing on Medicinal and food plants"*.

PA4 had this to say: "*I am dealing* with researching on *IK history and decolonisation of IK*".

PA5 said: "*African languages, Arts and History"*.

PA6 said: "*Cultural Anthropology, rural IK, food and security".*

PA7 had this to say: "*My involvement is focusing on History*".

PA8 said: *Collecting all types of IK*.

PA9 had this to say: "*Growth of plants and animal production*" and agronomy.

PA10 were focusing on: … "*Geology and Stars in the context of IK*.

PA11 said: "*Food Innovation and Interfacing Traditional and Western Knowledge*".

PA12 were focusing on: *Geology and Stars in the context of IK*.

PA13 focused on: *African languages, Arts and history*

PA14 said: *"It is through heritage and folklore*".

PA15 had this to say: "*I focus on conservation of the environment through IKS*".

PA16 had this to say: "*The relationship between pharmacology, medicinal plants and indigenous medicine as well as food plants*".

PA17 echoed that: "*It is through IK General Information Conservation and Dissemination*".

PA18 said: "*It is created through Music, speech drama, production of Arts Teachers*".

PA19 said "*The focus was on the indigenous food and traditional medicine*.

PA20 replied thus: "*Conservation of natural plants, Ecology, Agronomy and Medicinal and food plants*

PNA21 said: "*Funds and training were provided for academics and students researching on IKS, and we also fund projects on IKS*".

PNA22 had this to say: "*Our responsibility as a library is to ensure that we collect and disseminate thesis and dissertations on IKS*".

PNA23 said: "*Providing support, e.g. training and funding to students and staff members researching IKS".*

4.2.5 Different ways of creating IK

The participants were asked to comment on the different ways they create IK in their departments. This question brought interesting responses from the comments. The narrations are as follows:

PA1 had this in mind: "*the department is involved in creating IK only through research where students write a thesis and also make publications from the work they have done".*

PA2 said: "*As a department, we create IK through research and publications".*

PA3 stated that: "*IK was created only through research".*

PA4 said: *"It is created through research, community engagement, teaching and learning and collection of data from surrounding communities".*

PA5 said: "*Through research, teaching and learning"*.

PA6 said: "*Through research teaching and learning*".

PA7 said: "*Through research and ethnography observation*".

PA8: had this to say: "*We collect data from owners of IK and write thesis and dissertations as well as publishing from what we got from rural communities".*

PA9 uttered: "*Empirical research and experiments*".

PA10 had this in mind: "*Community engagement and research*".

PA11 said: "*We collect data from rural people who have rich knowledge of IKS and write thesis and dissertation*".

PA12 commented that: "*IK was created only through research".*

PA13 said: "*We work together with students on research topics that relate to IKS, and we collect data from owners of indigenous knowledge and produce thesis and dissertations. Thereafter, we publish the findings through journals and book chapters*".

PA14 had this to say: "*Some of us in the department write thesis and dissertations based on what rural people shared with us during data collection*".

PA15 had this to say: "*We visit owners of IK to collect content related to IKS and write research projects, thesis and dissertations*".

PA16: said: "*IK was created only through research*

PA17 resonated that: "*We observe nature and write research on that*".

PA18 had this in mind: "*We create IK through the content we collect from rural people by writing thesis and dissertations. Some of us have registered research projects on IKS*".

PA19 said*: "IK was created only through research."*

PA20 stated: "*Visiting and inviting owners of IK to perform and record what they know*".

PNA21 said: "*Supporting the creation of IK through training and funding".*

PNA22 had this to say: "*The duty of a library is to ensure that all thesis and dissertations from the departments are kept in the library digitally and on shelves".*

Supporting the creation of IK through training and funding.

PA23 said: "*We ensure that students and academics receive funding for IKS projects*".

4.2.6. Familiarity with documentation and recording of content related to IK at the University of Zululand

Are you familiar with the documentation or recording of content related to IK? Does this section present the results required to achieve the second objective of this study to determine if they were familiar with content related to IK at the University of Zululand? Almost all the

participants agreed that they were *aware of the University of Zululand is involved in the documentation and recording of contents related to IK, but it was not promoted, hopefully, this study will shed a light on IK visibility and recognition.* However, three participants claimed not to be aware *of any documentation and recording done by the University of Zululand on IK-related contents.*

4.2.7. Ways in which the University of Zululand documents and records content related to IK

As a follow-up question to the above, the question was asked on how the University of Zululand documented and recorded IK-related contents. The different responses are presented below.

PA1, PA2, PA3 and PA4 shared the same sentiment: "*IK was made available to the community through institutional* Repository

PA5 stated that: "*IK-related content that is related to IKS is documented through theses and dissertations".*

PA5 said: "*The University of Zululand uses the institutional repository to keep documented content related to IK".*

PA7 was of the view that: "*The University of Zululand uses the institutional repository to keep documented content related to IK".*

PA8 lamented that: "*The University of Zululand stores documented contents related to IK and videos on IK in the audio-visual section*".

PA9 had this to say: "*Documented content of IK is recorded using thesis and dissertations as well as CDs".*

PA10 said: "*All documented research projects like theses and dissertations as well as CDs are kept in the library".*

PA11 lamented that: "*The University of Zululand stores documented contents related to IK and videos on IK in the audio-visual section".*

PA12 had this to say: "*Documented content of IK was recorded on theses and dissertations as well as CDs".*

PA13 echoed that: "*IK Centre in Richards Bay keeps the documented and recorded content of IKS".*

PA14 had this to say: "*Some of us in the department write thesis and dissertations based on what rural people shared with us during data collection*".

PA15 had this to say: "*Documented content of IK is always recorded in the form of thesis and dissertations as well as CDs"*.

PA16 echoed that: "*We have an IK Centre in Richards Bay which is responsible for recording and storing IKS videos, but thesis and dissertations are kept in the university library*".

PA17 echoed that: "*IK Centre in Richards Bay keeps the documented and recorded content of IKS*".

PA18 said: "*It is our university library that keeps what we research and find from rural communities*".

PA19 commented that: "*We as a department produce thesis and dissertations, and then the library keeps what we produce*".

PA20 had this to say: "The produced thesis and dissertations are sent to the library to be kept".

PNA 21 had this to say: "*They are kept in the library"*.

PNA22 had this to say: "*The library encourages all departments to bring all produced thesis and dissertations as well as CDs to be brought in the library to be accessible to everyone"*.

PNA23 had this to say: "*They are kept in the library"*.

4.2.8 Ways in which content of IK is accessed by the University of Zululand community

The participants were asked to comment on how the University of Zululand community accesses the content of IK. Again, this question generated various opinions from the participants. Their responses were recorded as follows:

PA1was of the opinion that: "*The content is accessed through national and international conference presentation*".

PA2 had the same sentiment: "*IK was made available to the community through institutional repository*".

PA3 view: "*IK content made available through theses and dissertations through institutional repository".*

PA4 said: "*IK was made available to the community through institutional repository*".

PA5 commented that: "*It is available in both printed and online*".

PA6 view: *IK content made available through theses and dissertations.*

PA7 view: *IK content made available through theses and dissertations.*

PA8 said: "*They access the content through national and international conference presentations.*"

PA9view: "*Open access and thesis format*".

PA10 opined that: "*Accessed to the IK content is through the library and in workshops as well as seminars organised by different departments*".

PA11 opined that: "*Through the library, conferences and workshops*".

PA12 was of the opinion: that "*IK content was accessed through the national and international conference presentation*".

PA13 view: "*IK content made available through theses and dissertations".*

PA14 opined that: "*Accessed to the IK content is through the library and in workshops as well as seminars organised by different departments*".

PA 15 view: "*IK content made available through theses and dissertations".*

PA16 opined that: "Accessed to the IK content is through the library and in workshops as well as seminars organised by different departments."

PA17 had the same sentiment: "*IK was made available to the community through institutional repository*".

PA18 had the same sentiment: "*IK was made available to the community through institutional repository*".

PA19 had the same sentiment: "*IK was made available to the community through institutional repository*".

PA20 was of the opinion: that "*IK content was accessed through the national and international conference presentation*".

PNA21 opined that: "*Accessed to the IK content is through the library and in workshops as well as seminars organised by different departments, institutional repository and research office*".

PNA22 had the same sentiment: "*IK was made available to the community through an institutional repository, library and research office as well as open access*".

PNA23 is of the opinion: "*The content was accessed through the national and international conference presentation, library and online*".

4.2.9 Accessed contents related to IK in University of Zululand

The participants were asked if they had ever accessed content related to IK. The question was asked to know whether they were using the contents related to IK documented by the University of Zululand. Interestingly, approximately 65% of the participants accessed IK's content through the library and institutional repository. Noticeably, only approximately 35% never accessed the contents related to IK from the library.

4.2.10 Type(s) of accessed contents related to IK

A follow-up question was asked on the type(s) of content they access. This question was meant to determine the type of content related to IK used by the university community. It is worth noting that this question was answered by those participants who indicated that they access the contents related to IK. As such, approximately 65% of the participants attended to this question. The findings are discussed below.

PA1 said: "*Involving the uses of plants and their genetics*".

PA2 stated that: "*Integration of Traditional Healers and the Department of Health".*

PA3 said this: *"Genetic Studies including livestock".*

PA4 said: "The history of the Zulu Nation, and Boer war, cultural heritage and traditional marriage".

PA5 said: "*Involving the uses of plants and their genetics*".

PA8 said: "*To have accessed the uses of plants and their genetics*".

PA10 had this in mind: "*The history of the Zulu Nation, Zulu and Boer war, cultural heritage and traditional marriage*".

PA12 had this to say: "*Imbuya (Vegetable leaf) as a medical herb and as food*".

PA13 said: "*The history of the Zulu Nation and Boer war; cultural heritage and traditional marriage*".

PA17 lamented: "*The Characteristics of IK; the use of tools in documenting I and videos on the traditional practices".*

PA18 echoed that: "*Traditional music and culture*".

PA19 said: "*The history of the Zulu Nation, and Boer war, cultural heritage and traditional marriage*".

PA20 and PNA21 shared the same sentiment: *Traditional Medicine and Traditional Farming*.

PNA22 A said: "*Food and Medicinal Plants*".

4.2.11 How the contents related to IK were accessed

It was very important to establish how the academics and non-academics access the contents related to IK. Again, this question was only addressed by the participants who revealed that they access the contents related to IK. It means that approximately 65% of the participants mentioned above attended this question. The results are summarised below.

PA1 said: "*I access the contents related to IK from the library".*

PA2 said: "*I always get the contents related to IK from theses and Dissertations through the university of Zululand library".*

PA3 echoed that: "*Library gets IK content from online using the university of Zululand library webpage*".

PA4 said: "*IK-related content was accessed through the library from open access and institutional repository*".

PA5 had this to say: "*I access the contents related to IK from different gatherings, e.g. Conferences, Seminars, Workshops and Community Engagement*".

Participant PA8 lamented: "*It is access*ible t*hrough multimedia resources".*

PA12 said: "*I always get the contents related to IK from theses and Dissertations through the university of Zululand library*".

PA13 commented that: "*I get the contents related to IK from the library and online*".

PA14 said: "*I use the university of Zululand library to get the contents related to IK from theses and Dissertations*".

PA16 said: "*I use institutional repository*".

PA17 had this to say: "*I use the library and online information*".

PA18 said: "*I use institutional repository".*

PA19 provided a similar response that: IK related content was accessed through the library from open access and institutional repository

PA20 echoed that: "It is accessed t*hrough electronic journals and databases*".

PNA21 said: "*I use thesis and dissertations in the library, institutional repository and open access*".

PNA22 said: "*I always get the contents related to IK from theses and Dissertations through the university of Zululand library".*

4.2.12 Sharing of the created content related to IK

It was important for this study to uncover whether academics and non-academics shared the contents related to IK that they access from the library. It was interesting to discover that many academics and non-academics who created content related to IK share the information with other people. Only 4 respondents (18%) said they do not share the content related to IK. It can be said that academics and non-academics play a pivotal role in disseminating the created content related to IK to other people. This may be one way the University of Zululand create and disseminate locally produced knowledge globally.

4.2.13 Ways of sharing the contents related to IK

The 18 (81.8%) academic and non-academic participants were asked to provide details of how they shared the contents related to IK that different departments created. The following was discovered.

PA1 said: "*I normally share the contents related to IK through publication, faculty and departmental conferences as well as national and international conferences*".

PA2 had this to say: "*Conducting seminars to the communities where I collected the knowledge and attending national and international conferences to share the findings*".

PA3 commented that: "*I send emails to those academics and non-academics whom I know very well that they like to research on IKS. I also attend departmental and national as well as international conferences to present the finding*".

PA3 said: "*I teach my students and colleagues*".

PA5 said: "*IK-related contents were shared through publication, faculty and departmental conferences as well as national and international conferences*".

PA6 had this to say: "*IK-related content was shared through community engagement by word of mouth*".

PA8 said this: *"It is shared through teaching and learning as well as conferences".*

PA10 echoed that: "*I share IK to my colleagues through emails, journal publications and conferences*".

PA11 said: "*I conduct seminars and workshops in rural communities where I collected content on IKS. I also do publications and attend conferences*".

PA12 said: "*The IK-related content that I have collected from owners of IK is shared through thesis and dissertations as well as journals. I also attend national and international conferences*".

PA13 had this in mind: "*Contents related to IK are shared through supervision and documentation of what we produce".*

PA14 said: "*I supervise master PhD students, and that is where I share the content of IKS. Again, I do it through publications and attending conferences*".

PA15 stated: "*IK content is shared through teaching undergraduate and postgraduate students. Attending conferences is another platform I use to share IKS*".

PA16 said: "*IK-related content is shared through publication, faculty and departmental conferences as well as national and international conferences*".

PA17 had this in mind: "*I present the findings of IK-related contents in national and international conferences. I also publish the findings through journals*".

PA19 said: "*Contents related to IK were shared through supervision and documentation of what we produce".*

PA20 echoed that: "*IK-related contents were shared through publication, faculty and departmental conferences as well as national and international conferences*".

PNA22 lamented that: "*IK-related contents were shared through publication, faculty and departmental conferences as well as national and international conferences*".

4.2.14 Challenges of documenting and disseminating content related to IK

This section presents the results that were required to achieve the third objective of this study. The fourth objective of the study required participants to state if they were facing challenges regarding documenting and disseminating the contents related to IK. This section was meant for the participants who indicated that they create/developed the content related to IK. It means that 22 (95.6%) responded to this question. The participants' results showed that many academics and non-academics agreed that they faced several challenges in documenting and disseminating content related to IK. Noticeable, only 3 (13.6%) indicated that they did not encounter challenges in documenting and disseminating the contents related to IK. The following section looks at the types of challenges academics and non-academics face in documenting and disseminating IK.

4.2.14.1 Types of challenges faced when documenting and disseminating the contents related to IK

Nineteen (82.6%) academics and non-academics were asked to provide details of the problems they were facing in documenting and disseminating the content related to IK. This question is divided into two parts: documenting IK and disseminating IK. The results are presented below.

PA1said: "*There is a high crime experienced when visiting communities to collect data from IK holders*".

PA3 echoed that: "*Trustworthy required by IK holders before sharing their knowledge*".

PA4 said: "*Rural people do not share their knowledge with strangers*".

PA5 had this to say: "*Local language is a big barrier*".

PA6 said: "*Proper tools for recording and capturing IK are required"*.

PA7 echoed that: "*The office of IKS needs to be visible as it does not serve its purpose for us*".

PA8 said: "*IK Holders are reluctant to share IK for the fear of abuse of their IK*".

PA11 had this to share: "*IK Holders are reluctant to share IK for the fear of abuse of their IK*".

PA12 echoed that: "*The office of IKS needs to be visible in order to assist those researchers who need information from owners of IK*".

PA13 echoed that: "*Local language is a barrier to us*".

PA14 said: "*Lack of office of IKS in our university is a stumbling block*".

PA15 indicated that: "*We are not trusted by rural people because some researchers abused them*".

PA16 said: "*IK Holders are reluctant to share IK for the fear of abuse of their IK*".

PA17 said: "*It is a lack of incentives to give its owners of IK for spending their time with us when asking them questions. These people need payment and if you do not give them what they want, just forget that you will get any rich information*".

PA19 said: "*Extra cash is required to give to participants when giving out their knowledge*".

PA20 responded and said: "*Difficulty in finding IK holders, and they need incentives because they do know that we use their knowledge to uplift ourselves and forget about them*".

PNA21 had this to say: "*Academics need proper training on recording IK*".

4.2.14.2 Challenges regarding dissemination of the content of IK

PA1 said: "*Travelling to national and international conferences to share the knowledge is expensive*".

PA3 echoed that: "*Disseminating video recordings of local knowledge needs a lot of data*".

PA4 echoed that: "*Shortage of bigger space to store videos of IKS*".

PA5 revealed that: "*It is expensive to fund students to attend a local and international conference to share findings of their study".*

PA6 had this in mind: *"Our department has financial challenges as it is unable to afford students who have finished their research projects to share their findings in national and international conferences".*

PA7 said: *"Attending national and international conferences requires a lot of money which that is a bad experience for academics".*

PA8 had this in mind: "*It was difficult for academics to publish their documented contents related to IK on accredited Journals as it requires an experienced publisher*".

PA11 said: "*Academics with little experience are unable to publish in accredited journals*".

PA12 *"It was expensive to fund students to attend a local and international conference to share the findings"*.

PA13 *indicated that: "Sending postgraduate students to present their research findings is a bit expensive"*.

PA16 yielded a similar response: "It was difficult for academics to publish their documented contents related to IK on accredited Journals as it requires an experienced publisher".

PA17 said: "*Travelling to national and international conferences to share the knowledge is expensive if one has no money for publication*".

PA20 provided a similar response: "*Travelling to national and international conferences to share the knowledge is expensive*".

PNA21 had this to say: "*It is not easy to publish articles generated from research projects*".

PNA22 provided a similar response: "*Even if we one is a willingness to share the content of IKS, travelling is expensive especially to attend an international conference*".

4.2.14.3. How are the challenges of documenting IK resolved?

The 19 (82.6%) academics and non-academics who spelt out problems regarding documenting the contents related to IK were asked to provide detailed information on how they tackled the problems met. However, very few participants answered this question. The results are discussed below.

- *Travelling with a local person who knows the language of the community during data collection is vital.*
- *Consulting with Induna or the Chief during data collection is key, and it makes the community members trust researchers*
- *Applying for research funds to carry out departmental projects is a key factor in the progress.*
- *Getting ICT skills is vital as documenting IK needs IT skills.*
- *Academics are encouraged to publish with senior academics to master publication skills.*

- *Encouraging students to publish is also a key factor.*

4.2.15. Strategies need to be developed for documenting, disseminating and accessing IK by the University of Zululand

One of this study's objectives was to determine the strategies needed for documenting, disseminating, and accessing IK by the University of Zululand. The study asked the academics and non-academics to share the strategies they might have in mind to ensure that documenting, disseminating, and accessing IK improves tremendously. The participants enumerated the following strategies:

- *The University of Zululand needs to take pride in IKS and encourage academics to conduct research on the subject;*
- *The University of Zululand need to have an awareness day for IKS, where owners of IK are invited to showcase their local knowledge to the university community;*
- *Collaboration between the University of Zululand and rural communities is urgently needed;*
- *IKS centre should be brought back to the main campus where research on IK is high;*
- *Decolonisation of the African Languages;*
- *Promoting the types of IK through social media tools;*
- *The University of Zululand must have a committee for IKS that will always work for hand in hand with the community and those academics that are involved in IKS research;*
- *Promoting the teaching of IKS at the University of Zululand needs to be encouraged;*
- *The University of Zululand need to have an IKS policy in place;*
- *The University of Zululand need to have a special budget for researchers whose specialisation is IKS;*
- *Provision of training to researchers on IKS on how to manage IKS through ICTs needs urgent attention; and*
- *The University of Zululand library needs to be fully involved in the documentation of IKS because so much has not been documented, and it needs libraries*

4.2.16 Recommendations by participants concerning IK documentation and access at the University of Zululand

The participants were encouraged to give suggestions on IK documentation and access at the University of Zululand. This question drew a lot of attention from the academics and non-academic staff members. The following suggestions were made:

- *There is an urgent need for the University of Zululand to promote cultural diversity and cultural exchange;*
- *IK promotion can play an important role in attracting the local and global community;*
- *Inclusion of IKS in the University of Zululand curricula;*
- *Recognition of the importance of IK since UniZulu is in the heart of KZN, should excel and showcase in isiZulu and Culture;*
- *Encourage teaching some classes in the isiZulu language, or compulsory courses in the isiZulu language;*
- *The recording of the contents related to IK on videos should be encouraged;*
- *Encourage projects on community engagement that will include IKS;*
- *IKS centre should have IKS professionals like any other tertiary institution in South Africa;*
- *The University of Zululand should have an IKS office with the library which will liaise with rural communities;*
- *The University of Zululand need adoption of the National Department of Arts and Culture legal framework and request funding; and*
- *The University of Zululand should promote IKS awareness day.*

4.3. Part B: Data analysis of UNIZULU IR contents

4.3.1. Results from content analysis

This section of the chapter discusses the content analysis of the theses and dissertations produced by the University of Zululand postgraduates: Masters and doctoral students. These documents, which include the contents related to IK, were retrieved from the University of Zululand Institutional Repository (IR) covering the period from 2009 to 2019. The total number of documents found was 1301, while those related to IK were 87.

It is critical to emphasise that the content analysis was necessary to accomplish the study's first and second objectives: to determine how IK is developed and documented at the University of Zululand. This section contains a content analysis of the theses and dissertations located in the University of Zululand's database over the selected time period.

4.3.2. Theses and Dissertations produced across faculties in the University of Zululand by different categories

The study intended to observe from the database (Institutional Repository) of the University of Zululand the number of theses and dissertations produced during the period 2009 – 2019. The content analysis was done for masters and PhD documents. The results are summarised in the tables below. The total number of items available in the system was 1 301. The search was specific to indigenous knowledge, traditional knowledge and cultural knowledge, for which 131 titles were retrieved. Only 87 titles found were between 2009 to 2019 (10 years).

Table 4.7 IK titles in the University of Zululand IR from 2009-2019

Author	Supervisor	Title	Year	Faculty	Department	Level
T. F. Dlamini	Prof L. M. Magi Prof A. T. Nzama	Cultural tourism practice in Mbabane, Swaziland: perspectives, perceptions and benefits	2009	Arts	Recreation & Tourism	Doctoral
Z. M. Mthembu	Prof Z. L. M. Khumalo	Injula yesiko lokwelusa esizweni samaZulu kanye nokuthuthukisa kwalo ulimi lwesiZulu	2009	Arts	African Languages and Culture	Doctoral
N. M. A. R. Nzuza	Prof Z. L. M. Khumalo	Ucwaningo olunzulu ngemilozi kanye nenkulumobuthule nemikhuba yayo esiZulwini	2009	Arts	African Languages and Culture	Doctoral
B. J. Mdlalose	Prof Z. L. M. Khumalo	Zindaba zakho! Mngoma	2009	Arts	African Languages and Culture	Masters
V. J. Mthembu	Prof Z. L. M. Khumalo	Ubumqoka bezinkomo esizweni samaZulu	2009	Arts	African Languages and Culture	Doctoral
M. P. Mongola	Dr Z. J. Mashiyane	The input of choral music in linguistic and literary aspects	2009	Arts	African Languages and Culture	Masters
P. M. Cele	Pro z. L. M. Khumalo	Sikhulekel'ibomvu abalale bebabili bavuke bebathathu	2009	Arts	African Languages and Culture	Masters.
S. L. Ntuli	Prof Z. L. M. Khumalo	Ucwaningo lwekhono lokuchaza emibhalweni ka Mngadi M. J.	2009	Arts	African Languages and Culture	Doctoral
N. S. Mthethwa	Dr H. De Wet Dr a. K. Basson Mr N. R. Ntuli	Antimicrobial activity testing of traditionally used plants for treating wounds and sores at Ongoye area KwaZulu-Natal, South Africa	2009	Science & Agriculture	Botany	Masters

V. Ngema	Prof Z. L. M. Khumalo	Circular orientation in performance: a study of the cycle of living and its application in a cultural expression like dance	2009	Arts	African Languages & Culture	Doctoral
W. N. Z. Mthembu	Prof Z. L. M. Khumalo	A genre-based approach to isiZulu home language education as a means to successful English first additional language education	2009	Arts	African Languages & Culture	Doctoral
T. E. Ntombela	Prof. Z. L. M. Khumalo	African European narrative conventions in the novels of C. T. Msimang	2009	Arts	African Languages & Culture	Doctoral
L. T. Mbatha	Prof. Z. L. M. Khumalo	Ucwaningo ngomonakalo owenziwe ngamalungelo esintu	2009	Arts	African Languages & Culture	Masters
F. B. Mthethwa	Dr Z. J. Mashiyane	Ucwaningo ngokuthuthuka kolimi lwesiZulu emkhakheni wokuhumusha	2009	Arts	African Languages & Culture	Masters
M. D. Ramaroka	Dr Z. J. Mashiyane	The history of the Barolong in the district of Mafikeng: a study of the intra-Batswana ethnicity and political culture from 1852-1950	2009	Arts	African Languages & Culture	Doctoral
J. J. Mthethwa	Prof. Z. L. M. Khumalo	Ubumqoka bezinkomo esizweni samaZulu	2009	Arts	African Languages & Culture	Doctoral
E. Z. Ximba	Prof. L. M. Magi	Cultural heritage tourism development and promotion in the Ndwedwe municipal area: perceived policy and practice	2009	Arts	Recreation & Tourism	Masters
M. T. Nxumalo	Dr a. T. Nzama Prof l. M. Magi	A new tourism product based on indigenous knowledge of stars (astronomy) in the uMkhanyakude region: process, perception and potential	2010	Arts	Recreation & Tourism	Doctoral
T. B. M. Zulu	Prof. Z. L. M. Khumalo	A critical analysis of M. E. Ngcobo's sociological radio plays	2010	Arts	African Languages & Culture	Doctoral
M. J. Malibe	Dr Z. J. Mashiyane	Ubunkondlo obutholakala ezithakazelweni zesiZulu	2010	Arts	African Languages & Culture	Masters
E. Z. Ndaba	Prof. Z. L. M. Khumalo	Ukuqanjwa kwamagama emithi ezigodini zakwesakwaMkhwanazi kwaDlangezwa	2010	Arts	African Languages & Culture	Masters
P. P. P. Manyathi	Dr Z. J. Mashiyane	Ucwaningo olunzulu ngamasiko esiZulu	2010	Arts	African Languages & Culture	Doctoral

		ahlukumeza abesifazane abangamaZulu				
M. C. Dube	Mr F.A. van-Jaarsveld	The tourism potential of Zululand North of the Tugela River with special reference to Zulu culture and history	2010	Arts	Recreation & Tourism	Masters
H. B. Mbonambi	Prof. Z. L. M. Khumalo	Ukuvuselelwa kwesiko lokuhlonipha entsheni ensundu ikakhulukazi esizweni sakwaZulu	2010	Arts	African Languages & Culture	Masters
J. K. Mnqayi	Prof. Z. L. M. Khumalo	Ucwaningo olunzulu ngemigubho yamanazaretha kugxilwe kumkhosi weNhlalisuthi noJamengweni	2011	Arts	African Languages & Culture	Masters
E. T. Ngwenya	Prof. Z. L. M. Khumalo	Ucwaningo ngomonakalo odalwe isiSwazi nesiNdebele ezinganeni ezifunda isiZulu esifundazweni saseMpumalanga	2011	Arts	African Languages & Culture	Masters
S. Nxumalo	Prof. A. R. Opuku	The influence of a 10-week Zulu stick fighting intervention programme on motor proficiency and health-related physical of prepubescent Zulu male	2011	Science & Agriculture	Biokinetics & Sports Science	Masters
F. N. Mlotshwa	Prof. Z. L. M. Khumalo	Ucwaningo olunzulu ngezingqinamba zokungcwaba esizweni samaZulu	2011	Arts	African Languages & Culture	Masters
M. Nzute	Prof. J. D. Thwala	Resilience in Xhosa families where there is a juvenile	2011	Arts	Psychology	Doctoral
P. E. Gwala	Prof. A. R. Opuku O. A. Oyedeji	The anti-platelet aggregation activity of Rapanea melanophores -A Zulu medicinal plant	2011	Science & Agriculture	Biochemistry & Microbiology	Doctoral
D. M. Njiraine	Prof. D. N. Ocholla Prof. C. J. B. Le roux	Mapping and auditing indigenous knowledge and its management environment: a comparative study of Kenya and South Africa	2012	Arts	Information Studies	Doctoral
T. H. S. Setsiba	Prof. J. D. Thwala	Mourning ritual and practices in contemporary South Africa townships: a phenomenological study	2012	Arts	Psychology	Doctoral
C. N. Mkhize	Prof. J. D. Thwala	The dynamics of culture and language amongst English-speaking psychologists in KwaZulu-Natal	2012	Arts	Psychology	Doctoral
T. York	Dr H. de Wet	An ethnopharmacological study of plants used for treating respiratory	2012	Science &	Botany	Masters

		infections in rural Maputaland		Agriculture		
B. J. Mdlalose	Prof. Z. L. M. Khumalo	Ingonyuluka nenjula yomongo wezinyoni zakwelakwa Mthaniya elingafelwa nkonyane	2012	Arts	African Languages & Culture	Doctoral
T. Moloi	Dr L. M. J. Koenane	African contribution to international relations theory: an Afrocentric philosophical enquiry	2012	Arts	Philosophy	Masters
Kemang	Prof. L. M. Mage	The role of the Morija arts and cultural festival as a mechanism for promoting tourism among local communities	2012	Arts	Recreation & Tourism	Masters
N. B. Gumede	Prof. Z. L. M. Khumalo	Ukubaluleka kokulobola njengesiko lama Zulu	2012	Arts	African Languages & Culture	Masters
P. M. Cele	Prof. Z. L. M. Khumalo	Zibanjwa zisemaphuphu kwelikaMthaniya kaNdaba	2012	Arts	African Languages & Culture	Doctoral
B. S. Mavule	Dr N. W. Kunene	Phenotypic characterisation of Zulu sheep: implication for conservation and improvement	2012	Science & Agriculture	Agriculture	Masters
Z. P. Msweli	Prof. Z. L. M. Khumalo	Developing learner's language competence through isiZulu literary and no-literary text	2012	Arts	African Languages & Culture	Masters
P. H. Khuzwayo	Prof. Z. L. M. Khumalo	Ucwaningo olunzulu ngokuqanjwa kwamagama KwaZulu-Natal endaweni yase Mlalazi kwesakwaMpungose	2012	Arts	African Languages & Culture	Doctoral
M. N. Nkwanyana	Dr H. de Wet	An ethnobotanical and antidiarrheal investigation of plants used traditionally in the Maputaland area homestead	2012	Science & Agriculture	Botany	Masters
P. Matshidze	Dr N. R. Ngcobo	The role of Makhadzi in traditional leadership among the Venda	2013	Arts	Recreation & Tourism	Doctoral
S. M. Makhanya	Prof. J. D. Thwala	The traditional healers and caregivers' views on the role of traditional Zulu medicine on psychosis.	2013	Arts	Psychology	Masters
M. S. Nkwanyana	Prof. A. T. Nzama	The potential of cultural heritage tourism as a driver of rural development in the Zululand district municipality	2013	Arts	Recreation & Tourism	Masters
G. S. Nkosi	Prof. A. T. Nzama	Umkhosi womhlanga (reed dance) as a tourism enterprise in KwaZulu-	2013	Arts	Recreation & Tourism	Doctoral

		Natal perceptions policies and practices.				
N. I. Mongalo	Prof. A. M. Zobolo Prof. A. R. Opuku	Antibacterial activities of selected medicinal plants used to treat sexual infections in Blouberg area, Limpopo	2013	Science & Agriculture	Agriculture	Masters
M. O. Mbatha	Dr T. J. Mbuli	Isangcokolo esifenyisa ulimi lwesiZulu	2013	Arts	African Languages & Culture	Masters
N. R. Ntuli	Prof. A. M. Zobolo	Identification and characterisation of traditional and indigenous leafy vegetables in Northern KwaZulu-Natal, South Africa	2013	Science & Agriculture	Botany	Doctoral
V. Ndabayakhe	Prof. C. Addison	Attitudes towards polygamy in selected African fiction	2013	Arts	English	Masters
C. V. Ngubane	Prof. L. Z. M. Khumalo	Injula yengqikithi yokushushumbiswa kwabantu etholakala endabeni ka J. Mngadi esihloko sithi: yiza mntanami	2014	Arts	African Language & Culture	Masters
C. N. Ngubane	Prof. L. Z. M. Khumalo	Ingonyuluka ngelingafelwa nkonyane kwaMhlabuyalingana kwelaseMakhathini	2014	Arts	African Language & Culture	Masters
V. E. Ngema	Forf. A. T. Nzama Co-Prof. L. M. Magi	Cultural tourism as an attraction in the lower uMhlathuze river valley: content, symbol and authenticity	2014	Arts	Recreation & Tourism	Masters
H. N. Sangweni	Prof. L. Z. M. Khumalo	Ingonyuluka mayelana nokubhidlika kwemishado kugxilwe kusifundazwe sasoThungulu, eMhlathuze	2014	Arts	African Language & Culture	Masters
R. M. M. Bhengu	Prof. L. Z. M. Khumalo	Ucwaningo ngamasu asetshenziswa umlandi nomthelela emdlalweni wesiZulu	2014	Arts	African Language & Culture	Masters
E. Z. Mtshali	Prof. L. Z. M. Khumalo	Injula ngezinkinga ezidala ukuthi abafundi bamabanga aphansi bangabi nesisekelo sokwazi ulimi lwesiZulu ngendlela efanele	2015	Arts	African Language & Culture	Masters
K. P. Xulu	Dr Z. J. Mashiyane	Ucwaningo ngomthelela wamalungelo abesifazane nezingane ekuqedeni nenhlonipho esizweni samaZulu	2015	Arts	African Language & Culture	Masters
H. P. Mazibuko-khuzwayo	Dr J. N Mashiya	Exploring isiZulu home language literacy attainment level of grade	2015	Education	Early Childhood	Doctoral

		one learners at entry and exit points in schools at uThungulu district				
I. B. Mngomezulu	Prof. L. Z. M. Khumalo	Ukusethesnziswa kolimi lwebele ekufundeseni izingane zonke izifundo, ukubuyiswa kobucikomlomo ezikoleni nomthelela wakho emphakathini nasezikhungweni zikahulumeni	2015	Arts	African Language & Culture	Masters
L. C. Chella	Prof. N. W. Kunene Dr K. Lehloenya	The characterisation of semen from Zulu rams raised under extensive management conditions in KwaZulu-Natal	2015	Science & Agriculture	Agriculture	Masters
M. E. Mkhwanazi	Dr D. W. Mncube Dr H. B. Khuzwayo	The integration of the indigenous knowledge system into the mainstream curriculum	2015	Education	Science & Technology Education	Masters
R. Georgekutty	Prof. A. R. Opuku	The antidiabetic properties of four plants grown in India and KwaZulu-Natal, South Africa, suitable for diabetic management	2015	Science & Agriculture	Biochemistry & Microbiology	Doctoral
T. R. Mthiyane	Prof. L. Z. M. Khumalo	Ukubaluleka kwamasiko esizweni samaZulu kugxilwe kumsamo nasesibayeni	2015	Arts	African Language & Culture	Masters
S. E. Zulu	Prof. L. Z. M. Khumalo Co- Dr B.C. Khuzwayo	Ingonyuluka ngesiko lokuphehla (ukuncunca) esizweni samaZulu	2015	Arts	African Language & Culture	Masters
E. T. Ngwenya	Prof. L. Z. M Khumalo	Ucwaningo ngesiko lenhlonipho njengensika yesiwe amaZulu	2015	Arts	African Language & Culture	Doctoral
N. E. Sithole	Prof. C. T. Moyo Dr E. M. Mncwango	The Functional viability of indigenous African Languages in South Africa: challenges and prospects of their survival	2015	Arts	African Language & Culture	Masters
N. N. P. Msimango	Prof. A. R. Opuku	Effect of microbial ecosystems from wild herbivores browsing tannferous plants on Zulu goat rumen fibrinolytic activity	2016	Science & Agriculture	Agriculture	Masters
M. R. T. Mazibuko	Prof. L. Z. M. Khumalo	Ucwaningo ngokusoka nokuqeqesha abasokile esizweni samaZulu	2016	Arts	African Language & Culture	Doctoral
M. O. Mbatha	Prof. L. Z. M. Khumalo	Ukuchazwa kwamagama esiZulu: udedangendlale wendima nenkiyankiya umchwayo wamamboza	2016	Arts	African Language & Culture	Doctoral

Z. Z. Kunene	Prof. J. D. Thwala	Exploring the perspective of virginity testers in the Mtubatuba area, KwaZulu-Natal	2016	Arts	Psychology	Masters
I. N. Mzoneli	Prof. N. B. Zondi	African male voices: representation of women images in select Zulu literary texts-realism or idealism	2016	Arts	African Language & Culture	Doctoral
T. P. Luthuli	Prof. C. T. Moyo Dr E. M. Mncwango	Politeness in context: the case of apologies and requests of a South African isiZulu speaking community	2016	Arts	General Linguistics & Modern Languages	Masters
C. D. Mpanza	Prof. C. T. Moyo Dr E. M. Mncwango	Strategies that can be used to promote the use of indigenous African languages for teaching and learning in schools: an exploratory case study in South Africa	2016	Arts	General Linguistics & Modern Languages	Doctoral
M. T. Mazibuko	Prof. L. Z. M. Khumalo	Ucwaningo ngokusoka nokuqeqesha abasokile esizweni samaZulu	2016	Arts	African Language & Culture	Doctoral
P. N. Dlamini	Prof. Ocholla	The use of information technology tools in managing indigenous knowledge in the province of KwaZulu-Natal, South Africa	2016	Arts	Information Studies	Doctoral
T. K. Gumede	Mr S. S. Nhlabathi Co-Dr R. N. Ngcobo	Heritage tourism as a strategy for local economic development in the vicinity of kwaBulawayo and Ondini cultural centres	2016	Arts	Recreation & Tourism	Masters
B. Y. Mhlongo	Prof. N. B. Zondi	Ukusetshenziswa kwenzululwazi yokwethiwa kwamagama ukwakha abalingiswa kubuyekezwa imibhalo eqokiwe ebhalwe emva kokuzuzwa kwentando yabantu	2017	Arts	African Language & Culture	Doctoral
M. Ramulondi	Prof. De wet Co- Prof. S. van Vuuren	Toxicology and herb-drug iteration of selected antihypertension plants used by laypersons in Northern KwaZulu-Natal, South Africa	2017	Science & Agriculture	Botany	Masters
M. Mlangeni	Prof. J. D. Thwala Co- Mr V. C. Mathe	Zulu traditional healers' conceptualisation and treatment of trauma	2017	Arts	Psychology	Masters
M. P. Mbatha	Dr M. Z. Shamase Prof Molapo	The notion of 'Zulu tribe' and 'Zulu nation' and their use towards national	2017	Arts	History	Masters

		political aspirations in South Africa				
À. A. Olutayo	Dr M. Z. Shamase	A comparative study of justice dispensation in Oyo and Zulu traditional administrative structure	2017	Arts	History	Doctoral
M. T. Ngwenya	Prof. L. Z. M. Khumalo	Ucwaningo ngesiko lenhlonipho njengensika yesizwa amaZulu	2017	Arts	African Language & Culture	Doctoral
K. L. Makhoba	Prof. L. Z. M. Khumalo Dr S. L. Ntuli	Ucwaningo olunzulu ngokuzilela ukufa, ukugonqa nokugoya esiZulwini / Deep research on abstinence during death seclusion and reclusion isiZulu	2018	Arts	African Language & Culture	Doctoral
T F Lephoto	J D Thwala	A phenomenological explication of the constructions toward male circumcision in contemporary South Africa	2018	Arts	Psychology	Masters
M. M Mbatha	Dr M. Z. Shamase	The notions of 'Zulu tribe' and 'Zulu nation' and their use towards national political aspirations in South Africa	2018	Arts	History	Masters
R. M. M. Bhengu	Prof. L. Z. M. Khumalo Dr N. M. A. R. Nzuza	Ucwaningo ngokusetshenziswa kolimi lwesiZulu ngenhloso yokuqhakanjiswa kwala makhono: elokulalela, elokubhala, elokufunda, elokukhuluma kanye nelokwethula lwenziwe ezikoleni ezikhethiwe esifundeni saseKing Cetshwayo	2019	Arts	African Language & Culture	Doctoral

Table 4.8: Distribution of IK documents by Faculty (N = 87)

Faculty	Frequency	Percentage in (%)
Arts	67	77.01%
Science and agriculture	15	17.24%
Education	5	5.75%
Total	**87**	**100**

Table 4.8 above presents the faculty profile. The above-mentioned faculties were identified as those involved in the production and development of IK-related content at the University of Zululand. Most documents originated from the Faculty of Arts (67; 77.01%), followed by the

Faculty of Science and Agriculture (15; 17.25%). The Faculty of Education produced 5 (5.75%) records.

Table 4.9: Distribution of IK documents by Departmental/Discipline/subject Content (N = 87)

Variables	Frequency	Percentage in (%)
African Languages and Culture	43	49.4
Recreation and Tourism	12	13.79
Botany	7	8.04
Criminal Justice	7	8.04
Biochemistry and Microbiology	4	4.59
Zoology	3	3.4
Information Studies	2	2.29
Social Science Education	2	2.29
Creative Arts	2	2.29
History	2	2.29
General Education	1	1.14
Philosophy	1	1.14
Psychology	2	2.29
Total	**87**	**100**

Table 4.9 above presents the production frequencies and percentages of theses and dissertations dealing with IK from 2009 to 2019. It was observed that during the abovementioned period, the Department of African Languages and Culture was leading with 42 (49.4%), followed by Recreation and Tourism with 12 (13.79%). It was observed that the Departments of Botany and Criminal Justice also produced IK-related theses and dissertations. Other departments also created content related to IK, even though the production was very low.

Table 4.10: Distribution of IK documents by research supervisors (N = 96)

Variable	Frequency	Percentage (%)
Prof Z L M Khumalo	**34**	**35.4**
Prof J D Thwala	7	7.3
Prof L M Magi	7	7.3
Prof Z J Mashiyane	6	6 .25
Prof A T Nzama	**5**	**5.21**
Prof A R Opuku	4	4.2
Dr Ngcobo	3	3.13
Prof H de Wet	**3**	**3.13**
Prof N B Zondi	2	2.2
Prof D N Ocholla	**2**	2.2
Dr L M Lubisi	2	2.2
Prof N W Kunene	**2**	2.2

Prof N Imenda	1	1.042
Prof S Moodley	1	1.042
Prof K Basson	**1**	1.042
Dr N R Ntuli	**1**	1.042
Mr F A van Jaarsveld	1	1.042
Prof J B Le Roux	1	1.042
Dr L. M. J. Koenane	1	1.042
Dr N W Kunene	1	1.042
Dr T J Mbuli	1	1.042
Prof A M Zobolo	1	1.042
Dr K Lehloenya	1	1.042
Dr D W Mncube	**1**	1.042
Dr H B Khuzwayo	1	1.042
Dr S S Nhlabathi	**1**	1.042
Prof S van Vuuren	1	1.042
Mr V C Mathe	1	1.042
Prof Molapo	1	1.042
Dr N M A R Nzuza	1	1.042
Total	**96**	**100**

Table 4.10 above presents the supervisory profile of academics involved in supervising the IK-related content of masters and PhD candidates from 2009 - 2019. The total frequency from Table 5.10 is different from (higher than) from other presented tables since in the other cases the candidate is supervised by more than one supervisor.

Table 4.10 illustrates the supervisors' rankings according to the IK supervision output. The results revealed that Professor Z L M Khumalo produced the highest number of students with theses and dissertations on IKS, represented by 34 (35.4%). While Prof N Imenda, Prof S Moodley, Dr K Basson, Mrs N R Ntuli, Mr F A van Jaarsveld, Prof J B Le Roux, Dr L. M. J. Koenane, Dr N W Kunene, Dr T J Mbuli, Prof A M Zobolo, Dr K Lehloenya, Dr D W Mncube, Dr H B Khuzwayo, Mr S S Nhlabathi, Prof S van Vuuren, Mr V C Mathe, Prof Molapo, and Dr NMR Nzuza supervised the least number (1; 1.042%) of candidates. Unfortunately, most of the supervisors no longer work at the university, largely due to retirement. The surviving supervisors (10) appear in bold.

Table 4.11: Supervisor academic ranks and qualifications (N = 29)

Variables	Frequency	Percentage (%)
Professor	15	51.7
Doctor	10	34,5
Master	4	13.8
Total	**29**	**100**

Table 4.11 above presents the qualification/rank of the supervisors. Fifteen professors (51.7%) participated in the supervision, followed by those with PhD degrees (10; 34.5%) and 4 (13.8%) with master's degrees. It is a University policy that supervisors of M and D students must have a PhD. Master's degree holders can supervise master's students as co-supervisors with senior staff members for capacity building.

Table 4.12: List of students who produced IK theses and dissertations (N = 87)

Variables	f	Variables	f	Variables	f
T. F. Dlamini	1	P E Gwala	1	I B Mngomezulu	1
Z M Mthembu	1	T H S Setsiba	1	L C Chella	1
N M A R Nzuza	1	C N Mkhize	1	M E Mkhwanazi	1
B J Malaise	1	T York	1	R Georgekutty	1
V J Mthembu	1	B J Malaise	1	T R Mthiyane	1
M P Mogola	1	T Moloi	1	S E Zulu	1
P M Cele	1	L Kemang	1	E T Ngwenya	1
S L Ntuli	1	N B Gumede	1	N E Sithole	1
N S Mthethwa	1	P M Cele	1	E Z Mtshali	1
V Ngema	1	B S Mavule	1	K P Xulu	1
W N Z Mthembu	1	Z P Msweli	1	Z Z Kunene	1
T E Ntombela	1	P H Khuzwayo	1	I N Mzoneli	1
L T Mbatha	1	M N Nkwanyana	1	P N Dlamini	1
F B Mthethwa	1	D M Njiraine	1	T K Gumede	1
M D Ramaroka	1	M S Nkwanyana	1	N N P Msimango	1
J J Mthethwa	1	G S Nkosi	1	T P Luthuli	1
E Z Ximba	1	M O Mbatha	1	C D Mpanza	1
M T Nxumalo	1	N R Ntuli	1	M R T Mazibuko	1
B T M Zulu	1	V Ndabayakhe	1	M O Mbatha	1
M J Malibe	1	P Matshidze	1	B Y Mhlongo	1
E Z Ndaba	1	N I Mongalo	1	M Ramulondi	1
P P P Manyathi	1	S M Makhanya	1	M Mlangeni	1
M C Dube	1	V E Ngema	1	M P Mbatha	1
H B Mbonambi	1	H N Sangweni	1	A A Olutayo	1
J K Mnqayi	1	C V Ngubane	1	M T Ngwenya	1
E T Ngwenya	1	C N Ngubane	1	K L Makhoba	1
S B Nxumalo	1	R M M Bhengu	1	T F Lephoto	1
F N Mlotshwa	1	H P Mazibuko-Khuzwayo	1	M P Mbatha	1
M Nzute	1			R M M Bhengu	1

Table 4.12 above presents the candidate(s)/student(s) whose theses and dissertations had IK-related contents. It is revealed that 86 candidate(s)/student(s) produced work with contents related to IK.

Table 4.13: Masters' dissertations with contents related to IK created 2009 – 2019 (N = 50)

VARIABLES	FREQUENCY	PERCENTAGE (%)
2009	7	14
2010	4	8
2011	4	8
2012	7	14
2013	5	10
2014	4	8
2015	10	20
2016	4	8
2017	3	6
2018	2	4
2019	0	0
TOTAL	**50**	**100**

Figure 4.1 Graph for the Masters' dissertations with contents related to IK created 2009 – 2019

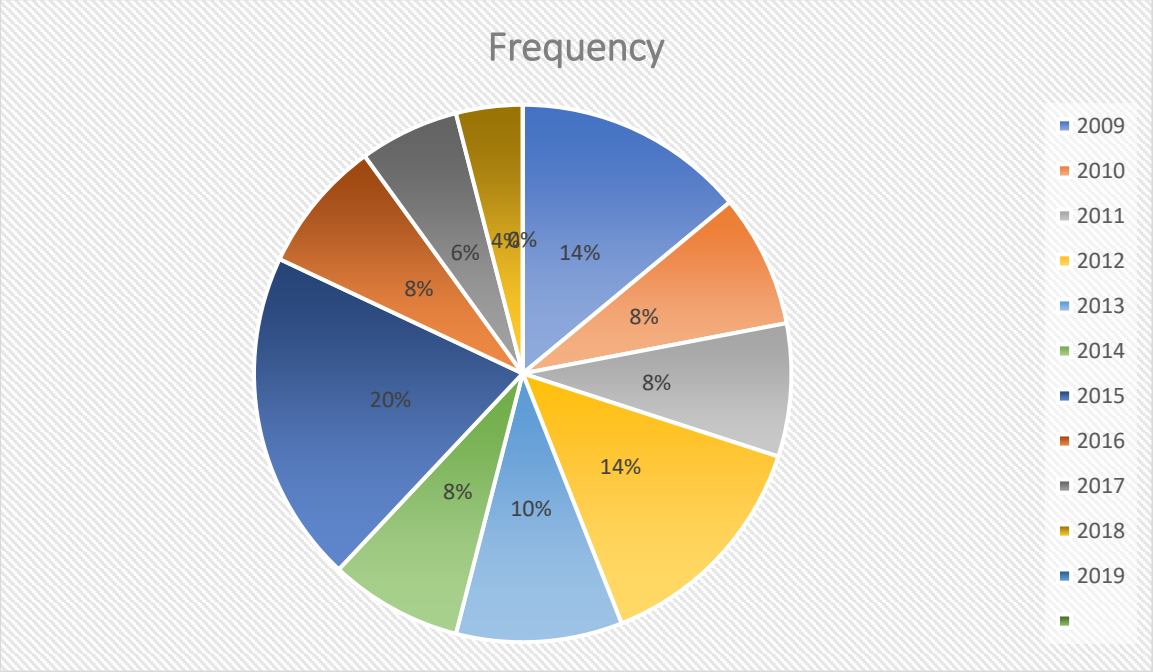


Table 4.13 and figure 4.1 indicate the masters' theses produced across faculties at the University of Zululand. However, most masters' theses produced were submitted in 2009 and 2012, as

production was 7 (14%). In 2015, the researcher observed a tremendous rise in the theses and dissertations, produced by 10 (20%) candidates. Notably, it dropped drastically in the year 2019 as it sank to 0 (0%).

Table 4.14: PhD theses and dissertations with IK-related contents created between 2009 and 2019 (N = 36)

VARIABLES	FREQUENCY	PERCENTAGE (%)
2009	10	27.78
2010	3	8.33
2011	2	5.56
2012	6	16.66
2013	3	8.33
2014	1	2.78
2015	1	2.78
2016	5	13.89
2017	3	8.33
2018	1	2.78
2019	1	2.78
TOTAL	**36**	**100**

Figure 4.2 graph for the PhD theses and dissertations with IK-related contents created between 2009 and 2019

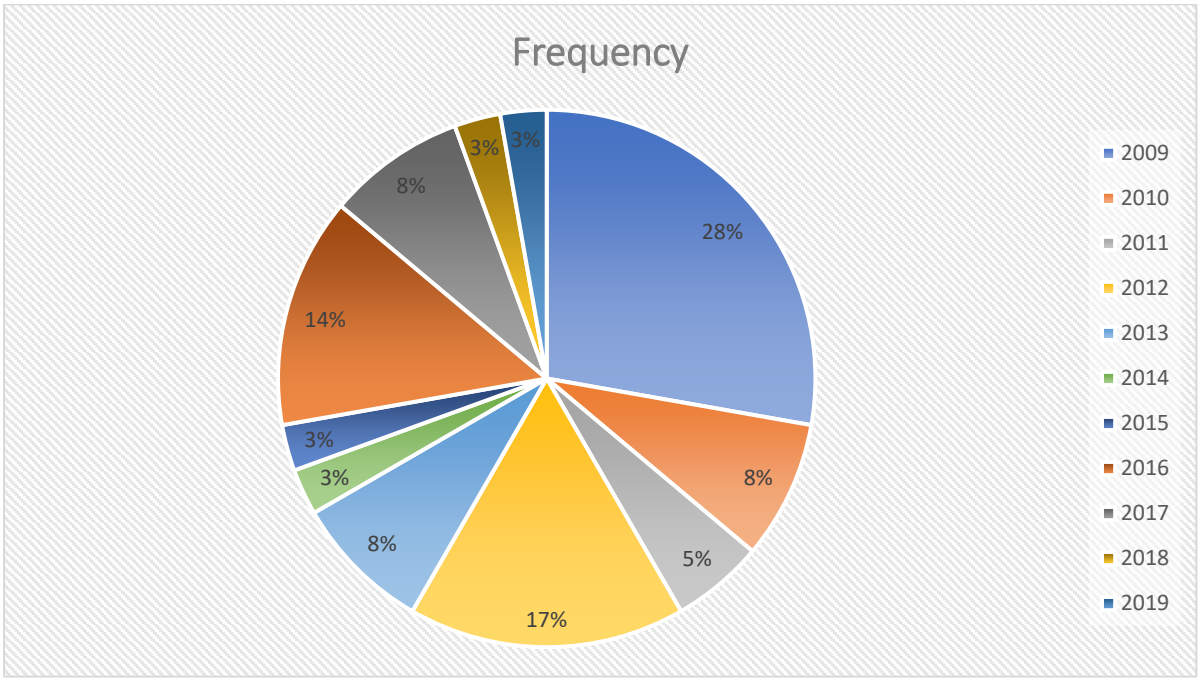


Table 4.14 and figure 4.2 reveal the wide variation of the PhD theses and dissertations produced across faculties at the University of Zululand. It is noticeable that the year 2009 had the highest number of theses and dissertations (10; 27.78%). However, in 2010 the production of dissertations drastically decreased. It was disheartening to learn that there was a huge decline in 2014, 2015, 2018 and 2019, with only 1 (2.78%) dissertation produced. In a nutshell, the University of Zululand documents contents related to IK. Tables 5.13 and 5.14 each present the different categories of study levels of candidates who conducted their IK-related content studies. Table 5.13 presents the total number of 47 (54.02%) master's candidates, while Table 5.14 presents 34 (39.08%) PhD candidates who conducted studies on IK-related content from 2009 to 2019. That resulted in a total number of 85 (100%) students who conducted IK-related content studies in the period mentioned above.

4.3.3. Keyword/terms analysis for the Thesis and Dissertations

The keyword analysis is presented in Table 4.15 below. Between 2009 and 2019, IK recognised 414 words. The table displays the frequency and percentage (percentage) of the terms in ascending order. According to the survey, Zulu was the most frequently used term (17 times (4.11 per cent)). The second term to appear was isiZulu, which was repeated 14 times (3.5%). Zulu, isiZulu, and amaZulu are all related, depending on how they are employed in the Zulu language. For example, the phrase isiZulu refers to the Zulu language, but amaZulu refers to the Zulu people. Several least frequently occurring terms appeared only once in the IK experiments undertaken throughout the aforementioned period, as illustrated below.

Table 4.15: keyword analysis (N = 414)

Variables		F	(%)		Variables	F	%
Zulu		17	4.11		Izifundo	1	0.242
IsiZulu		14	3.5		Izingqinamba	1	0.242
Kwazulu-Natal		12	2.9		Izinkomo	1	0.242
South African		11	2.7		Izinyoni	1	0.242
AmaZulu		10	2.5		Izithakazelo	1	0.242
Culture		9	2.2		J. Mngadi	1	0.242
Traditional		9	2.2		Juvenile	1	0.242
Isizwe		7	1.8		Kenya	1	0.242
Plants		7	1.8		King Cetshwayo	1	0.242
Ulimi		7	1.8		KwaBulawayo	1	0.242
African,		6	1.5		KwaMhlabuyalingana	1	0.242
Isiko		6	1.5		Laypersons	1	0.242
Heritage		5	1.3		Leadership	1	0.242
Indigenous		5	1.3		Leafy	1	0.242
Knowledge		5	1.3		Learners	1	0.242
Language		5	1.3		Limpopo	1	0.242
Management		4	1		Lwebele	1	0.242
Amagama		3	0.8		M. E. Ngcobo	1	0.242
Circumcision		3	0.8		Mafikeng	1	0.242

Inhlonipho		3	0.8		Makhadzi	1	0.242
Northern		3	0.8		Mbabane	1	0.242
Politics		3	0.8		Medicine	1	0.242
Zululand		3	0.8		Melanophloeos	1	0.242
Administration		2	0.483		Microbial	1	0.242
Amalungelo		2	0.483		Mngadi M. J	1	0.242
Amasiko		2	0.483		Mngoma	1	0.242
Conservation		2	0.483		Mntanami	1	0.242
Dance		2	0.483		Morija	1	0.242
English		2	0.483		Motor	1	0.242
Ezikoleni		2	0.483		Mourning	1	0.242
Healing		2	0.483		Mpumalanga	1	0.242
History		2	0.483		Mpungose	1	0.242
Improvement		2	0.483		Mthaniya	1	0.242
Izinkondlo		2	0.483		Mtubatuba	1	0.242
Justice		2	0.483		Municipality	1	0.242
Literacy		2	0.483		Nation	1	0.242
Male		2	0.483		National	1	0.242
Maputaland		2	0.483		Ndaba	1	0.242
Medicinal		2	0.483		Ndwedwe	1	0.242
Oyo		2	0.483		Nigeria	1	0.242
Phenotypic		2	0.483		Novels	1	0.242
Policies		2	0.483		Ondini	1	0.242
Ritual		2	0.483		People	1	0.242
Rural		2	0.483		Phenomenological	1	0.242
Sheep		2	0.483		Philosophy	1	0.242
Treatment		2	0.483		Physical	1	0.242
Tribe		2	0.483		Play	1	0.242
Ukuchaza		2	0.483		Polygamy	1	0.242
Ukufunda		2	0.483		Practices	1	0.242
Ukufundisa		2	0.483		Prepubescent	1	0.242
Ukuqanjwa		2	0.483		Proficiency	1	0.242
Ukuqeqesha		2	0.483		Psychologist	1	0.242
Abantwana		1	0.242		Psychosis	1	0.242
Abesifazane		1	0.242		Radio	1	0.242
Abstinence		1	0.242		Rams	1	0.242
Afrocentric		1	0.242		Rapanea	1	0.242
Aggregation		1	0.242		Realism	1	0.242
Amabangaphansi		1	0.242		Reclusion	1	0.242
Amamboza		1	0.242		Reed	1	0.242
Amanazaretha		1	0.242		Relations	1	0.242
Umkhosi		1	0.242		Resilience	1	0.242
Inhlalisuthi		1	0.242		River	1	0.242
Antibacterial		1	0.242		Rumen	1	0.242
Antidiabetic		1	0.242		School	1	0.242
Antidiarrheal		1	0.242		Seclusion	1	0.242
Anti-Hypertension		1	0.242		Semen	1	0.242
Antimicrobial		1	0.242		Sexuality	1	0.242
Anti-Platelet		1	0.242		SiSwati	1	0.242
Arts		1	0.242		Sociological	1	0.242
Astronomy		1	0.242		Sores	1	0.242
Barolong		1	0.242		South	1	0.242
Batswana		1	0.242		Stick	1	0.242
Blouberg		1	0.242		Swaziland	1	0.242
Bridal Price		1	0.242		Systems	1	0.242
Burial		1	0.242		Tanneferous	1	0.242
C T Msimang		1	0.242		Technology	1	0.242
Caregiving		1	0.242		Tourism	7	0.242

Curriculum		1	0.242		Toxicology	1	0.242
Death		1	0.242		Trafficking	1	0.242
Diabetic		1	0.242		Training	1	0.242
Dispensation		1	0.242		Trauma	1	0.242
Dowry		1	0.242		Tugela	1	0.242
Dramatic Art		1	0.242		Ubumcikomlomo	1	0.242
Dynamics		1	0.242		Ubunkondlo	1	0.242
Economy		1	0.242		Ujamengweni	1	0.242
Education		1	0.242		Ukufa	1	0.242
Emakhathini		1	0.242		Ukugonqa	1	0.242
Emphakathini		1	0.242		Ukugoya	1	0.242
Esinsundu		1	0.242		Ukuhumusha	1	0.242
Esizulwini		1	0.242		Ukukhula	1	0.242
Ethnicity		1	0.242		Ukulalela	1	0.242
Ethnobotanical		1	0.242		Ukulobola	1	0.242
Ethnopharmacological		1	0.242		Ukuncunca	1	0.242
European		1	0.242		Ukungcwaba	1	0.242
Extensive		1	0.242		Ukuphehla	1	0.242
Ezithakazelweni		1	0.242		Ukuqhakambisa	1	0.242
Ezolimo		1	0.242		Ukusentshenziswa	1	0.242
Fibrolytic		1	0.242		Ukusoka	1	0.242
Fighting		1	0.242		Ukuthuthuka	1	0.242
Health		1	0.242		Ukuzila	1	0.242
Herb-Drug		1	0.242		Ukwethiwa	2	0.242
Herbivores		1	0.242		Ukwethula	1	0.242
Human		1	0.242		Umchwayo	1	0.242
Ibomvu		1	0.242		Umdlalo	1	0.242
Idealism		1	0.242		Umhlanga	1	0.242
Idlozi		1	0.242		Umhlathuze	1	0.242
Imfuyo		1	0.242		Uhulumeni	1	0.242
Imigubho		1	0.242		Umkhosi	1	0.242
Imilozi		1	0.242		Umlalazi	1	0.242
India		1	0.242		Umlandi	1	0.242
Infections		1	0.242		Umndeni	1	0.242
Information		1	0.242		Umsamo	1	0.242
Inkulumobuthule		1	0.242		UThungulu	1	0.242
Insika		1	0.242		Vegetables	1	0.242
Intando		1	0.242		Virginity	1	0.242
Interaction		1	0.242		Voices	1	0.242
International		1	0.242		Women	1	0.242
Ishashalazi		1	0.242		Wounds	1	0.242
Isibaya		1	0.242		Xhosa	1	0.242
Isindebele		1	0.242		Yabantu	1	0.242
Isintu		1	0.242		Zikahulumeni	1	0.242
Isithembu		1	0.242		Ongoye	1	0.242

4.4 Summary of the chapter

The data in this chapter has been prepared and presented in accordance with the objectives of the study, which were outlined in Section 1.5. Largely, the key themes, which emerged from the findings were that academics from the Faculty of Arts were involved in creating and documenting indigenous knowledge. The chapter showed that IK-related content is taught and researched at the University of Zululand. Notably, a large variety of indigenous knowledge is

taught and documented at the University of Zululand. As such, the findings from academics showed that most IK-related contents taught and documented are related to traditional medicinal plants and edible plants. It was noted that the support staff that were not academics were supporting academics in ensuring that funds were received to research IK. In contrast, the other support staff ensured that all the theses and dissertations created from different departments were received by the library and stored electronically in the institutional repository and shelves.

Secondly, it was interesting to discover that the findings from academics showed that most of the contents that relate to IK were shared and disseminated by academics. Notably, the contents related to IK were shared and disseminated through national and international, departmental and faculty conferences. Apart from sharing and presenting the contents related to IK in conferences, the chapter revealed that IK-related contents were also shared and disseminated through publications in peer-reviewed journals and book chapters.

Even though the contents related to IK were successfully generated by academics, and supported by the non-academics at the University of Zululand, there are challenges surrounding IK documentation and dissemination. Challenges regarding documentation of IK were that owners of IK are reluctant to share their knowledge with people they are not familiar with; the local language is a barrier to some academics; and the demand for incentives by owners of IK during data collection, to mention a few (see Section 4.5.1). On the other hand, challenges related to the dissemination of IK were that attending national and international conferences is expensive for academics; funding students to attend conferences is expensive, and publishing in accredited journals is not easy, as it requires very advanced publishing skills (see Section 4.5.2). The findings also revealed important measures that may be applied at the University of Zululand to increase documentation, dissemination, and access to IK. Participants also made suggestions for the same reason. The following chapter will present a discussion of these findings.

CHAPTER FIVE

DISCUSSIONS OF FINDINGS

5.1. Introduction

The preceding chapter presented the results of the study. The purpose of this chapter is to discuss these results. This chapter organises and discusses data obtained from interviews and document analysis. The discussions are provided according to the research questions of the study. It is critical to note that this chapter is prearranged according to the study's research questions, which are listed below:

- How is IK created at the University of Zululand?
- What is the extent and status of documenting IK at the University of Zululand?
- How is IK information accessed and shared at the University of Zululand and externally?
- What are the challenges that are experienced by the University of Zululand in documenting IK?
- What strategies need to be developed for the documentation of IK by the University of Zululand?

Important to note was that this chapter considered it very crucial to start by discussing the demographic data that was collected from the participants of the study. Even though the demographic data was not part of the research objectives, it was very important to identify personal information of the participants like their faculties, levels of education and their ranks in the university.

5.2 Demographic characteristics of the respondents

The present study revealed that more males (56.5 %) compared to females (43.5%) participated in the study (see Table 4.1 in Chapter 4). The faculty range shows that most participants were from the Faculty of Arts and the faculty that participated least in the study is Education, with a score of 4.34% (see Table 4.2 in Chapter 4). Concerning the ranks of the participants, it was established that a large number (43.5%) of participants were senior lecturers (see Table 4.3 in Chapter 4), with Librarian, Senior laboratory assistant and senior officer, all with a score of 4.35%, (see Table 4.3 in Chapter 4) participated. Regarding the qualifications of participants, the study showed that 60.85% held a PhD, while bachelor's graduates (see Table 4.4 in Chapter 4) were the fewest (lecturers at the university must have at least a master's qualification).

Regarding the age group of the participants, those between the ages of 40-49 were in the majority (43.5%) and those between 18-29 and 60 and above were in the minority, 4.35% each (see Table 4.5 in Chapter 4). Finally, the survey discovered that the Departments of African Languages and Botany had a somewhat larger share of academics participating in indigenous knowledge documentation, with a score of (13%) each (see Table 4.6 in Chapter 4).

5.3 How is IK created at the University of Zululand?

The first question on IK creation by departments required clarity from departments on how they were creating IK-related content. The study formulated research questions directed to academics, senior management, the research office and the library and performed document analysis to compare what the library kept as IK-related content with what the departments were teaching and researching. The aim was to reveal the content related to IK produced by different departments of the University of Zululand. Interestingly, the results from academics demonstrated that IK-related content was created in some departments at the University of Zululand. The document analysis also validated the results from the academics that there is content related to IK that is produced by different departments at the University of Zululand. Noticeably, 87 master's and PhD graduates were involved in IK-related content research across the University of Zululand. It is important to note that, of the 87 students, 50 were doing master's projects and 37 were doing PhD (see Table 4.13 & 14 in Chapter 4, Part B). However, there were only 3 non-academic staff members who were not involved in the creation of IK-related content; they were only supporting academic staff to ensure that the content related to IKS is produced and kept in the library (see Section 4.3 in Chapter 4). Generally, the study's findings from academics and non-academics as well as content analysis show that the University of Zululand is involved in the creation of indigenous knowledge content and that all faculties at the university are involved. These findings confirmed the knowledge creation theory of Nonaka (1994), who states that when people socialise through the process of socialisation, they are creating new knowledge by sharing their know-how. A 'field of interaction' must be created for socialisation to be successful, where people share competence and are interdisciplinary at the same time, generating common unarticulated beliefs or embodied skills. Tacit knowledge is generated through informal interaction, which is why Hoegl and Schulze (2008) and Marley (2012) agree that socialisation produces new tacit knowledge. As Okorafor (2010) has discovered, teachers, parents, children, and neighbours all communicate and demonstrate their knowledge to each other via personal communication and demonstration. The findings of the study also concurred with Ocholla's (2021) findings where

some participants revealed crucial information that indigenous knowledge should be taught by all departments or schools in tertiary institutions, as IK is multidisciplinary and may not be offered satisfactorily by LIS schools alone.

The IK-related content that was created by different departments at the University of Zululand was considered. Remarkably, the departments were creating different forms of IK-related content. Even though the departments were operating at different levels in the creation of IK-related content, different aspects of IK needed to be created. For example, IK content related to African languages, plants, natural resources, traditional medicinal and food plants, cultural anthropology, geology and stars in the IK area, just to mention a few, was created by different departments (see Section 4.3.1 in Chapter 4). The document analysis on the content related to IK corroborated the findings received from the academics and non-academics that most of the content related to IK was produced in the departments of African Languages and Culture, Recreation and Tourism, to mention a few (see Table 4.9 in Chapter 4, Part B). The study results also showed that document analysis according to keywords that relate to the content of IK was created at a very high level. For example, according to the titles that were analysed, keywords that were produced numbered 414 across faculties at the University of Zululand (see Table 4.15 in Chapter 4). Awesomely, the overall findings of the study suggested that different IK-related content was created by different departments because it is multidisciplinary. This suggests that a single faculty is not enough to create IK-related content but many are required to ensure that all subjects regarding IKS are captured and documented for research purposes. Similarly, Panday, Mittal and Sharma's (2017) findings show that indigenous knowledge comprises African languages, traditional medicinal knowledge, indigenous food and animal husbandry. Makinde and Shorunke (2013) point out that IK is widely recognised as the knowledge that is possessed by local people used for local-level decision-making in agriculture, culture transmission, health care, food preparation, education, and natural resource management and a host of other activities in rural communities. Additionally, teaching African languages to students is essential for ensuring that African culture is ingrained in their minds, as evidenced by a study by Prah (2017).

Regarding different ways of creating IK-related content, as addressed in this study's research problem statement academics are in fact teaching content related to IK, yet they are not yet themselves currently aware of it. In the current study, participants were asked to comment on the different ways they create IK in their departments. Interestingly, the results demonstrated that there were different ways in which IK was created by departments at the University of

Zululand. These methods of creating IK-related content were supervising students to conduct research and write theses and dissertations on the content related to IK, writing research articles with different kinds of content embracing or affecting IK, community engagement projects, teaching and learning, empirical research experiments and inviting owners of IK on Heritage Day to narrate and perform their experiences (see Section 4.3.2 in Chapter 4). The findings from academics concurred with those obtained by means of document analysis, which showed supervisors' profiles in the content related to IK produced by different departments. A large amount of IK-related content was produced by Professor Khumalo from the Department of African Languages (see Table 4.10 in Chapter 4). It was noted that non-academic participants revealed that they supported academics and students by keeping their produced theses and dissertations in the library on shelves and an institutional repository as well as supporting their projects on IK-related content with funding (see Section 4.3.2 in Chapter 4). The study findings were in line with Ocholla (2021) who also emphasised the importance of teaching content that related to IKS in higher institutions of learning. Apart from Ocholla (2021), other authors like Kubow (2018), Mawere (2015), and Ndille (2020) are of the view that IKS has drawn the attention of higher education institutions where the curriculum has been improved by adding content of IKS. Ocholla's (2021) research findings also show that the content related to IKS should be taught to students doing diplomas, bachelor's degrees and postgraduate students.

The study's findings confirmed those of Okorafor (2010), who concluded that indigenous knowledge is typically developed through engagement with indigenous populations by documentarians and researchers. African Indigenous Knowledge is typically documented through descriptive texts such as reports, inventories, maps, matrices, and decision trees; audio-visuals such as photographs, films, videos, or audio cassettes; and dramas, stories, songs, drawings, seasonal pattern charts, and daily calendars, according to IIRR (1996). Indigenous knowledge can also be preserved through community-based organisations, databases, card catalogues, books, journals, and other written documents, as well as audio-visual resources and museums (IIRR, 1996). All these methods are made possible by libraries and documentation centres.

5.3 What is the extent and status of documenting IK at the University of Zululand?

Again, as mentioned in the statement of the problem, there are activities of documentation taking place in different departments. The current study sought to determine how IK-related content was documented and recorded at the University of Zululand. The results demonstrated that all participants agreed that they were aware of the documentation and recording of IK-

related content at the University of Zululand (see Section 4.4 in Chapter 4). The results further demonstrate that the University of Zululand was using different ways of documenting and recording IK-related content. It was found that IK-related content was documented and recorded in theses, dissertations, journals, and online institutional repositories, CDs and videos with content related to IK (see Section 4.4.1 in Chapter 4). The study also revealed that the non-academic participants also had to ensure that all documented and recorded IK-related content was submitted to the office of research and the library for future use and consultation. The results from academics and non-academic participants concurred with document analysis findings which showed that there were titles created from different departments which had specific titles on indigenous knowledge, traditional knowledge and cultural knowledge. There were 131 titles in total (see Table 4.7 in Chapter 4). Nonaka's (1994) model corresponded with the study's findings by demonstrating that once tacit information is turned into explicit knowledge, it may be transferred to other individuals via documents, e-mails, and databases.

A study conducted by Dlamini and Ocholla (2018) on the documentation of content linked to indigenous knowledge revealed that indigenous knowledge can be documented in a variety of ways using information and communication technology (ICT). Similarly, the World Intellectual Property Organization (WIPO) (2017) stated that documentation can be a beneficial instrument when used in conjunction with an overarching plan for the protection of indigenous knowledge (IK). According to WIPO (2017), indigenous knowledge (IK)-related content is typically documented in a variety of formats. These include written registries and files, videos, images, and audio recordings, in a traditional indigenous language or other languages; and using modern or more traditional technology (digital versus written filing). Panday, Mittal, and Sharma (2017:3) have found that written papers on content linked to IK are beneficial in the documentation of IK, which was supported by their research.

5.4 How is IK information accessed and shared at the University of Zululand and externally?

It was important for the study to uncover information regarding ways IK-related content is accessed by the University of Zululand community. It was found that the IK-related content was accessed in many different ways by the University of Zululand community, including academics and non-academic staff. Interestingly, it was discovered that the documented and recorded content related to IK was accessed through departmental, national and international conferences, the institutional repository, on shelves in the library, in the audio-visual section in the library, workshops and seminars on IKS, databases and journal publications (see Section

4.4.2 in Chapter 4). The document analysis also showed that there were titles and subjects which had content related to IK (see Table 4.7 & Table 4.15 in Chapter 4). The study findings concurred with Warren *et al*. (1993), who reported that African Indigenous Knowledge is accessed through databases, media and journals. These findings of the study revealed as Nonaka (1997), Sarayreh, Mardawi and Dmour (2012) indicated in their studies, namely that converted tacit knowledge is shared with community members through meetings and conferences for the entire community to benefit.

The academics and non-academic participants were asked to mention and state the type(s) of content related to IK they were accessing. This question was meant to determine the type of content related to IK most commonly accessed and used by the university community. Interestingly, the results of the study showed that academics and non-academics were accessing different types of content related to IK. The findings of the study proved that plants and their genetics were highly frequently used; also traditional medicine, the history of the Zulu nation, cultural heritage and traditional marriage, local music, and local farming, to mention a few (see Section 4.4.4 in Chapter 4). The document analysis also supported what academics and non-academic participants revealed concerning the types of content related to IK they were accessing. In that respect, the document analysis showed that there were keywords that related to the content of IK such as Zulu, traditions, plants, indigenous, indigenous knowledge, heritage, medicinal plants, culture, etc. (see Table 4.15 in Chapter 4). Similarly, Ocholla (2021) highlighted that different forms of IK are recognised, understood, and appreciated, as this knowledge employing its cultural forms, maintains the livelihood of the society. The findings of the study cited above were also in agreement with WIPO (2017), who also revealed that owners of IK possess local knowledge of cultural heritage, healing and medicine, the history of their land and the language of the community to ensure that they are retained. A study by Aluma (2010) concluded that documentation of content related to IK includes medicinal plants, herbal concoctions and the diseases treated (among humans and livestock), crop protection and food preservation.

Concerning respects in which the contents related to IK are accessed by academics and non-academics, the study revealed that there were different ways in which the content related to IK was accessed. The study findings showed that the content related to IK was accessed through the library in the form of theses and dissertations on shelves, through the University of Zululand webpage, through an institutional repository, through workshops and seminars organised by departments on campus, through multimedia resources in the library, electronic journals and

University of Zululand open access (see Section 4.4.5 in Chapter 4). Again, the study findings from academics and non-academic participants corroborated those of document analysis which also revealed that there were theses and dissertations available in the University of Zululand library on shelves, while other theses and dissertations were available from the University of Zululand library's institutional repository (see Table 4.7 in Chapter 4). These findings agree with Warren and Slikkerveer (1993), who also reveals that local knowledge is achieved and accessed in databases, newsletters, journals and other media.

It was important for this study to establish whether academics and non-academics shared the contents related to IK that they access from the different platforms. It is important to note that the study revealed that academics and non-academics were sharing the content related to IK with different people. This is an indication that the content related to IK is often used by both academics and non-academics (see Section 4.4.6 in Chapter 4). To support the above statement on sharing the content related to IK, the study further asked the participants to mention ways in which they were sharing the content related to IK. Notably, the study's results showed that the content related to IK was shared by academics and non-academics with other people through publications in accredited journals, at faculty and departmental conferences, national and international conferences, through e-mails, teaching and learning, through seminars and workshops (see Section 4.4.7 in Chapter 4). The study's findings concurred with findings by Priya and Rabindra (2010), who reported that certain activities such as seminars, workshops, debates, lectures, and exhibitions are appropriate platforms for sharing indigenous knowledge-related content.

5.6 What are the challenges that are experienced by the University of Zululand in documenting IK?

The third objective of the study required participants to highlight the challenges they were encountering regarding documenting and disseminating content related to IK. Notably, the study's findings revealed that participants were faced with several challenges when it came to documenting and disseminating IK-related content (see Section 4.5 in Chapter 4). The challenges were then classified according to documentation and dissemination as follows.

Concerning challenges that pertain to documenting IK-related content, the study showed that when academics visited owners of IK in rural communities, they were experiencing a high crime rate, owners of IK are not interested in sharing their knowledge with strangers, the local language was a barrier, there was a shortage of proper tools for recording and capturing IK, owners of IK feared to share their knowledge for fear of abuse of their knowledge, the lack of

offices for IKS at the University of Zululand, a lack of incentives for owners of IK, and a lack of proper training to capture and record IK content (see Section 4.5.1 in Chapter 4). The challenges spelt out by the participants were also germane to those revealed by Makinde and Shorunke (2013): that researchers who research indigenous knowledge confront many challenges in the field. The challenges experienced by researchers are language barriers, the unwillingness to talk by the community, politics, power, culture, conflicts, resistance, religious beliefs and government policies. Other factors that affect indigenous knowledge documentation are a lack of proper skills, a lack of reliable technology for recording and capturing IK, and a lack of funds (Okorafor, 2010).

Regarding challenges experienced in disseminating IK-related content, it was found that the participants had common challenges in disseminating content related to IK. The study showed challenges such as that attending national and international conferences was expensive, disseminating videos with content of IK required a lot of data, financing students to attend national and international conferences is expensive, and novice academics find it impossible to publish in international journals and academics lack research funds to disseminate content related to IK (see Section 4.5.1.1 in Chapter 4).

The current research sought to solicit suggestions on how academics were tackling challenges associated with the documentation and dissemination of the content related to IK. Interestingly, the study showed that when academics were collecting data from owners, they travelled with a local person who knows the language of the community, consulted with an Induna or Chief during data collection, use research funds to carry out departmental projects, enjoy training on ICT skills, co-supervising and publishing with senior academics to master publication skills and encouraging students to publish to use the funds generated for conference purposes (see Section 4.6 in Chapter 4).

5.7 What strategies need to be developed for the documentation of IK by the University of Zululand?

The last objective of the study required academics and non-academics to mention strategies that were needed for effective documentation and dissemination of IK-related content. According to the participants, the University of Zululand should take pride in IKS and encourage academics to research the subject, and the University of Zululand should have an awareness day for IKS, where owners of IK are invited to showcase their local knowledge to the university community. It was also revealed that there should be a collaboration between the University of Zululand and rural communities and that the IKS centre should be brought back

to the main campus where research on IK is undertaken; the University of Zululand should have a committee for IKS that will always work hand in hand with the community and the academics that are involved in IKS research (see Section 4.6 in Chapter 4). The strategies that emanated from participants were in line with Chisita (2011) whose study also stressed that IK documentation centres should be fully committed to doing thorough research on IKS, have an adequate budget for IKS and collaboration with owners of IK.

The study also required comments from academics and non-academic participants on IK documentation and access at the University of Zululand, which was completed last year. To increase and improve IK-related documentation and distribution at the University of Zululand, this project was launched in September 2015. In that light, this issue sparked a great deal of discussion among the participants. It was discovered that there is an urgent need for the University of Zululand to promote cultural diversity and exchange; that IK promotion could be used to play an important role in attracting the local and global communities; that there is an urgent need to encourage the inclusion of IKS in University of Zululand curricula; that there is an urgent need to encourage the teaching of some classes in isiZulu language, or compulsory courses in isiZulu language to promote IKS (see Section 4.7 in Chapter 4).

5.8 Summary of the chapter

This chapter has thoroughly discussed the research findings in conjunction with the literature review as well as the theoretical framework that was chosen for the study. The four (4) main research questions which were formulated (in Section 1.7 in Chapter 1) guided the discussions of the study as it intended to uncover information regarding the creation of indigenous knowledge content by different faculties and departments across the University of Zululand. The study concluded that departments and faculties across the University of Zululand were fully involved in the creation of IK-related content. While the departments are involved in the creation of IK-related content, they cannot be involved equally, as some were partially involved. The Faculty of Arts, more especially the Department of African languages, has been noted to be more prolifically involved in the creation of IK-related content. The high involvement of the Department of African Languages may be influenced by the fact that they teach their modules in isiZulu and the theses and dissertations produced are in isiZulu. In order to bridge this gap, there is a need to make all faculties and departments across the University of Zululand aware of the possibility of being involved in the creation of content related to IKS, as this applies to all departments across the university. As Ocholla (2021) in his study revealed his study findings, the content related to IKS should be taught across faculties and departments

of Sociology, Anthropology, African languages, Bioscience, History, Food security studies, Poverty, Land and Agrarian Studies, Development Studies, Natural Medicine, and LIS.

This study also sought to establish the state of documentation of IK-related information at the University of Zululand. The findings demonstrated that content linked to IK was documented and recorded in theses, dissertations, journals, online institutional repositories, CDs, and films (see Section 4.4.1 in Chapter 4). Dlamini and Ocholla (2018) agree that the documentation of indigenous knowledge must be controlled through the use of technologies and other means for it to survive. Indigenous knowledge (IK)-related content is typically documented in a variety of ways, including textual registries and files, videos, photos, and audio recording; in a traditional indigenous language or other languages; and utilising current or more traditional technology, according to WIPO (2017). There is a need to bridge the gap between those academics who do not publish and their students to ensure that knowledge produced in relation to the IK subject is documented for future use.

As expected, like any other study conducted in the world, it was found that the creation and documentation of indigenous knowledge by different departments had several challenges. Section 4.5.1 in Chapter 4 indicated the challenges encountered by academics as they are involved in the creation and documentation of IK-related content. Nonetheless, some challenges were more common than others, i.e. a high crime rate during data collection, owners of IK not being interested in sharing their knowledge with strangers, a local language as a barrier, a shortage of proper tools for recording and capturing IK, owners of IK fearing to share their knowledge for fear of abuse of their knowledge, the lack of office space for IKS at the University of Zululand, a lack of incentives for owners of IK, a lack of proper training to capture and record IK content. The study assumed that academics will also mention difficult roads as one of the challenges. However, it was not so, and the reason is that South Africa especially local municipalities are working day and night to ensure that all roads leading to any community are smooth for those using cars. The next chapter (Chapter Six) will provide a summary, conclusions and recommendations for the entire study. Suggestions for further research will also be provided.

CHAPTER SIX

SUMMARY, CONCLUSION AND THE RECOMMENDATIONS OF THE STUDY

6.1 Introduction

The study's findings were covered in depth in the previous chapter. The current chapter's analyses conclude and make suggestions based on the findings of the preceding chapter's investigation of the University of Zululand's initiatives for documenting, disseminating, and facilitating access to indigenous knowledge. (Mason (2002) methodology encompasses both the complete data collecting process and the methods used to gather the data. As study method highlights the instruments that must be used and their proper application (Babbie & Mouton, 2001). This study employed the case study method. Therefore, the conclusions were drawn using semi-structured interviews and content analysis, and recommendations for further research were made based on those conclusions. In relation to the following study objectives, an outline of the study will be provided:

1) To establish how IK is created at the University of Zululand.
2) To determine how IK is documented at the University of Zululand.
3) To establish how IK is accessed or shared internally and externally in the studied institution.
4) To identify challenges facing IK at the University of Zululand.
5) To suggest a strategy for the development of IK at the University of Zululand.

6.2 Summary of the research findings

This section of the chapter discusses the findings of the study based on the study's research objectives and research questions. They are discussed in the following manner:

6.2.1 To establish how IK is created at the University of Zululand

- How is IK created at the University of Zululand?

The study discovered that IK-related content was created by different departments of the University of Zululand. This means that IK-related content is created by different faculties across the University (see Table 4.13 & 14). The study indicated that the departments were not operating on the same level relating to the documentation of indigenous knowledge-related content. In that light, the Department of African Languages and the Department of tourism were found to be the most effective departments in creating IK-related content. Notably, the most IK-related content created by different departments across the university is in the field of

African languages, plants, natural resources, traditional medicinal and food plants, cultural anthropology, geology, and stars, to mention a few (see Section 4.3.1).

The study discovered that when titles were searched using keywords from the institutional repository, four hundred and fourteen (414) titles containing material relating to indigenous knowledge were discovered (see Table 4.15). Notably, the survey discovered that Zulu was the most often utilised term while searching for titles containing indigenous knowledge-related content. Additionally, the second most often used phrase to display titles containing IK-related content is isiZulu. The study's findings corroborated Nonaka's (1994) assertion that tacit knowledge can be managed through the use of technology and written media. Hoegl and Schulze (2008), as well as Marley (2012), observed that intangible information can be controlled through the use of a variety of methods for future generations. Okorafor (2010) observed that information is frequently transmitted between teachers and apprentices, between parents and children, and between neighbours.

Concerning different ways of creating IK-related content, the study discovered that one of the most crucial ways of creating IK-related content is through supervising postgraduate students in conducting research and writing theses and dissertations. The study also demonstrated that other methods of creating content related to IK are through community engagement projects, teaching and learning, empirical research experiments and inviting owners of IK during Heritage Day to showcase their talents related to traditional knowledge (see Section 4.3.2). The study also indicated academics who were very productive with regard to the creation of content related to indigenous knowledge. It was not surprising to note that in the whole University, Professor Khumalo from the Department of African Languages was the foremost active academic in creating IK-related content. Other academics who were amongst the most productive in supervising students in research with content related to IK included Professor Thwala, Professor Magi, Professor Mashiyane and Professor Nzama (see Table 4.10 in Chapter 4). The literature also emphasised the importance of teaching the content related to IK in higher institutions (Ocholla, 2021). The literature reviewed produced findings that IK-related content has drawn the attention of higher education institutions by being included in the curriculum, which has improved tremendously (Kubow, 2018; Mawere, 2015; Ndille, 2020). Ocholla (2021) concluded that the content related to IK should be taught to all categories of higher education to benefit students who may be eager to gain knowledge of the African content.

Researchers and documentarians frequently develop indigenous knowledge through socialising with the owners of indigenous knowledge, according to the findings of the study. The findings of the literature review supported the conclusions of the study (Okorafor, 2010). African indigenous knowledge, according to the International Institute for Research on Rural Development (IIRR) (1996), is highly documented in the form of narrations such as research reports, inventories, maps, matrices and decision trees, audio-visuals such as photos, films, videos or audio cassettes, dramatisations such as stories and songs, drawings such as seasonal pattern charts and daily calendars, databases such as card catalogues, books, journals, and other written documents. All are the responsibility of libraries and documentation centres, respectively.

The study has indicated that non-academic staff are also involved in supporting academic staff and students to ensure that content related to IK is created. The library supports academic staff and students to ensure that theses and dissertations produced by different departments are kept in the library on shelves and in an institutional repository. Notably, the non-academics who are administrative staff members support academics and students with funding and intellectual property rights support of projects on IK-related content (see Section 4.3.2).

6.2.2 To assess how IK is documented at the University of Zululand

- What is the extent and status of documenting IK at the University of Zululand?

The results demonstrated that all participants agreed that they were aware of the documentation and recording of IK-related content at the University of Zululand (see Section 4.4 in Chapter 4). The results further demonstrated that the University of Zululand was using various strategies for documenting and recording IK-related content. It was found that IK-related content was documented and recorded in theses, dissertations, journals, and online institutional repositories, CDs and videos with content related to IK (see Section 4.4.1 in Chapter 4).

The study additionally revealed that the non-academic participants also had to ensure that all documented and recorded IK-related content was submitted to the Research Administration office and the Library and Information Services for future access and use. The results from academic and non-academic participants concurred with document analysis findings, which showed that there were research projects emanating from different departments which had specific titles for indigenous knowledge, traditional knowledge, and cultural knowledge. There were 131 titles in total (see Table 4.7 in Chapter 4), while 87 were demarcated between 2009 and 2019.

WIPO (2017) also recognised the importance of documenting indigenous knowledge content, emphasising that documentation can be an effective instrument when used in conjunction with an overall plan for indigenous knowledge protection (IK). According to WIPO (2017), indigenous knowledge (IK) information is typically documented in a variety of ways and formats, including textual registries and files, videos, photos, and audio recordings; in indigenous or other languages; and via the use of modern or more traditional technologies (digital versus written filing). Panday, Mittal, and Sharma (2017) also highlighted that written documents including IK-related content are beneficial for IK documentation.

6.2.3 To initiate how IK is accessed or shared internally and externally in the studied institution

- How is IK information accessed and shared at the University of Zululand and externally?

The study findings indicate that many participants accessed IK-related content through the library and institutional repository. However, very few never accessed IK-related content (see Section 5.4.3 in Chapter 5). In validating the aforementioned findings, the study showed that the content related to IK accessed is not limited to the history of the Zulu Nation, and Boer War, cultural heritage, traditional marriage, plants and their genetics, Imbuya (Vegetable leaf) as a medical herb and as food (see Section 4.4.4, in Chapter 4). The literature also showed that owners of indigenous knowledge have several indigenous knowledge practices which include cultural heritage, healing and medicine, history of the land and language of the community (WIPO, 2017). Aluma (2010) further argued that the content related to IK found in rural communities includes medicinal plants, herbal concoctions and treatment of disease (for both humans and livestock), crop protection and food preservation.

Concerning how the content of IK is accessed, the study found that the content related to IK is accessed and not limited to the library, institutional repository, national and international conferences, through journals, dissertations and theses (see Section 4.4.5, in Chapter 4). On the other hand, the non-academic staff members elaborated that the dissertations and theses, as well as CDs and DVDs, are found in the library, placed on shelves, while the institutional repository stores dissertations and theses (see Table 4.7 in Chapter 4). The knowledge creation theory by Nonaka (1994) also supports these findings: that once tacit knowledge is documented, it becomes accessible through journals, databases and technology. The literature also alluded to the fact that documented content related to IK becomes available in the form of databases, newsletters, journals and other media (Warren *et al*., 1993).

The study discovered that all academic staff members were sharing content related to IK in many different formats (see Section 4.4.6 in Chapter 4). In supporting the above findings, the participants further mentioned that they were sharing content related to IK through publications in accredited journals, faculty and departmental conferences, national and international conferences, emails, teaching and learning, through seminars and workshops (see Section 4.4.7 in Chapter 4). The literature by Priya and Rabindra (2010) also witnesses the above findings by pointing out that activities such as seminars, workshops, debates, lectures, and exhibitions are suitable platforms for sharing indigenous knowledge-related content.

6.2.4 To identify challenges facing IK at the University of Zululand

- What are the challenges that are experienced by the University of Zululand in documenting IK?

The study found that some participants agreed that there were challenges facing the documentation of content related to IK at the University of Zululand (see Section 4.5 in Chapter 4). The study indicated that challenges that were facing the documentation of content related to IK are not limited to the high crime rate, IK owners' lack of interest in sharing their knowledge with strangers, a local language barrier, shortage of proper tools for recording and capturing IK, a lack of office space for IKS at the University of Zululand, a lack of incentives for owners of IK, lack of proper training to capture and record content related to IK (see Section 4.5.1 in Chapter 4). The literature also revealed that challenges experienced by researchers when documenting content related to IK are the language barrier, the unwillingness to talk by the community, politics, power, culture, conflicts, resistance, religious beliefs and government policies (Makinde and Shorunke, 2013).

It was also revealed that there were challenges experienced in disseminating content related to IK. The study went on to spell out the challenges, such as difficulties in attending national and international conferences as a result of lack of funds, disseminating videos with the content related to IK required a lot of data, and financing students to attend national and international conferences is very expensive, novice academics find it impossible to publish in international journals and academics lack research funds to disseminate content related to IK (see Section 4.5.1.1 in Chapter 4).

The current research sought to solicit suggestions on how academics were tackling challenges associated with the documentation and dissemination of the content related to IK. Interestingly, the study showed that when academics collect data from owners, they are at best travelling

with a local person who knows the language of the community, consulting with an Induna or Chief during data collection, using research funds to carry out departmental projects, receiving training on ICT skills, co-supervising and publishing with senior academics to master publication skills and encouraging students to publish in order to use the funds generated for conference purposes (see Section 4.6 in Chapter 4).

6.2.5 To Imply strategies for the development of IK at the University of Zululand

- What strategies need to be developed for the documentation of IK by the University

On the said question, the respondents had the following strategies to be developed in mind which could be able to deal with the current and predicted challenges. The respondents suggested the following strategies:

- The University of Zululand needs to have an IK policy in place.
- The University of Zululand needs to take pride in IKS and encourage academics to research the subject.
- The University of Zululand needs to have an awareness day for IKS where owners of IK are invited to showcase their local knowledge to the University community.
- Collaboration between the University of Zululand and rural communities is urgently needed.
- The IKS centre should be brought back to the main campus where research on IK is prominent.
- Decolonisation of the African Languages.
- Promoting the different types of IK through social media tools.
- The University of Zululand must have a committee for IKS that will always work for hand in hand with the community and those academics that are involved in IKS research.
- Promoting the teaching of IKS at the University of Zululand needs to be encouraged.
- The University of Zululand needs to have an IKS policy in place.
- The University of Zululand needs to have a special budget for researchers whose specialisation is IKS.

- Provision of training to researchers on IKS on methods to manage IKS through ICTs needs urgent attention; and
- The University of Zululand library needs to be fully involved in the documentation of IKS because much has not been documented and it needs libraries.

6.3 Conclusions and Recommendations

This section of the chapter makes concluding remarks based on the main research questions which were formulated and informed by the research objectives.

6.3.1 To examine how IK is created/developed at the University of Zululand

The first main question of the study was "How is indigenous knowledge created/developed at the University of Zululand?" Through the literature review, theoretical framework and the findings of the study, this research report was able to conclude. The study showed that several departments at the University of Zululand were involved in the creation/development of content related to IK. Unsurprisingly, the Department of African Languages was the most active in the creation of content related to IK. Notably, the Department of Tourism was also active as it followed the African Languages Department (see Table 4.13 & 14). The study also revealed that the types of content related to IK that are created/developed across the University of Zululand are not limited to African languages, plants, natural resources, traditional medicinal and food plants (see Section 4.3.1).

Even though the main question seeks to know if content related to IK is created/developed at the University of Zululand, it was crucial to find titles and keywords that had content related to IK. Interestingly, the study indicated that there were four hundred and fourteen (414) keywords found to have content related to IK, which were found in the institutional repository. It is important to note that the study showed that the most popular term used is "Zulu" among several titles. It was not surprising to discover that "isiZulu" was the second most common term, found in several titles.

The study further indicated that the content related to IK was created/developed in different ways, mostly through the supervision of postgraduate students, writing theses and dissertations as well as community engagement projects (see Section 4.3.2). Interesting to note is that Professor Khumalo from the Department of African Languages was the most active academic in creating content related to IK (see Table 4.10). The theoretical framework that underpinned the study, in a nutshell, considers that tacit knowledge can be created/developed through documents such as journals and databases to ensure that others learn.

Even though the intention of the study concerned the creation of content related to IK, the study found it important to reveal how non-academic staff members were also active in supporting the creation of content related to IK. It was discovered that the research office and the rectorate were responsible for ensuring that academics who were involved in researching and teaching content related to IK were receiving financial support to ensure that their projects were accomplished. On the other hand, the study demonstrated that the library staff was assisting academics in ensuring that all theses and dissertations were kept in the library and those that were produced in soft copies were placed in an institutional repository.

6.3.2 To explore how IK is documented at the University of Zululand

Numerous departments of the University of Zululand have documented content relevant to IK. Notably, the study discovered that content connected to IK is documented via theses, dissertations, journals, online institutional repositories, CDs, and films (see Section 4.4.1). The study also revealed that the non-academic participants also had to ensure that all documented and recorded IK-related content was submitted to the Research Administration office and the Library and Information Services for future access and use. The results from academics and non-academic participants concurred with document analysis findings which showed that there were research projects emanating from different departments with specific titles on indigenous knowledge, traditional knowledge and cultural knowledge. There were 131 titles in total (see Table 4.7 in Chapter 4), while 87 were demarcated between 2009 and 2019.

6.3.3 To find out how IK is accessed and shared internally and externally in the studied institution

It was discovered that a large number of academics accessed the content related to IK from the library and institutional repository. The most frequently accessed content related to IK is not limited to the history of the Zulu Nation, the Boer War, cultural heritage, traditional marriage, plants and their genetics, Imbuya (Vegetable leaf) as a medical herb and as food (see Section 4.4.4). Several indigenous knowledge practices which include cultural heritage, healing and medicine, history of the land and language of the community are utilised by researchers worldwide (WIPO, 2017).

It was discovered that content related to IK was shared in many different formats (see Section 4.4.6 in Chapter 4). The five (5) most common ways of sharing the content related to IK are publications in accredited journals, faculty and departmental conferences, national and international conferences, e-mails, teaching and learning. The literature reviews also highlighted that seminars, workshops, debates, lectures, and exhibitions are favourable

platforms for sharing indigenous knowledge-related content (Priya & Rabindra, 2010). The theoretical framework provided by Nonaka (1994) also pointed out that documented knowledge can be shared through seminars and workshops as well as in journals and databases.

6.3.4 To identify the challenges facing IK at the University of Zululand

The study found that there are numerous challenges facing departments that were involved in the documentation of the content related to indigenous knowledge. Of the numerous challenges, the eight (8) most common ones are the high crime rate, IK owners' lack of interest in sharing their knowledge with strangers, the local language as a barrier, shortage of proper tools for recording and capturing IK, lack of office space for IKS on the campus of the University of Zululand, a lack of incentives for owners of IK, and a lack of proper training to capture and record content related to IK. Apart from the documentation challenges, there are several challenges to the dissemination of the content related to IK. The most common ones are (not limited to) difficulties in attending national and international conferences as a result of lack of funds, disseminating videos with the content related to IK required a lot of data, financing students to attend national and international conferences is expensive, novice academics find it impossible to publish in international journals and academics lack research funds to disseminate content related to IK. According to Makinde and Shorunke (2013), documenting IK has several challenges which include the language barrier, the unwillingness of the community to talk, politics, power, culture, conflicts, resistance, and religious beliefs.

Despite the challenges faced by many departments at the University of Zululand regarding the documentation and dissemination of content related to IK, there are several means of overcoming the challenges. The most common means are being accompanied by a local person who knows the language of the community, consulting with an Induna or Chief during data collection, using research funds to carry out departmental projects, training in ICT skills, co-supervising, and publishing with senior academics.

6.3.5 To suggest strategies and recommendations for the development of IK at the University of Zululand

While the study was able to explain explicitly how the content related to IK was created, accessed, shared and challenges experienced, it was important to identify strategies that needed to be developed for the documentation of IK at the University of Zululand. It was interesting to note that several strategies were proposed by participants. These are:

The need for an IKS policy

The participants felt that the lack of inspiration in many departments at the University of Zululand is due to the fact that it has no policy on IKS in place. The participants stated that the University of Zululand should focus on designing and implementing a policy on the documentation of IKS like other universities. The study believes that if the University of Zululand could have an IKS policy in place where new developments on IKS are raised and discussed, such discussions could lead UZ to become a proper IKS centre. Currently, no policy compels departments and academics to be fully involved in IKS; as a result, there is an urgent need for such to be implemented.

The need for the University of Zululand to be proud of IKS

The participants argued that there is an urgent need for the University of Zululand to take pride in IKS and not neglect it. The study showed that the University of Zululand has a huge task of promoting indigenous knowledge by encouraging academics to be fully involved in the documentation of this knowledge. Furthermore, Library has to play a more extensive role than only storing and disseminating knowledge; for instance, being involved in the proposed structures and bringing more ideas since it is close to general knowledge and IK in particular as it deals with information preservation.

IKS awareness day

The participants expressed their disappointment that there is no IKS awareness day at the University of Zululand. Having said this, they ordered advice to the effect that the University of Zululand should urgently organise a workshop on IKS, inviting owners of IK to demonstrate their local talents and knowledge. According to the study participants, such an occasion would stimulate academics to completely participate in the recording of IKs, and the University of Zululand will likely undertake numerous IKS-related projects.

Collaboration between the University of Zululand and the owners of IK

The participants felt that there is a need for the University of Zululand to create its lines of collaboration with the owners of IK. The study maintained that if lines of collaboration could be opened, this could also be another avenue for researchers from the University of Zululand to have a strong relationship with its rural communities and more research can be conducted without any hindrances.

The need for the IKS centre to be on the main campus

The participants felt that the reason few departments participate in the creation of IK is that the IKS centre is not constantly visible to academics. The study suggested with concern that there

is an urgent need for bringing the IKS to the main campus to stimulate interest among academics and to conduct more research on IKS. As above-mentioned, the IKS centre and the library further need to partner to reach the desired goal of promoting the IK.

Promoting the teaching of IKS at the University of Zululand

The participants noted with concern that there is an urgent need for the University of Zululand to promote the teaching of IKS in the departments that relate to history, arts and culture, libraries, African languages, tourism, etc. The participants stated that the implementation of teaching IKS can make the University of Zululand more involved in creating and sharing content related to IK, just like the University of KwaZulu-Natal.

Inclusion of indigenous knowledge in the curriculum

The study found that the studied institution pays insufficient attention to the promotion of documentation, dissemination of and access to indigenous knowledge. It is recommended that regular curriculum review and revision be done in order to find the space for IK. This could be one of the ways for IK to be visible at the University of Zululand. Again, this could be achieved through collaboration between the University of Zululand, curriculum developers, the national Department of Arts and Culture and other relevant stakeholders. This will assist in promoting indigenous knowledge through its inclusion in the university curriculum. The study also recommends that professional training be given to those IK employees who deal with the IK documentation processes.

Have the administration and structures in place

Currently, the University of Zululand is running seminars and workshops to popularise indigenous knowledge in the community of the University. In that light, it is also recommended that administration and structures be put in places like an IKS policy and other necessary guiding documents that could be used to regulate the development of IK at the University of Zululand. It is also recommended that the structures like committees will drive the project instead of being individual-driven, as when members leave the institution then the project can collapse. This could also include allowing all departments to work in harmony in fulfilling the IK documentation objectives.

Other strategies that were highlighted by the participants include the following:

- Decolonisation of the African Languages;
- Promoting the types of IK through social media tools;

The University of Zululand must have a committee for IKS that will always work for hand in hand with the community and with academics that are involved in IKS research;

- The University of Zululand needs to have an IKS policy in place;
- The University of Zululand needs to have a special budget for researchers whose specialisation is IKS;
- Provision of training to researchers on IKS on managing IKS through ICTs needs urgent attention; and
- The University of Zululand library needs to be fully involved in the documentation of IKS because so much has not yet been documented and it needs conservation.

6.4 Study limitations, implications and contribution

This study had several limitations. These are

- The study was conducted at the University of Zululand only, yet a study of this nature needs to be conducted across the province of KwaZulu-Natal.
- The participants also complained that the research questions were too long as they were taking approximately 35-50 minutes to interview one person. The researcher asked the participants to be patient and at times others left the interviews halfway and requested that it continued the following day.
- Data collection online through an institutional repository was also not easy as the researcher tried several keywords and subjects to ensure that all the required titles were accessed.

Concerning the contributions of the study, the study findings were of significance as they demonstrated that several departments at the University of Zululand are fully involved in the documentation of indigenous knowledge. The documentation of IK provides a possibility to preserve indigenous knowledge in different formats. Even though much has been done in South Africa with regard to managing IK through ICTs, the level of documentation of IK in tertiary institutions remains unknown. For example, previous studies have focused on the use of ICTs in the management of IKS (Dlamini, 2016; Lwoga, 2009). Having said that, this study contributed to the existing body of knowledge by demonstrating the role of departments in documenting indigenous knowledge.

The likelihood and applicability of knowledge management theories confirmed by the current study were in line with other studies conducted in South Africa and Tanzania (Ngulube, 2003;

Lwoga, 2009; Lwoga, Ngulube and Stilwell, 2010). The study adopted knowledge creation theory as the core theoretical framework of the study. However, a study by Nonaka (1991) reported that knowledge creation is applicable in organisations to manage tacit knowledge of that organisational environment. The current study demonstrated how the four key elements (e.g. socialisation, externalisation, combination and internalisation) can be used to support the management of tacit knowledge like indigenous knowledge through different formats.

6.5 Recommendation for further studies

The present study was conducted at the University of Zululand. It is recommended that further research be extensive and cover different universities within and outside the KwaZulu-Natal (KZN) Province. Again, future research could be a comparative study between the higher learning institutions. Further research in indigenous knowledge documentation, dissemination and access is of paramount importance for the promotion of IK. It is recommended that the University of Zululand encourages its student to conduct research on IK in order to expand their participation in the promotion of IK. The present study provides the theoretical background for knowledge creation. Knowledge managers and indigenous knowledge professionals may use this research report to better understand the dynamics of IK documentation and its processes.

As stated in Chapter Three of this study, its target population consisted of academics and non-academics who were involved in the documentation of the content related to indigenous knowledge at the University of Zululand. The study provided a superficial view of documentation of IK; there is a need for an in-depth study across the province of KwaZulu-Natal to obtain comprehensive data regarding the status of documentation of IK in other tertiary institutions. The results obtained from the four (4) tertiary institutions in KZN will make an informed decision regarding the documentation of IK as a province in KZN. Furthermore, a study on the same topic is essential to be conducted nationwide to give a true picture of the status of tertiary institutions in the documentation of IK. Notably, this initiative will help departments across universities in South Africa in all fields for mapping and auditing the status of IK.

It is important also to reveal a significant need for more research on content related to indigenous knowledge which will aid curriculum development. During the study, some of the academics strongly emphasised that there is a need for IK to be taught by some departments, especially departments like African Languages, History, Tourism, and Information Studies, to

mention a few. A study by Mawere (2014) also noted the importance of the inclusion of IKS in African universities.

It was also noted during the study that few departments are involved in the documentation of the content related to IK across the University of Zululand. There is, therefore, an urgent need to investigate the root cause of poor participation by other departments. The study believes that if there is anything that other departments are doing regarding documentation of content related to IK, then it can be emulated to improve the involvement of all departments across the University of Zululand.

There is a need for further research on policy implementation for the documentation of indigenous knowledge. The University of KwaZulu-Natal is one institution that is in full swing in the documentation of indigenous knowledge. UKZN has promoted IKS to the point where there is now a department that fully teaches IKS and they also have a centre that is governed by professors who are fully informed on African indigenous knowledge. It is believed that if there is anything that the University of KwaZulu-Natal is doing that the University of Zululand is not doing regarding establishing a policy on IKS and the promotion of IKS, then it can be emulated to improve the full participation of the University.

References

Adams, A. A. & Lawrence, E. K. (2015). *Research methods, statistics, and applications.* Los Angeles: Sage.

Adesina, A. O. & Ocholla, D. N. (2019). The SECI model in knowledge management practices: Past, present and future. *Mousaion*, 37(3), 1-34.

Agea, J. G., Katongole, B., Waiswa, B. & Nabanoga, G. N. (2008). Market survey of Mondia Whytei (Mulondo) roots in Kampala City, Uganda. *African Journal of Traditional, Complementary and Alternative Medicines*, 5(4), 399-408.

Aguwa, C. N. (1999). An overview of traditional medicine in Nguru. In J. E. Nwogu (Ed.), NguruMbaise: A historical perspective.

Akinde, T. A. (2008). Indigenous knowledge dissemination and use: A discuss. *Samaru Journal of Information Studies*, *8*(2).

Aluma, J. R. (2010). *Integrating indigenous knowledge (IK) in agricultural research workshop*. Kampala: National Environmental Management Authority.

Anafulu, J. C. (2005). *Indigenous knowledge and ICT: marriage whose time has come*. An address on Librarians' Day at the Nigerian International Book Fair. Lagos: University of Lagos.

Andriessen, D. & Broom M. (2007). East is east, west is west, and (n) ever its intellectual capital shall meet. *Journal of Intellectual Capital*, 8(4), 641 – 652.

Awang, Z. H. (2010). *Research methodology for business and social science*. Malaysia: University Publication Centre (UPENA).

Babbie, E. R. & Mouton, J. (2001). *The practice of social research.* Cape Town: Oxford University Press Southern Africa.

Babbie, E., (2010). *The practice of social research*. (12th ed.). Belmont: Wadsworth.

Bandura, A (1977). *Social learning theory*. Englewood Cliffs, N.J.: Prentice-Hall.

Blaikie, N. W. H. (2010). *Designing social research: the logic of anticipation.* Cambridge: Polity Press.

Boisot, M. (1998). *Knowledge assets: securing competitive advantage in the information economy*. Oxford: Oxford University Press.

Bratianu, C. (2010). A critical analysis of Nonaka's model of knowledge dynamics. *Electronic Journal of Knowledge Management*, 8(2), 193–200.

Bratianu, C., & Orzea, I., (2010). Organizational knowledge creation. *Management, Marketing Challenges for Knowledge Society*, 5(3), 41-62. Retrieved May 23, 2009, Available at http://www.researchgate.net/publication/46542807_Organizational_knowledge_creation

Brinklov, S., Kalko, E. K. V. & Surlykke, A. (2009). Intense echolocation calls from two 'whispering' bats, *artibeus jamaicensis and macrophyllum* (phyllostomidae*). Journal of Exp. Biol*., 212, 11-20.

Brokensha, D. W., Warren, D. M. & Werner, O. (1980). *Indigenous knowledge systems and development*. Washington, D.C.: University Press of America.

Brundrett, M. & Lungka, P. (2019). The development of teachers' knowledge and behaviour in promoting self-discipline: a study of early years' teachers in Thailand. *Education, 47*(4), 462-474.

Brynard, D. J., Hanekom, S. X. & Brynard P. A. (2014). *Introduction to research.* (3rd ed.). Pretoria: Van Schaik Publishers.

Chisenga, J. (2002). *Indigenous Knowledge: Africa's opportunity to contribute to global information content.* Proceedings of the 15th Standing Conference of Eastern, Central and Southern African Library Associations. SCECSAL 2002 From Africa to the world - the globalization of Indigenous Knowledge systems. Pretoria: LIASA.

Chisita, C., T. (2011). *Role of libraries in promoting the dissemination and documentation of indigenous knowledge agricultural information: Case study of Zimbabwe.* 65th IFLA Conference, San Juan, 13-16. Retrieved May 23, 2019, from http://conference.ifla.org/past-wlic/2011/78-chisita-en.pdf.

Clark, D. (2004). Is professional writing relevant? A model for action research. *Technical Communication Quarterly*, *13*(3), 307-323.

Claxton, H. (2010). Indigenous knowledge and occidental science: how both forms of knowledge can contribute to an understanding of sustainability. *The Journal of Pan African Studies*, *8*(4), 43-51.

Cohen, L., Manion, L. & Morrison, K. (2000). *Research methods in education.* (5th ed.). London: Routledge. Falmer.

Cohen, L., Manion, L. & Morrison, K. (2007). Research methods in education. (6th ed.). London: Routledge Falmer.

Corbin, J. & Strauss, A. (2015). *Basics of qualitative research: techniques and procedures for developing grounded theory.* Los Angeles: SAGE Publishers, Ltd.

Creswell, J. W. (2014). *Research design.* (4th ed.). Los Angeles: SAGE Publishers, Inc.

Crossan, M., & Guatto, T. 1996. Organizational learning research profile. *Journal of Organizational Change Management*, 9(1), 107-112.

De Vos, A. S., Strydom, H., Fouché, C. B., & Delport, C., S., L., (2005). Research at grass roots for the social sciences and human service professions. (3rd ed.). Pretoria: Van Schaik Publishers.

(Dlamini and Ocholla, 2018) managing indigenous knowledge in KwaZulu-Natal Province, South Africa. *African Journal of Library Archives and Information Science*, 28(2), 137-153.

Dlamini, P. N. (2016). *The use of information and communication technology tools in managing indigenous knowledge in the province of KwaZulu-Natal, South Africa.* Doctoral Dissertation, University of Zululand, South Africa.

Dlamini, P., N., (2017). Use of information and communication technology tools to capture, store and disseminate indigenous knowledge: A literature review. In P. Ngulube (Ed.), *Handbook of Research on Theoretical Perspectives on Indigenous Knowledge Systems in Developing Countries.* Hershey, PA: IGI Global Publication.

Department of Science and Technology (2004). *Indigenous knowledge systems (IKS) policy*. Pretoria: Department of Science and Technology.

Earl, M. J. (1989). *Management strategies for information technology.* Hemel Hempstead, UK: Prentice Hall.

Edmonds, W. A. & Kennedy, T. D. (2017). *An applied guide to research designs: quantitative, qualitative, and mixed methods*. Los Angeles: SAGE.

Flavier, J. M., De Jesus, A. & Navarro, C. S. (1995). The regional program for the promotion of indigenous knowledge in Asia, in Warren, D M, Slikkerveer, L J & Brokensha, D (eds). *The cultural dimension of development: indigenous knowledge systems*. London: Intermediate Technology Publications.

Flick, U. (2014). *The Sage handbook of qualitative data analysis.* Los Angeles: SAGE.

Fraser, K. (2014). Defeating the 'paradigm wars' in accounting: a mixed methods approach is need in the education of PhD Scholars. *International Journal of Multiple Research Approaches,* 8(1), 49-42.

Fry, J., Scammell, J., & Barker, S. (2017). Drowning in muddied waters or swimming downstream? A critical analysis of literature reviewing in a phenomenological study through an exploration of the lifeworld, reflexivity and role of the researcher. *Indo-Pacific Journal of Phenomenology*, *17*(1), 49-60.

Glisby, M. & Holden, N. (2003). Contextual constraints in knowledge management theory: The cultural embeddedness of Nonaka's knowledge-creating company. *Knowledge Process and Management,* 10(1), 29-36.

Grant, C. & Osanloo, A. (2014). *Understanding, selecting, and integrating a theoretical framework in dissertation research: Creating the blue print for your house*. *Administrative Issues Journal Education Practice and Research*, 4(2), 12-22.

Grenier, L. (1998). *Working with indigenous knowledge: a guide for researchers*. Ottawa: International Development Research Centre.

Hammond, M. & Wellington, J. (2013). *Research methods: key concepts*. New York: Routledge.

Harding, J. (2013). *Qualitative data analysis from start to finish*. Los Angeles: SAGE Publications, Ltd.

Harsh, O. K. (2009). Three dimensional knowledge management and explicit knowledge reuse. *Journal of Knowledge Management Practice*, 10(2), 1-10.

Hemmecke, J. & Stary, C. (2003)**.** A framework for externalization of tacit knowledge embedding repertory grids. *Series Sustainable Agriculture Review,* 3(1), 307-317.

Hirwade, M. & Hirwade, A. (2012). Traditional knowledge protection: an Indian prospective. *Journal of Library and Information Technology, 32*(3), 240-248.

Hoegl, M. & Schulze, A. (2008). Organizational knowledge creation and the generation of new product ideas. *A behavioral approach. Research Policy*, 37(10), 1742–1750.

Holmqvist, M. (1999). Learning in imaginary organizations: Creating interorganisational knowledge. *Journal of Organizational Change Management*, 12(5), 419-438.

Holste, J., S., & Fields, D. (2010). Trust and tacit knowledge sharing and use. *Journal of Knowledge Management*, 14(1), 128-140.

Hong, J. (2010). Nonaka's knowledge creation model: Universal or particularistic. *Journal of Management,* 43(5), 1027-105.

Ikoja, R., J. (2002). *The study of information needs and uses of the informal sector of Uganda*. PhD Thesis, Department of Information Studies, University of Zululand, South Africa.

Ilo, P., I. (2012). Acquisition, preservation and accessibility of indigenous knowledge in academic libraries in Nigeria: The place of ICT. *Ikenga: International Journal of Institute of African Studies*, 14(1), 468-487.

International Institute of Rural Reconstruction. (1996). *Recording and using indigenous knowledge: A manual*. Retrieved April 16, 2019, from http://collections.infocollections.org/ukedu/en/d/Jii03re/1.4.html.

Iqbal, J. (2007) Learning from a doctoral research project: Structure and content of a research proposal. T*he Electronic Journal of Business Research Methods, 5*(1),11–20.

Jaya, E. (2006). The role of university in promoting indigenous knowledge systems in Zimbabwe with reference to traditional practices in rural areas. *In Proceedings from the 2nd International Conference on Appropriate Technology* (p. 34). Academic Press.

Johnson, B. & Christensen, L. (2017). *Educational research: quantitative, qualitative, and mixed approaches* (6th ed.). Thousand Oaks, California: SAGE Publications, Inc.

Karter, A. (1993). Indigenous learning in craft: a pilot research effort. *Indigenous Knowledge and Development Monitor,* 1(1), 21-23.

Kubow, P. K. (2018). Exploring Western and non-Western epistemological influences in South Africa: Theorising a critical democratic citizenship education. *Compare: A Journal of Comparative and International Education*, *48*(3), 349-361.

Kumar, R. (2014). *Research methodology: a step-by-step guide for beginners*. Los Angeles: SAGE.

Kwake, A. (2007). *The role of ICTs in harnessing information for women in rural development*. PhD Thesis, Department of Information Studies, University of Zululand, South Africa.

Labelle, H. (1997). *Presidential address*. Canadian International Development Agency at the plenary session on Global Knowledge and Local Culture of the International Global Knowledge 1997 conference, Toronto.

Leedy, P. D. & Ormrod, J. R. (2010). *Practical research: planning and design* (9th ed.). Boston: Pearson Education.

Lindh, K. & Haider, J. (2010). Development and the documentation of indigenous knowledge: good intentions in bad company? *Libri, 60*, 1-14. Berlin. DOI 10.1515/libbr.2010.00.

Lwoga, E. T. (2009*). Application of knowledge management approaches and information and communication technologies to manage indigenous knowledge in the agricultural sector in selected districts of Tanzania.* Retrieved June 10, 2020, from https://researchspace.ukzn.ac.za/xmlui/bitstream/handle/10413/502/Thesis_Lwoga_Edda.pdf?sequence=1&isAllowed=y.

Lwoga, E. T., Ngulube, P. & Stilwell, C. (2010). The management of indigenous knowledge with other knowledge systems for agricultural development: Challenges and opportunities for developing countries. *LBRIS,* 60(5), 226-238.

Lwoga, E., T., & Ngulube, P. (2008). Managing indigenous and exogenous knowledge through information and communication technologies for agricultural development and

achievement of the UN Millennium Development Goals, In B. Njobvu S. Koopman (Eds.), *Libraries and information services towards the attainment of the UN Millennium Development Goals*, Berlin: Walter de Gruyter.

Makinde, O. O. & Shorunke, O. A. (2013). *Exploiting the value of indigenous knowledge in attaining sustainable development in Nigeria: the place of the library.* Retrieved December 12, 2020, from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2185&context=libphilprac.

Maponya, P. M. & Ngulube, P. (2007). The state of estuarine knowledge of the communities of the Tyolomnqa Estuary in the Eastern Cape, South Africa. *Journal of Library and Information Science*, 73(1), 75-83.

Marley, I. R. (2012). Investigating the appropriateness of the theory of organisational knowledge creation as a management model for practice-led research. *Journal of Literacy Criticism, Comparative Linguistic and Literacy Studies,* 31(1), 1-10.

Marra, M. (2004). The contribution of evaluation to socialization and externalization of tacit knowledge: The case of the World Bank. *Evaluation*, *10*(3), 263-283.

Marshall, C. & Rossman, G. B. (2011). *Designing qualitative research* (5th ed.). London: SAGE Publication, Inc.

Marshall, C. & Rossman, Gretchen B. (2016). *Designing qualitative research* (6th ed.). London: SAGE Publication, Inc.

Mason, J. (2002). *Qualitative researching.* London: Thousand Oaks; California: Sage Publications.

Masuku, M., & Pasipamire, N. (2014). Going against the grain: questioning the role of archivists and librarians in the documentation and preservation of indigenous knowledge. *ESARBICA Journal*, *33*, 117.

Mawere, M. (2014). *Culture, indigenous knowledge and development in Africa: Reviving interconnections for sustainable development*. Cameroon: Langaa Rpcig.

Mawere, M. (2015). Indigenous knowledge and public education in sub-Saharan Africa. *Africa Spectrum*, *50*(2), 57-71.

Mertens, D. M. (1998). *Research methods in education and psychology.* Los Angeles, Califonia: Sage.

Moahi, K. (2005). Documenting indigenous knowledge systems in Africa: Prospects and challenges. *ESARBICA Journal*, 24, 75-87.

Mosimege, M. (2005). National priorities in Indigenous Knowledge Systems: implications for research and curriculum development. *Indilinga: African Journal of Indigenous Knowledge Systems*, *4*(1), 31-37.

Mosoti, Z. & Masheka, B. (2010). Knowledge Management: The case for Kenya. *The Journal of Language, Technology & Entrepreneurship in Africa*, 2(1), 107-133.

Moule, P. & Goodman, M. (2014). *Nursing research: An introduction*. (2nd ed.) Los Angeles: SAGE.

Muchenje, F. G. & Goronga, P. (2015). Developing strategies for the promotion of Indigenous Knowledge systems in Africa's development: a perspective from the South. *International Journal of Social Sciences and Education*, 5(4). Zimbabwe. Retrieved December 12, 2020, from http://ijsse.com/sites/default/files/issues/2015/v5i4/Paper-02.pdf.

Mudege, N. N. (2005). *An ethnography of knowledge: knowledge production and dissemination in land resettlement areas in Zimbabwe: the case of Mupfurudzi*. Wageningen University. PhD. Thesis, Rural Development Sociology Group, Wageningen University, Zimbabwe.

Nakata, M. & Langton, M. (2005). *Australian indigenous knowledge and libraries*. Sydney: UTS ePRESS.

National Centre for Culture and Recreation Statistics. (2011). *The social impacts of sport and physical recreation: An annotated bibliography.* Australia: Australian Bureau of Statistics.

National Research Foundation. (2014). *Indigenous knowledge systems: Knowledge fields development framework document. NRF, South Africa*. Retrieved May 24, 2019, from http://www.nrf.ac.za/sites/default/files/documents/IKS%20Guide%202015.pdf

Ndille, R. (2020). Rethinking the African Space in a Global Education Project: A Representational Reflection in the Context of Nationalism. *African Renaissance (1744-2532)*, *17*(1).

Ndunguru, E. (2007). *Assessment of utilization of maternal health services and associated factors for women within infants in rural Morogoro district council*. Retrieved December 12, 2020, from http://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&cad=rja&uact=8&ved=0ahUKEwjlkYXAqdbWAhVhFMAKHUeUAsIQFghGMAQ&url=http%3A%2F%2Fir.muhas.ac.tz%3A8080%2Fjspui%2Fbitstream%2F123456789%2F1155%2F1%2FELIGIUS%2520NDUNGURU.pdf&usg=AOvVaw0lTR2kkz-kE7PZOH9M7s67.

Neuman, W. L. 2011. *Social research methods: Qualitative and quantitative approaches*. (6th ed.). Boston (Mass.): Pearson Education.

Neuman, W. L. (1997). *Social research methods*. London: Allan & Becon.

Neuman, W. L. (2003). *Social research methods*. London: Allan & Becon.

Ngulube, P. & Lwoga, T. E. (2007). Knowledge management models and their utility to the effective management and integration of indigenous knowledge with other knowledge systems. *Indilinga: African Journal of Indigenous Knowledge Systems*, 6(2), 117-131.

Ngulube, P. (2002). *Managing and preserving Indigenous Knowledge in the knowledge management era: challenges and opportunities for information professionals.* London: Sage Publication.

Ngulube, P. (2003). Using the SECI knowledge management model and other tools to communicate and manage tacit indigenous knowledge. *Innovation,* 27, 21-30.

Ngulube, P. (2015). Trends in Research Methodological Procedures Used in Knowledge Management Studies. *Afr. J. Lib. Arch. & Inf.* Sc. 25, 2. 125-143.

Ngulube, P. (2017). *Handbook of research on social, cultural and educational considerations of Indigenous Knowledge in developing countries*. Hershey, PA: IGI Global.

Nkondo, R. L. (2012). *The use of Tsonga as the medium of instruction in secondary schools* (Doctoral dissertation, University of Johannesburg (South Africa)).

Nonaka, I. & Konno, N. (1998). The concept of "Ba": Building a foundation for knowledge creation. *California Management Review*, 3(40), 40-54.

Nonaka, I. (1997). Organizational knowledge creation. *Organisation Studies*, 27(8), 1179-1208.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization science*, *5*(1), 14-37.

Oakley, A. (2000). *Experiments in knowing: Gender and method in the social sciences*. Cambridge: Polity Press.

Ocholla, D. (2020). Decolonizing higher education in Africa: Implications and possibilities for university libraries. *College & Research Libraries News*, *81*(6), 289-293.

Ocholla, D. N. & Le Roux, J. (2011). Conceptions and misconceptions of theoretical frameworks in library and information science research: A case study of selected theses and dissertations from eastern and southern African universities. *Mousaion*, *29*(2), 61-74.

Ocholla, D. N. (1999). Insight into information seeking and communicating behavior of academics. *International Information & Library Review*, 31, 119-143.

Ocholla, D. N. (2021). Echoes down the corridor. Experiences and perspectives of library and information science education (LISE) during COVID-19 through an African lens. *Library Management*, 42(4/5), 305-321.

Odongo, R. (2009). A framework for developing a knowledge base for indigenous ecological knowledge in Uganda. *ESARBICA Journal*, 28, 207-221.

Okorafor, C. N. (2010). Challenges confronting libraries in documentation and communication of Indigenous Knowledge in Nigeria. *International Information & Library Review. 42,* 8-13.

Olsen, W. K. (2012). *Data collection: key debates and methods in social research*. London; Thousand Oaks, Califonia: SAGE.

Panday, V., Mittal, R. & Sharma, P. (2017). *Documentation and application of indigenous traditional knowledge (ITK) for sustainable agricultural development. Retrieved June 20, 2020, from*

http://www.journalrepository.org/media/journals/AJAEES_25/2017/Mar/Pandey1532017AJAEES31481.pdf.

Pautasso, M. (2013). Ten simple rules for writing a literature review. *PLoS Computational Biology*, *9*(7). Retrieved June 20, 2020, from https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003149

Phillips, D. & Burbules, N. C. (2000). Post-positivism and educational research. Lanham, MD: Rowman & Littlefield Publishers.

Pickard, A. J. (2013). *Research methods in information*. (2nd ed.). London: Facet Publishing.

Plockey, F. (2015). *Indigenous Knowledge production, digital media and academic libraries in Ghana.* Ghana. Retrieved June 20, 2020, from http://eds.a.ebscohost.com/eds/pdfviewer/pdfviewer?sid=99cdf0e5-cecd-4214-b1b0-edb6e89955a9%40sessionmgr4002&vid=0&hid=4203.

Prah, K. K. (2017). The intellectualisation of African languages for higher education. *Alternation Journal*, *24*(2), 215-225.

Priya, R. M., & Rabindra, K. M. (2010). Documenting indigenous traditional knowledge in Olisha. *Orissa Review, May-June*.

Quirk, M., Mazor, K., Haley, H. L., Wellman, S., Keller, D., Hatem, D. & Keller, L. A. (2005). Applied research: reliability and validity of checklists and global ratings by standardized students, trained raters, and faculty raters in an objective structured teaching environment. *Teaching and Learning in Medicine*, *17*(3), 202-208.

Ritchie, J., Lewis, J., Nicholls, C. M. & Ormston, R. (2013). *Qualitative research practice: a guide for social science students and researchers*. Los Angeles, California: SAGE.

Ritchie, J., Lewis, J., Nicholls, C. M. & Ormston, R., (2014). *Qualitative research practice: a guide for social science students and researchers* (2nd ed.). Los Angeles, California: SAGE.

Rubin, H. J. & Rubin, I. S. (2012). *Qualitative interviewing: the art of hearing data*. Los Angeles, California: SAGE.

Saldaña, J. & Omasta, M., (2018*). Qualitative research: analysing life*. Los Angeles: SAGE.

Sarantakos, S. (2013). *Social research.* (4th ed.). Hampshire: Palgrave Macmillan.

Sarayreh, B., Mardawi, A. & Dmour, R. (2012). Comparative study: The Nonaka model of knowledge management. *International Journal of Engineering and Advanced Technology*, 1(6), 45-48.

Sarkhel, J. K. (2016). Strategies of indigenous knowledge management in libraries. *Qualitative and Quantitative Methods in Libraries*, *5*(2), 427-439.

Scharmer, C. O. (1996). *Knowledge has to do with truth, goodness, and beauty. A conversation with Professor Ikujiro Nonaka*. Retrieved June 10, 2020, from http://www.dialogonleadership.org/Nonaka-1996.pdf.

Sekaran, U. (2003). *Research methods for business: a skill-building approach* (4th ed.). New York: Wiley.

Simon, M. K. & Goes, J. (2013). *Scope, limitations, and delimitations*. Seattle, WA: Dissertation Success LLC.

Singh, R. K. & Sureja, A. K. (2006). *Amta* and *Amti (hibiscus sabdariffa* L). Cultural and agricultural dynamics of agrobiodiversity conservation. *Indian Journal of Traditional Knowledge*, 5(1), 151-157.

Singh, V. & R. K. Rajoo (1993). *Traditional knowledge and wisdom of tribal farmers with particular reference to district LahauiSpiti (HP).* Paper presented at the National Seminar on Indigenous Technologies for Sustainable Agriculture, New Delhi. March 23-25. Unpublished Manuscript.

Singh, Y. K. (2006). *Fundamental of research methodology and statistics*. London: New Age International.

Sithole, J. (2007). The challenges faced by African libraries and information centres in documenting and preserving indigenous knowledge. *IFLA Journal*, 33(2), 117–123. Retrieved July 10, 2020, from *http://ifl.sagepub.com/content/33/2/117.full.pdf*.

Snowden, D. (2007). The big debate: Is knowledge management finished? In J. Ash D. Snowden (Eds.), Is KM finished? Inside knowledge: *Incorporating Enterprise Information Magazine,* 10(7), 22-23.

Soiferman, L. K. (2010). *Compare and contrast inductive and deductive research approaches.* Retrieved May 4, 2020, from http://files.eric.ed.gov/fulltext/ED542066.pdf.

Stakes, R., Gordon, H. & Bell, G. (1994). *Action research, special needs and school development*. London: Fulton.

Stimson, R. J. (2014). *Handbook of research methods and applications in spatially integrated social science.* Cheltenham: Edward Elgar.

Tabuti, J. R. S., Dhillion, S. S., & Lye, K. A. (2004). The status of wild food plants in Bulamogi County, Uganda. *International journal of food sciences and nutrition*, *55*(6), 485-498.

Tashakkori, A. & Creswell, J., W. (2007). The new era of mixed methods. *Journal of Mixed Methods Research,* 1, 3-7.

Teddlie, C., & Tashakkori, A., (2009). *Foundations of mixed methods research*. Thousand Oaks, CA: Sage Publications.

Teijlingen, E. R. & Hundley, S. (2001). *Social research update: The importance of pilot studies*. Retrieved March 16, 2020, from *http://www.soc.surrey.ac.uk/sru/RSU35.pdf*.

Tella, R. (2007). Towards promotion and dissemination of indigenous knowledge: A case of NIRD, India. *The International Information and Library Review,* 39, 185-193.

Thrupp, L. A. (1989). Legitimizing local knowledge: From displacement to empowerment for third world people. *Agriculture and Human Values,* 6(3), 13-24.

Tight, M. (2017). *Understanding case study research: small-scale research with meaning*. Los Angeles: Sage.

Traore, K., Sotunsa, M. & Ojo, A. (Eds.). (2016). *Expressions of indigenous and local knowledge in Africa and its diaspora*. United Kingdom: SAGE Publishers.

Tsiko, S. (2004). Minority languages face extinction. Zimbabwe: The Herald.

UNESCO. (1994). *UNESCO public library manifesto*. Retrieved May 1, 2020, from http://portal.unesco.org/ci/en/file_download.php/ee231cd2ce227294ead6ff6da7829c7cpublic_library_manifesto_english.rtf.

UNESCO. (2011). *ICTs and indigenous people: Policy brief*. Paris: UNO Publication. Retrieved May 1, 2020, from http://iite.unesco.org/pics/publications/en/files/3214689.pdf.

University of Zululand. (2020). *Facts & figures.* Unpublished manuscript, Department of Communication and Marketing, University of Zululand, South Africa.

University of Zululand. (2010). *Self-evaluation portfolio for the institutional audit.* Unpublished Manuscript, Quality Assurance Department, University of Zululand, South Africa.

University of Zululand. (2013). *Research and innovation*. Retrieved May 1, 2020, from http://www.unizulu.ac.za/professor-helene-de-wet/.

University of Zululand. (2016). *University of Zululand overview.* Retrieved May 1, 2020, from http://www.unizulu.ac.za/about-us/future-of-richards-bay-campus/unizulu-overview.

Warren, D. M., von Liebenstein, G. W. & Slikkerveer, L. J. (1993). Networking for indigenous knowledge. *Indigenous Knowledge and Development Monitor* 1 (1), 2-4.

WIPO. (2017). *Documentation of traditional knowledge and traditional cultural expressions.* Retrieved May 1, 2020, from http://www.wipo.int/edocs/pubdocs/en/wipo_pub_tk_9.pdf.

Wisker, G., Exley, K., Antoniou, M. & Ridley, P. (2007). *One-to-one teaching: supervising, mentoring and coaching*. London: Routledge.

Yin, R. K. (2012). *Application of case study research.* (3rd ed.). Los Angeles: Sage.

APPENDICES

APPENDIX A:

PARTICIPATION CONSENT DECLARATION
INFORMED CONSENT DECLARATION

(Participation)

Project Title: ***THE STRATEGIES USED BY THE UNIVERSITY OF ZULULAND IN DOCUMENTING, DISSEMINATING AND ACCESSING INDIGENOUS KNOWLEDGE.***

I Simiso Cebo Buthelezi from the **Department of Information Studies at the**; **University of Zululand** I request your permission to participate in the above-mentioned research project.

The nature and the purpose of the research project, and of this informed consent declaration have been explained to me in a language that I understand as a participant.

I am aware that:

The purpose of the research project is only for academic purposes

1. The University of Zululand has given ethical clearance to this research project and I have seen/may request to see the clearance certificate.

2. By participating in this research project I will be contributing towards helping raise awareness in the university community on issues involving documentation and promotion of indigenous knowledge

3. I will participate in the project by agreeing to be interviewed

4. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences

5. I will not be compensated for participating in the research

6. The researcher intends publishing the research results in the form of articles in journals however, confidentially and anonymity of records will be maintained and that my name and identity will not be revealed to anyone who has not been involved in the conduct of the research.

7. Regarding the results obtained during the interview.
8. Any further questions that I might have concerning the research or my participation will be answered by the researcher

9. By signing this informed consent declaration, I am not waiving any legal claims, rights or remedies.

I……
have read the above information and I confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurised in any way and I voluntarily agree to participate in the above-mentioned project.

....

Participant's signature **Date**

APPENDIX B:

IFOMU YOKUZIBOPHEZELA
(*kobambe iqhaza*)

Isihlokosocwaningo: ***UCWANINGO NGAMAQHINGA/AMACEBO ASETSHENZISWA YISIKHUNGO SEMFUNDO EPHAKEME YAKWANQONDONKULU YAKWAZULU MAYELANA NOKULOTSHWA, UKUSATSHALALISWA KANYE NOKUCOBELELANA NGOLWAZI LWESINTU***

Simiso Cebo Buthelezi ovela ku Mnyango we Information Studies e University of Zululand ube nesicelo semvume yokuzimbandakanya kulolucwaningo olulotshiwe ngenhla.

Imvelaphi kanye nenhloso yalolucwaningo, nalolu lwazi nophawu lokwamukela ukuzibophezela ngichazeliwe ngalo ngolimi lwami engilizwayo.

Ngiyaqonda ukuthi:

1. Inhloso yalolucwaningo ukucwaninga Ngamaqhinga asetshenziswa Inyuvesi yakwaZulu ukuloba, ukusabalalisa nokuthola ulwazi lwezokudabuka lakuleli.

2. Inyuvesi yakwaZulu inikeze ngemvume kubenzi balolu cwaningo ukuba benze loluhlelo futhi ngiyibonile leyomvume/ngingacela ukubona isitifiketi semvume.

3. Ngokubamba iqhaza kulolucwaningo ngizonikezela iqhaza ngoku ngokuqwashisa umphakathi ngeyndaba ezithinta ukukhulelwa kwabantu abasha noma /

4. Ngizobamba iqhaza kulolucwaningo ngokuvuma ukuba yinhlenye yenhlolovo Kanye nokungqubuza amakhanda ngaloludaba.

5. ekuzimbandakanyeni kwami angizukubheka nzuzo futhi akukho lapho engizotholakala ngihoxa ocwaningweni, umakwenzeka ngeke kube nemiphumela emibi ocwaningweni.

6. Mina angizikunxephezelwa ngokuzimbandakanya kwami kulolucwaningo, kodwa izindleko eziphume kwelami iphakethe zizokhokhelwa. **(uma kukhona isinxephezelo nikeza imininingwane).**

7. kuzoba nezimo ezibucayi ekuzimbandakanyeni kwami kulolucwaningo, ngiyaqonda ukuthi:

   a. lobu bungozi obulandelayo kuxhumene nokuzimbandakanya kwami : Ukuzwakalisa umbonowami ngaloludaba kungangivusela umuzwa ongamuhle mayelana nokuba umama osemncane

   b. lezi zitebhu ezilandelayo zithathwe ukuzivikela ubungozi:

      Umcwaningi uzobuyekeza impumela yemizwa yokuzimbandakanya kwami kulolucwaningo.

   c. angu 10% amathuba okuvela kobungozi.

8. umphequlili uzoshicilela imiphumela yalolucwaningo ngihlelo lwamaathicle kuma jenali

   Nokho, ubhalomfihlo, nofihlo-gama lwemininingwane izobe igciniwe nokuthi igama lami nobutho kwami angeke kubonakaliswe kunoma yimuphi umuntu obengeyona inhlangano yocwaningo.

9. angeke ngiyamukele imiphumela/ngizoyamukela imiphumela engaloluhlelo lovukhuluma kwami ngiqoshiwe emayelana nemiphumela etholakale ngesikhathi sesifundo.

10. eminye imibuzo ephathelene nalolucwaningo noma mayelana nokuzimbandakanya kwami ingaphendulwa ngu Simiso Cebo Buthelezi ku 079 555 7186 **(bhala igama nemininingwane yokuxhumana)**

11. ngokusayina lamafomu angiqubuli ubuthi noma amalungele kwezomthetho

12. ikhophi enolwazi oluphelele nophawu lokwamukela ukuzibophezela kwami ngizonikezwa, bese okungungqo kuyasayinwa.

Mina……ngikufundile lokhu okubhalwe ngenhla/ngiyavuma ukuthi ngiyakuqonda okuqukethwe nokubhaliwe. Ngiyibuzile yonke imibuzo engifuna ukuyibuza, futhi yaphendulwa ngendlela engenelisayo. Ngiyayoqonda kahle ukuba kulundelekile ini kimi kulolucwaningo. Angiphoqwanga nakancane ukubamba iqhaza kulolicwaningo.

....

Isishicilelo kobambe iqhaza usuku

APPENDIX C:

Schedule of research questions
University of Zululand

Faculty of Humanities and Social Sciences

Department of Information Studies

I am Simiso Cebo Buthelezi from the University of Zululand in the Department of Information Studies. I am a Masters student conducting research titled: ***The Strategies Used by The University of Zululand in Documenting Disseminating and Accessing Indigenous Knowledge.*** I would kindly like to request for your co-operation in participating in the interview pertaining this study. I assure you that confidentiality, anonymity and privacy would be taken into consideration.

Section A

Demographic information:

1. What is your faculty?

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   ……

2. What is your department?

   ……
   ……

3. What is your rank e.g., lecturer, librarian etc.?

   ……
   ……..

4. What is your highest academic qualification?

   ……
   …….

5. What is your gender?

   ……
   …….

6. What is the range of your age? 18- ☐ 29 30- ☐ 39 40- ☐ 49 50- ☐ 59 60-69 and ☐ above
7. Other responsibilities?

   ……

   ……..

Section B

Please comment regarding the documentation and sharing of IK in the University of Zululand:

8. Are you and your department involved in the creation of IK in the University of Zululand?

   ……
   ……

9. If yes, what area of IK is your department focusing on?

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10. Please explain how IK is created in your department.

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11. Are you aware of any documentation/recording of IK related content done in the University of Zululand?

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    ……

12. If yes, kindly comment on your knowledge and awareness on documenting IK in the University of Zululand.

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13. Once the documented IK is done, how do you make sure that the university community access it?

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14. Have you ever accessed IK related document(s) in the University of Zululand?

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15. If yes, what type of content of IK did you access?

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16. How did you access the content of IK you mentioned above?

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17. Have you ever shared IK related information in the University of Zululand?

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18. If yes, please explain how you shared the IK content in the university?

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19. Are there any challenges you are experiencing in the documentation and disseminating of IK?

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20. If yes, please comment on the challenges that you are experiencing in documenting, disseminating, and accessing IK?

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21. How do you tackle/solve the challenges you are experiencing in documenting and disseminating of IK?

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22. What strategies need to be developed for documenting, disseminating and accessing IK by the University of Zululand?

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23. Please share with us any other comments/information concerning IK documentation and access in University of Zululand.

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……..

Thank you for your co-operation

APPENDIX D:

Uhlelo lwemibuzo ngocwaningo
University of Zululand

Faculty of Humanities and Social Sciences

Umnyango we Information Studies

Ngingu Simiso Cebo Buthelezi, esikhungweni sakwaNgqondonkulu yakwaZulu, emnyangweni wokufunda ngolwazi. ngingumfundi owenza iziqu zeMasters noqhuba ucwaningo olusihloko sithi: ***UCWANINGO NGAMAQHINGA/AMACEBO ASETSHENZISWA YISIKHUNGO SEMFUNDO EPHAKEME YAKWANGQONDONKULU YAKWAZULU MAYELANA NOKULOTSHWA, UKUSATSHALALISWA KANYE NOKUCOBELELANA NGOLWAZI LWESINTU***. Ngokuzithoba, ngithanda ukukucela ukuba ubambe iqhaza kunhlololwazi oluphathelene nalolucwaningo. Ngiyathembisa ukuthi ulwazi ozolwethula luzosetshenziselwa lolucwaningo kuphela, futhi luzoba yimfihlo phakathi kwami nawe nabaphathelene nalolucwaningo kuphela.

ISIGABA A

Imininingwane mayelana nawe:

1. Umnyangokazi (Faculty) ovela kuwona?
   ……
   ……
2. Umnyango wakho wezemfundo?
   .....……
   ……

3. Umsebenzi owenzayo isibonelo: uMfundisi, uSomtapo wolwazi nokunye?

   ……
   ……

4. Izinga lakho eliphakeme lezemfundo?……

5. Ubulili bakho?.....

6. Isigaba seminyaka yakho iqala kuyiphi iya kuyiphi iminyaka kanje? 18-29☐ 30-39 ☐ 40- ☐ 49 50- ☐ 59 60- ☐ 69 nanga ☐ phezulu

7. Okunye okwenzayo emsebenzini wakho?

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ISIGABA B

Ngicela uchaze kafuphi mayelana nokulotshwa nokucobelelana kolwazi lwesintu lapha esikhungweni sakwaZulu:

8. Ingabe wena nomnyango wakho niyazibandakanya nokukhiqizwa kolwazi lwesintu lapha esikhungweni sakwaZulu?
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9. Uma impendulo yakho yombuzo ongenhla kungu Yebo, imuphi umkhakha obhekene nawo kwezolwazi lwesintu?

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10. Ngicela uchaze ngamafuphi ukuthi iyiphi indlela eniyisebenzisayo wena nomnyango wakho ekukhiqizeni lolu lwazi?

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11. Ingabe unalo ulwazi mayelana nemininingwane yoku lotshwa/nokuqoshwa kolwazi lwesintu lapha esikhungweni sezeMfuno ephakeme yakwaZulu?
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12. Uma impendulo yakho yombuzo ongenhla kungu Yebo, ngokuzithoba ngicela ubeke kafushane mayelana nokwaziyo ngokulotshwa kolwazi lwesintu lapha esikhungweni sakwaNgqondokulu yakwaZulu?
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13. Ngicela ukwazi ukuthi uma lolu lwazi selulotshiwe, niqinisekisa kanjani ukuthi luyatholakala emphakthini owakhele noma wasesikhungweni sakwaZulu?
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14. Wake walubheka lolulwazi lwesintu lapha esikhungweni sakwaZulu?
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15. Uma impendulo yombuzo ongenhla kungu Yebo, iyiphi ingxenye yolwazi owayibheka?
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16. Iyiphi indlela oke wacobelela noma nacobelelana ngayo lolu lwazi lweSintu oluchaziwe ngenhla?
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17. Wake wacobelelana nomunye umuntu lolulwazi oluphathelene neSintu?
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18. Uma impendulo yakho yombuzo ongenhla ingu Yebo, iyiphi indlela enicobelelana ngayo?
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19. Ingabe zikhona izingqinamba obhekana nazo ekulotshweni nasekusabalaliseni lolu lwazi lwesintu?
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20. Uma impendulo yakho yombuzo ongenhla ingu Yebo, ngicela uphefumule ngalezi zingqinamba zokulolotshwa, ukusabalilisa noku cobelelana kolwazi lwesintu?
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21. Ingabe iziphi izindlela oxazulula ngazo lezizingqinamba ohlangana nazo uma kulotshwa, kusatshalaliswa noma kucotshelelwana ngalolulwazi lweSintu?
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22. Ngokwakho, imaphi amaqhinga noma amacebo isikhungo semfundo ephakeme sakwaZulu esingaqhamuka nawo ekusizeni ekulotshweni, ekusabalaliseni nasekucobelaneni lolu lwazi lweSintu?
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23. Bengicela ucobelelane nami eminye nje imininingwane ephathelene nokulotshwa, ukusabalalisa kanye nokucobelelana ngalolulwazi lweSintu lapha esikhungweni esiphakeme semfundo sakwaZulu?
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Ngiyabonga

APPENDIX E: UNIVERSITY OF ZULULAND ETHICAL CLEARANCE CERTIFICATE

UNIVERSITY OF ZULULAND
RESEARCH ETHICS COMMITTEE
(Reg No: UZREC 171110-030)

RESEARCH & INNOVATION
Website: http://www.unizulu.ac.za
Private Bag X1001
KwaDlangezwa 3886
Tel: 035 902 6324/6374
Email:MangeleS@unizulu.ac.za/
MzamoM@unizulu.ac.za

ETHICAL CLEARANCE CERTIFICATE

Certificate Number	**UZREC 171110-030 PGM 2018/503**							
Project Title	**The strategies used by the University of Zululand for documenting, disseminating and accessing indigenous knowledge**							
Principal Researcher/ Investigator	S.C Buthelezi							
Supervisor and Co-supervisor	Prof D.N Ocholla		Dr P.N Dlamini					
Department	Information Studies							
Faculty	Arts							
Type of Risk	Medium Risk- Data collection from people							
Nature of Project	Honours/4th Year		**Master's**	x	Doctoral		Departmental	

The University of Zululand's Research Ethics Committee (UZREC) hereby gives ethical renewal approval in respect of the undertakings contained in the above-mentioned project. This approval is extended for another 1 year. The Researcher may therefore continue with data collection as from the date of this Certificate, using the certificate number indicated above.

SPECIAL CONDITIONS: **(1) This certificate is valid for 1 year from the date of issue.**
(2) Principal researcher must provide an annual report to the UZREC in the prescribed format [due date- 10 March 2023]
(3) The UZREC must be informed immediately of any material change in the conditions or undertakings mentioned in the documents that were presented to the meeting.
(4) Under the Protection of Personal Information Act, 04 of 2013 ("POPIA"), researchers have a general legal duty to protect information they process. They must ensure the security and protection of any personal information processed through the research and provide a compliant and consistent approach to data protection. The information collected via interviews must be for research purposes only. No personal information such as opinions, views and academic background may be linked to the respondents' identity or shared with anyone for marketing purposes or otherwise.

The UZREC wishes the researcher well in conducting research.

Prof. Nokuthula Kunene
Chairperson: University Research Ethics Committee
Deputy Vice-Chancellor: Research & Innovation
17 March 2022

CHAIRPERSON
UNIVERSITY OF ZULULAND RESEARCH ETHICS COMMITTEE (UZREC)
REG NO: UZREC 171110-030
17-03-2022
RESEARCH & INNOVATION OFFICE

DLAMINI, P. & OCHOLLA, D. N. 2018. Information and communication technology tools for managing indigenous knowledge in KwaZulu-Natal Province, South Africa. *African Journal of Library, Archives & Information Science,* 28**,** 137-153.