Indigenous Women Moving From Physical to Digital Fires: The Evolution of Methods of Transmission of Indigenous Knowledge

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Declaration

I, Khanyisile Yolanda Ntsenge, declare that this report is my own, unaided work. It is being submitted for the degree of Master of Arts in the field of e-Science at the University of the Witwatersrand, Johannesburg. It has not been submitted for any degree or examination at any other university.

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Abstract

In response to the threat of extinction of indigenous knowledge, there has been a growing number of people, a significant amount of whom are women, interested in the preservation of indigenous knowledge systems who have begun to use social media platforms such as Twitter and YouTube and the indigenous method of storytelling to share indigenous knowledge. The aim of the study is to understand how the introduction of the social media platforms Twitter and YouTube has changed the community structures for sharing indigenous knowledge in physical versus social media communities.

The research is informed by a postcolonial indigenous and indigenous feminist approach and employs transformative participatory research in its methodology. Indigenous women in physical communities participated in the research while accounts owned by indigenous women on Twitter and YouTube were analysed. A social network analysis was conducted on both the physical communities data and social media data. Sentiment analysis was conducted on the social media data.

The results show that the network of communities while both anchored by indigenous women have different structures. The physical communities were very tight-knit with members of the networks learning and sharing indigenous knowledge amongst each other thereby potentially reinforcing their knowledge. The social media communities were mainly connected only to the main account and members rarely engaged with each other. The sentiment analysis found conversations in the social media networks to be significantly positive with the highest scoring emotion being that of trust.

The research has shown that although women play an important role in the sharing of indigenous knowledge in both physical and online communities, the community network structures differ. It also evidenced that there is a space and appetite for conversations on indigenous knowledge on social media. Furthermore, as they are in physical communities, women continue to be important custodians of indigenous knowledge and are trusted to share credible indigenous knowledge. This presents opportunities for further exploration on how to leverage social media platforms to mainstream indigenous knowledge while amplifying the voices of indigenous women as custodians of indigenous knowledge.

Keywords: Indigenous knowledge, indigenous women, social network analysis, sentiment analysis, Postcolonial Indigenous Research Paradigm, Postcolonial Indigenous Feminist Theory

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To my father, Vusi Daniel Thabede, thank you. To my partner, Siyabonga Ngubane who would sigh when I would say "When I submit my Masters paper I will have more time for...", thank you.

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1 Introduction

South African indigenous communities like many other indigenous communities across the continent of Africa and the world have traditionally and historically had very strong oral traditions. Traditions, cultures, ways of knowing and doing in indigenous communities the world over have found their preservation through communal functions such as cooking, cleaning, hunting, ceremony and other daily functions of survival (Aikenhead & Ogawa, 2007; Khumalo & Baloyi, 2017; Lillejord & Søreide, 2009; Oyebade, 1990). Indigenous knowledge has also been kept alive through song, dance, intentional teaching and storytelling around the fire (Aikenhead & Ogawa, 2007; Khumalo & Baloyi, 2017; Lillejord & Søreide, 2009; Oyebade, 1990). With the forceful introduction of colonialism to indigenous communities which led to the destruction of indigenous communities, migrant labour and urbanisation mandated by circumstance, the knowledge systems of indigenous communities have found themselves threatened with extinction as families and communities became fragmented (Akena, 2012).

In addition to being threatened by issues of urbanisation and fragmentation of indigenous communities, indigenous knowledge and indigenous knowledge systems face the challenge of being perceived as largely oppressive to indigenous women (Norwood, 2013). A position largely framed through Western feminist theory and gender studies that has found itself applied in many development programmes. Western feminism frames indigenous women as powerless victims of patriarchy without agency within indigenous relational worlds (Chilisa, 2012). It would be dangerous and counterproductive to women empowerment to deny the firmly entrenched patriarchal systems that exist in many indigenous communities in South Africa. However, it is also important to bring prominence to the many systems within indigenous knowledge systems that position the woman as an agent with agency and indeed power within her community.

In response to the threat of extinction of indigenous knowledge, there has been a growing number of people - a significant amount of whom are women - and institutions interested

in the preservation of indigenous knowledge systems who have begun to use social media platforms such as YouTube and Twitter to share indigenous information and knowledge. Examples include YouTube channels such as "AmaKhosi ase Mhlangeni", "Camagu" "Vusilanga lase Lenge", "Ngaka Tloukgolo", "AfroHub by Siphokuhle Booi" and on Twitter "@indiZAFoods", "@ikhwelohealers" and "@ntombiyamanzi". Through this method of transmission, indigenous knowledge has found new ways of reaching urbanised indigenous people who may have been alienated from their indigenous communities but remain willing and receptive to learning about and preserving indigenous knowledge systems.

1.1 Research Question, Aim and Rationale

Below is an outline of the research question, the aim of the research as well as the rationale for the research.

1.1.1 Problem Statement

Indigenous women are often overlooked in the custodianship and preservation of indigenous knowledge even though they have and continue to be key in the preservation of indigenous knowledge in communities. As communities transition to using social media platforms to share and acquire some indigenous knowledge - due to various factors including urbanisation, an increase smart phone cellphone device usage and an interest in gaining varied knowledge on the topic - indigenous women have also done the same. On social media platforms indigenous women form communities that gather for the purposes of sharing and acquiring indigenous knowledge.

The literature review conducted for this study found no study that has sought to understand how indigenous women engage with issues on indigenous knowledge on social media platforms. Studies to understand the make-up of the communities around them and how these have changed or remained the same as they transitioned from physical to digital spaces and to understand the nature of the conversations by members of these communities were also not found.

1.1.2 Aim

The aim of this observational research is to understand how the introduction of the social media platforms Twitter and YouTube has changed the way in which indigenous women share indigenous knowledge, compared to how it has historically been shared offline among physical indigenous communities.

1.1.3 Research Questions

This study sought to answer the following questions:

1. What is the make up of networks of transmission of indigenous knowledge on the social media platforms YouTube and Twitter as well as in physical communities in South Africa?
2. What role do indigenous women play in the transmission of indigenous knowledge both on and offline?
3. What are the sentiments of the conversations on indigenous knowledge?

1.1.4 Objectives

The intended outcome of carrying out this study was to:

- Understand the role of indigenous women in the sharing of indigenous knowledge on and off the social media platform Twitter and YouTube in South Africa.
- Understand the structure of the community of relationships that share indigenous knowledge both off and on the social media platforms Twitter and YouTube.
- Understand, where possible, the sentiments towards indigenous knowledge topics by the communities who engage on the topics.

1.1.5 Rationale

The research study is useful and necessary in South Africa as communities and the state grapple with ways of preserving and sharing indigenous knowledge in an an urbanised modern world, and where communities struggle to preserve indigenous knowledge through traditional methods. The research is expected to understand alternative ways of sharing and preserving indigenous ways of knowing and doing through social media platforms. The research focused on the use social media platforms Twitter and YouTube in South Africa because these platforms, in addition to other social media platforms, have created a platform for previously marginalised groups to bring into public discourse issues that affect their daily lived experiences as well as bring about a 'change in psyche' (Beukes, 2017; Bosch, 2017).

The study is also expected to bring to the fore the centrality of the role of indigenous women in the sharing of indigenous knowledge in South Africa. The research will focus on indigenous women because the role of indigenous women in indigenous knowledge and indigenous knowledge research has largely been underestimated if not completely ignored. By focusing on indigenous women, the research expects that their true previously unexplored role in in the preservation and sharing of indigenous knowledge will be exposed revealed.

This study contributes to the field of eScience by broadening the areas that could potentially be researched through big data and statistical analysis. There has yet to be quantitative research in the indigenous knowledge field that uses big data and statistical analysis. While carried out in the pursuit of a degree in e-Science, the study is mainly a paper intended to contribute to research on indigenous knowledge and data science, and to assist in building the an argument within the field of indigenous knowledge.

1.2 Ethical Consideration

Ethical processes were followed for the study. For the in person interviews, consent was requested from individuals for their participation in the research. Where audio recordings were made consent was received prior to recording and at the beginning of recordings. Consent was also received to share the real names of participants and it was made clear to participants that they have the option to choose for their names to not be shared. In the case of the social media platforms, consent is complicated by the fact that it is physically impossible to gain consent from all the millions of users whose retweets, comments, likes and dislikes will be collected. To mitigate for this, the research relied on the privacy policies of Twitter and YouTube that all users opt into when using the platforms. In any case, Twitter and YouTube posts constitute information in the public domain, and is by implication, open for use.

Beyond consent there are other ethical considerations that informed the study. The research took into consideration how participants could potentially be harmed by the research and how to mitigate for this. The research process engaged in continued and constant self-reflection and self-questioning that promoted and privileged the right of the disempowered to be heard as outlined by Chilisa (2011). The research was be conducted under the name of the University of Witwatersrand. As such, the university ethics protocol was followed (of Witwatersrand, 2016). The ethics application was approved with Protocol Number: H21/05/37.

Key to this study is the participation and stories of participants whether shared through interviews or through social media posts. The knowledge shared in this paper is collaboratively created. The research collection process always took into consideration the role of those who participated in the study. A list of interview participants as well as social media handles is listed in Annexure E: Interview Participants and Social Media Accounts.

1.3 Language

Interviews, YouTube videos and Twitter posts were in three different languages; isiXhosa, isiZulu and English. The tools used in the analysis of the data had isiZulu and isiXhosa translations, therefore allowing for equal analysis across all languages.

1.4 Report Structure

The research report is structured into seven (7) chapters. The chapters are structured as follows:

- Chapter 1 - Introduction
- Chapter 2 - Literature Review
- Chapter 3 - Research Framework
- Chapter 4 - Research Methodology
- Chapter 5 - Results
- Chapter 6 - Discussion
- Chapter 7 - Conclusions and Recommendations

1.4.1 References and Appendixes

This section of the research will list all sources consulted in the processes of compiling the research. Annexes will also be added. .

2 Literature Review

2.1 Introduction

When discussions about indigenous knowledge are had, the tendency is often to position indigenous knowledge as a backward or regressed form of living than a modern evolved life by non-supporters (Ezeanya-Esiobu, 2019). By its supporters, indigenous knowledge and its systems can sometimes be romanticised and be regarded as something that should not be "contaminated" by modern ways of knowing and acquiring information (Briggs, 2005). It is often, then, not common to think of indigenous knowledge as a form of knowledge that can be associated with modern technology such as social media. In this way then, the opportunity to investigate and understand forms of partnering indigenous knowledge and technologies such as social media is often missed.

In South Africa, however, there has been efforts by indigenous knowledge holders and government to explore and use social media platforms as a means to share and reintroduce indigenous knowledge as a common way of knowing and living (Kaniki & Mphahlele, 2002). These platforms include popular social media platforms such as Twitter, YouTube, Facebook, WhatsApp and Instagram.

This chapter discusses indigenous knowledge, the South African governments attempts as mainstreaming indigenous knowledge, the introduction of social media in South Africa and how social media has played a role in shaping the psyche of South Africans with a particular focus on South Africans of African descent. The chapter also looks at existing research on the use of social media platforms for the preservation and dissemination of indigenous knowledge.

2.2 Defining Indigenous Knowledge

In understanding indigenous knowledge we need to first understand the concept broken down into the two terms that make it up.

Indigenous

Cunningham and Stanley (2003) argue that the term indigenous can be understood as definition, experience and world view. They state that indigenous tends to be defined by the experiences shared by a group of people who have inhabited a geographic area for thousands of years, which often contrasts with those of other groups who reside in the same country for hundreds of years (Cunningham & Stanley, 2003). Within legal discourse and in popular culture the word indigenous is taken to mean 'native' or 'originating or occurring naturally' (Shrinkhal, 2014). The International Labour Organisation's Indigenous and Tribal Peoples Convention (1989) (No. 169) defines indigenous peoples as those who "on account of their descent from the populations which inhabited the country, or a geographical region to which the country belongs, at the time of conquest or colonisation or the establishment of present state boundaries and who, irrespective of their legal status, retain some or all of their own social, economic, cultural and political institutions" (Organisation, 1989, p.1).

Shrinkhal (2014) argues that the notion of indigeneity can be understood from three perspectives; (i) chronological, (ii) relational and, (iii) normative. In the chronological sense, indigeneity relates to the length of time during which a people have inhabited a particular region. A relational approach looks at the social differences between one group as opposed to another in a particular region or geography. A normative approach understands people to be indigenous based on their common rootedness in their surroundings who entertain a custodial sense about their territory and resources and bound together by common moral bindings and entertain a sense of reciprocity and mutually reinforced by egalitarian ethos (Shrinkhal, 2014).

Wilmer (1993) defines indigenous in a broad sense as peoples:

1. With tradition-based cultures;
2. Who were politically autonomous before colonisations;
3. Who, in the aftermath of colonisation and/or decolonisation, continue to struggle for the preservation of their cultural integrity, economic self-reliance, and political independence by resisting the assimilationist policies of nation states.

Taking all definitions mentioned into account, indigenous can be said to be a collective term for a group of peoples who originate from and inhabit a particular geographic area and have continued to inhabit the area since precolonisation. The group must share some form

of collective identity and socio-political structures and continue to fight for the recognition and preservation of their collective systems of knowing and doing.

Knowledge

Knowledge as a concept is difficult to define, although many a scholar has attempted to do so. (Bolisani & Bratianu, 2018) argue that perception is not knowledge and that instead of being found in impressions it consists in reflection. This description is an extension of Plato's relational definition of knowledge where "knowledge is a result of a reasoning process and that our sensory experience plays no role" (Bolisani & Bratianu, 2018, p.2). Aristotle poses an opposing perspective to rationalism on the concept of knowledge. He argued that ideas and forms can not be separated from physical objects and sensory information (Bolisani & Bratianu, 2018). Horsthemke (2008) posits that in order for a person to be considered knowledgeable on "something *(p)* she has to *believe that p*, she has to be *justified in believing that p* (i.e. she has to be *in a position to know that p*, and *p* has to be *true*" (Horsthemke, 2008, p.34). These components in combination and never in isolation are considered essential in order to conclude that one is knowledgeable Horsthemke (2008). Therefore, knowledge is both theoretical and practical requiring one to know something in their minds but also be able to prove it true in relation to other people's knowledge.

Nitecki (1985) proposes a contextual definition of knowledge that is prescriptive, addressing the most effective use of actual empirical experiences. This refers to having knowledge in specific contexts. Therefore, one knows how to behave and relate with certain things based on their actual acquaintance with them and by understanding their observable causal relations (Nitecki, 1985). Nonaka and von Krogh (2009) propose that there is a distinction between tacit and explicit knowledge. They argue that knowledge is justified true belief in that individuals justify the truthfulness of their beliefs based on heir interactions with the world. Knowledge is (i) that actuality of skilful action. Secondly, knowledge is (i) the actuality of skilful action and/or (ii) the potentiality of defining a situation so as to permit skilful action (Nonaka & von Krogh, 2009). They also argue that knowledge is both tacit and explicit along a continuum. This type of knowledge has universal character supporting the capacity to act across contexts. This knowledge is accessible through consciousness (Nonaka & von Krogh, 2009). Implicit knowledge Nonaka and von Krogh (2009) argue is tied to the senses, tactile experiences, intuition movement skills, unarticulated mental models or implicit rules of thumb. They argue that "tacit knowledge is rooted in action, procedures, routines, commitment, ideals, values and emotions" (Nonaka & von Krogh, 2009, p.636).

Like Plato and Aristotle's definitions, definitions of knowledge often take an individualistic approach meaning that knowledge is understood only based on what one person knows and understands instead of a collective. Bird (2010) however did provide a definition for social knowledge. He argues that social knowledge must be produced in those socially sanctioned ways that generate social knowledge rather than just individual knowledge. He argues that social knowing is not dependent on individual knowledge, rather it exists in *parallel* with individual knowledge (Bird, 2010).

Taking all definitions into account and applied to indigenous knowledge it can be argued that communal knowledge is created through daily actions and values. Therefor indigenous knowledge can be viewed as communally constructed and existed in individual minds but finding meaning in communal structures.

Indigenous Knowledge

Having defined the words indigenous and knowledge separately above, the paper now seeks to define together as a concept of indigenous knowledge. In defining indigenous knowledge, this paper will look to global definitions of indigenous knowledge but will intentionally focus on African and as much as possible South African definitions of indigenous knowledge. This is because the analysis of this paper is limited to the current state of indigenous knowledge and social media in South Africa.

The word indigenous holds a particular definition on its own which evolves into a particular concept when combined with the word knowledge. Purcell (1998) states that the word indigenous has involved since the 1980s when it was used as a reference to a group of people defined by ancestral territory and common cultures. He argues that the combination of the words indigenous and knowledge has come to "signify a methodology, a social science perspective, and even philosophical and ideological positions, all of which rest on the recognition of the asymmetrical place of knowledge in the power relations historically constituted by the expansion of Europe" (Purcell, 1998, p.258).

Indigenous knowledge as a field of enquiry has grown in recent years as an act of empowerment by indigenous people as well as constitutes part of a challenge to Western thinking and conceptualisation (Horsthemke, 2008). Battiste (2005) argues that indigenous knowledge has always existed since the first humans on earth, however it was systematically relegated into obscurity by contemporary educational institutions from Eurocentric knowledge systems. Eurocentric perspectives tend to not acknowledge the extent to which indigenous communities have their own knowledge holders and workers (Battiste, 2005).

Indigenous knowledge systems are the sum total of knowledge and skills possessed by a people found in a particular geographic region. They evolve over time and represent generations of creative thought and actions within individual societies in an ecosystem of continuous residence. They allow people to benefit from the environment (Kaniki and Mphahlele, 2002). More than just knowledge and skills, indigenous knowledge is a worldview, a way of knowing, doing and living (Aikenhead & Ogawa, 2007; Barnhardt & Oscar Kawagley, 2005). Akena (2012) states that "indigenous knowledge is a complex accumulation of local context-relevant knowledge that embraces the essence of ancestral knowing as well as the legacies of diverse histories and cultures" (Akena, 2012, p.601). Akena (2012) argues that research on indigenous knowledge should seek to systematically undo the historical power relations that sought to subjugate and relegate indigenous knowledge to inferiority, superstition and backwardness.

Traditionally, elders in individual families would tell stories after supper and recite proverbs based on the customs of a particular ethnic group as a means to pass on indigenous knowledge (Kaniki and Mphahlele, 2002). Oral tradition has often been looked down upon compared to written tradition. Owusu-Ansah and Mji (2013) argue that because of its oral nature, indigenous knowledge has been looked down upon because it is people-centred and sometimes not so easily 'measurable' "...it easily mistaken to be simplistic and not amenable to systemic scientific investigation" (Emeagwali, 2003 in Owusu-Ansah and Mji, 2013, p.2). Bruchac (2014) argues that oral traditions can blur the lines of narrative and performance in that they are both product and process, object and experience and these traditions are community memories, regularly recounted and periodically verified by knowledgeable elders. This can be considered as both positive and negative. Positive in that it allows for indigenous knowledge to constantly evolve. Negative in that indigenous knowledge can be viewed as lacking rigor and difficult to define and test.

Indigenous knowledge has also been passed on through observation, participation and doing in addition to oral transmission (Kaniki and Mphahlele, 2002). "It's rich complexities are found in the community ceremonies and rituals, namely, story-telling, proverbs, folktales, recitation, demonstration, sport, epic, poetry, reasoning, riddles, praise, songs, word games, puzzles, tongue-twisters, dance, music, and other education-centered activities" (Ngara 2007 in Owusu-Ansah and Mji, 2013, p.2). However, the acquisition of indigenous knowledge is largely determined by demographic factors such as age and gender, thereby creating power dynamics that can affect the quantity and quality of information received (Magni, 2017).

The South African state has made efforts over decades to recognise indigenous knowledge. Some of those efforts culminated in the enactment of the Protection, Promotion, Development and Management of Indigenous Knowledge *Act No.6 of 2019* which seeks to amongst others, provide for access and conditions of access to knowledge of indigenous communities (of South Africa, 2019). The government through the National Research Foundation funded research in the field of Indigenous Knowledge Systems (Foundation, 2018). In 2015 South African university students launched the #RhodesMustFall and #FeesMustFall movements which, amongst others, called for the decolonisation of the South African education system by grounding the education system in indigenous knowledge systems (Ahmed, 2017; Ndelu et al., 2017; Ndlovu-Gatsheni, 2018). However there exists research and examples of the apparent lack of will at the state level, in institutions of formal learning and other areas of society to mainstream indigenous ways of knowing and doing. According to Khupe (2020) "The pervasiveness of Western knowledge and ways of thinking often results in rejection of Indigenous knowledges and cultures even by Indigenous teachers and communities, who tend to view IK-based curricula as counter-developmental and as taking students backwards" (Khupe, 2020, p.462). The literature therefore shows big gaps in state efforts to mainstream indigenous knowledge as part of formalised socio-political and economic structures even as the need to do so exists.

Horsthemke (2004) critiques indigenous knowledge by arguing that definitions of indigenous knowledge often propose a homogeneous African identity. Horsthemke (2008) argues that there is no single African knowledge system and proposing that there is undermines multiculturalism. Indeed, indigenous knowledge systems are not homogeneous as they are dependent on geography, language, tribes and many other factors that lead to their complexity. However, there are common threads as defined previously when defining the concept of indigeneity which understands indigeneity to be premised on geography and collective identity of a group of people which is premised on knowledge of ways of knowing and doing.

Ubuntu

Ubuntu is a concept that exists as a recognition of collective existence of values instead of individual values (Nxumalo & Mncube, 2018). The concept of Ubuntu, originating in Africa, is a sociological ideology that conveys "the basic interconnection of human presence and is subordinate to care and collective values, harmony and friendliness, respect, and responsiveness" (Bhuda & Marumo, 2022). Ubuntu as a concept of collectivism is useful in the understanding of indigenous knowledge knowledge creation, disemination and preservation because it is fundamentally a collective, communal effort.

2.2.1 Indigenous Knowledge and Women

Many a feminist writer and gender theorist have highlighted as key to indigenous women's oppression in African culture, tradition and indigenous knowledge systems, these being framed as inherently patriarchal and oppressive to women. For example, Norwood, 2013 argues that in South Africa, patriarchy is deeply rooted in culture and tradition. Akala, 2018 asserts that a majority of indigenous cultures often promote patriarchy and sexism. In her paper on the proverbial oppression of women in Yoruba African culture, Oladele Abiodun (2010) argues that the oppression of women in Yoruba culture on matters of language and gender relations is more pronounced than that of men. Kobo, 2016 reflects on the dislocation of black women from what is perceived to be black men's sites in a patriarchal society. However, Hutson (2007) argues that in the pre-colonial period in what we now consider South Africa women held a high status and authority within communities due to a reliance on agriculture, an area which was the domain of women.

It was with the advent of colonialism, apartheid, industrialisation and urbanisation that women's authority diminished in the community. It was through apartheid land laws that women were reduced to being the responsibility of men and indigenous communities were stripped of their land rights (Hutson, 2007). Fernandez (1994) argued that depending upon the culture some types of knowledge need both female and male knowledge systems in order to understand a particular dimension of production and decision making. Department of Science and Technology South Africa (2005) states in its policy document on Indigenous Knowledge Systems that "in many communities women are the primary natural resource managers and... they possess profound knowledge of the environment... in circumstances of rapid change... women play a crucial role in maintaining livelihoods, cultural continuity and community cohesion" (Department of Science and Technology, 2004, p.20). As an example, Mndende (2021) illustrates how Xhosa women are protectors and implementers of indigenous tradition by being key to practices of rites of passage including initiation and marriage.

Males (including fathers and other fatherly figures) have and continue to be viewed as moral teachers and gender role models, especially for male children (Lamb, 1981). The male adults are usually the ones who are expected to and do closely guide the character development of boy children (Mhlawuli, 2016). Fathers are also seen as the carriers of family lineage and determine the social and structural systems of a family (Mhlawuli, 2016). However, women also play a critical role in the development of character for both boy and girl children. Women play a critical role in the preservation of culture and maintaining the

social fabric of the family and community, whether it is explicitly recognised or not in society. The study therefore explores the role that women play in the preservation of traditional knowledge.

2.2.2 Social Media

Blaut (1993) states that Eurocentric thought sees indigenous knowledge and its systems as monolithic, incapable of evolving and progressing, and indigenous peoples as frozen in time, and guided by systems that reinforce the past and do not look towards the future. Battiste (2005) argues that to date Eurocentric scholars have taken three main approaches to indigenous knowledge.

1. They have tried to reduce it to taxonomic categories that are static over time.
2. They have tried to reduce it to its quantifiable, observable empirical elements.
3. They assumed that indigenous knowledge has no validity except in the spiritual realm.

However, it has been observed that just like any other type of knowledge, indigenous knowledge is subject to change from economic, environment and social forces (Owusu-Ansah & Mji, 2013). And in the world of technological tools of communication, indigenous knowledge has been seen to adapt to these new platforms for information sharing. Where previously indigenous knowledge was mostly shared within physical communities which limited the rate at which it is diffused, it is now also shared on social media platforms that allow for a wider sharing of indigenous knowledge.

Literature that seeks to understand the usefulness of digital tools and in particular social media has shown the usefulness of these tools in the preservation and sharing of indigenous knowledge. Kaniki and Mphahlele (2002) propose knowledge management methodologies and principles to generate, share and reuse knowledge. Dlamini and Ocholla (2007) explore the different ways information and communication technology has been employed to share and preserve indigenous knowledge. They state that information and communication technology tools used for preserving and disseminating indigenous knowledge are inclusive of social media such as Facebook and Twitter with a very high likelihood of effectiveness for beneficiaries in both preserving and disseminating information.

Ngugi wa Thiong'o states that indigenous knowledge should not only be seen as an "alternative" knowledge but as one domain of knowledge among others (Thiong'o, 1992). Thiong'o's view on indigenous knowledge could be applied to how indigenous knowledge

is viewed on social media platforms such as YouTube and Twitter. Twitter is generally used for information sharing purposes and a more frequent overtime usage of Twitter results in an increase in social knowledge (Boukes, 2019) as defined above as social knowledge. Boukes also found that Twitter's positive effect on knowledge acquisition is equally strong for those interested in a topic and those not interested in a topic. This means that by consuming information on Twitter, one is likely to gain knowledge whether they are passionate about the information they are reading or not. The proposed research will seek to understand the spread of indigenous knowledge related information on Twitter and YouTube and with the assumption that the information acquired is retained.

As an internet-based platform, Twitter is subject to some of the characteristics of the trends of internet use in South Africa. According to Statista, 36.54 million people currently use the internet in South Africa (Media, 2020. New Media states that 51.40% of those internet users are female aged 25-29 years at 15.73%, followed by 20-24 year olds at 14.56% (Media, 2020).

A study of Twitter use in the United Kingdom found out that, Twitter has a generally younger population with a mean age of 34 years old (Mellon & Prosser, 2017). Twitter users were found to generally be more formally educated than the general population and generally had more male users than female users. However, the number of female users has significantly increased since its introduction. Twitter users were also found to be more politically attentive than non-users. In the United States Twitter users were significantly overrepresented in populous counties (Mislove et al., 2011). For this study, one would assume that social media users who are focused on indigenous knowledge are likely to be in cities. They also found that Twitter had more male users than female due to a bias in early Twitter adopters although the bias is reducing over time. The 2016 Social Media Update by the Pew Research Centre found that younger Americans are more likely to be on Twitter and that Twitter is more popular among the college educated (Greenwood et al., 2016). Twitter therefore is more likely to be a source for obtaining indigenous knowledge for those living in urban areas who would ordinarily be less exposed to indigenous knowledge.

Another social media platform with a powerful influence on society in South Africa is YouTube. YouTube was originally created as a video sharing service for everyday users in 2005 but has grown into a medium for the sharing of news and educational content, an into a massive marketing communication generating conduit (Duffett et al., 2019; Pathak et al., 2015; Roodt et al., 2014). YouTube has, as native to the platform, user-generated content which has been found to be a valued alternative to professionally shot videos (Arthurs et al., 2018) therefore creating a participatory culture. As a video-sharing site, YouTube has

become both an accidental repository of billions of videos and, more deliberately, a film and video archive (Soukup, 2014) making it suitable as a possible site for the preservation of indigenous knowledge.

An obvious issue with using digital methods in South Africa is internet penetration and data costs. 36% of South Africans were unconnected to the internet as of January 2021, while only 1.2% of rural households had internet at home (Briggs, 2021). In locating indigenous knowledge on platforms that require data for access, there is an inevitable risk of excluding a large majority of indigenous and non-indigenous people who cannot afford the high data costs found in South Africa. 47.9% of South African social media users are 25-34 year olds, while 40.4% of users were 18-24 year olds (Media, 2020). 61.7% of Twitter users are male while 38.3% are female (Media, 2020). In 2020, the third most visited site in South Africa was YouTube (Media, 2020). In his network analysis on the major communities of Twitter, Beukes concluded that Twitter largely remains the domain of Black and White middle classes but has seen a large inclusion of black political commentators (Beukes, 2017).

2.3 Social Network Analysis and Sentiment Analysis of Social Media Data

Struweg (2020) presented the potential to use graph theory in a less studied social media research cluster. The study analysed tweets of the Twitter hashtag NHI immediately after the National Health Insurance bill was announced by the government in South Africa. Through the analysis, Struweg (2020) was able to identify the data dispersion and network structure of #NHI on Twitter. In the network structure, she was able to identify the influencers and gatekeepers.

The paper by Grandjean (2016) titled "A social network analysis of Twitter: Mapping the digital humanities community" shows how social network analysis can be applied to Twitter data to identify users who participate as members of a particular community. Through analysing the digital humanities movement on Twitter, Grandjean (2016) argues that it is possible to highlight the structure of the network's relationships and identify users whose position is particular. Grandjean concludes that linguistics is a key factor that determines the clustering of members within a particular network and this trend is similar to a small world. A small world network is one where on average any two people in the network can reach each other through a short sequence of acquaintances (Uzzi & Spiro, 2005). Cheong and Cheong (2011) used social network analysis to analyse Twitter data focused on the

2010-2011 Australian floods. The analysis identified the communities that formed around the sharing of information on the floods including who the most influential users were as well the resources shared.

Similarly, Bosch (2017) also sought to understand network structures around the hashtag Rhodes Must Fall (RMF) but in this case looking specifically at community-building processes of the #RMF group as a political movement. Bosch argues that Twitter's communities formed by youth around the topic of #RMF was central in facilitating easy connection or disconnection from the particular movement without having to formalise membership to a politically organised group. Twitter also allowed for the creation of collective memory through challenging existing memories around Cecil John Rhodes. Bosch argues in her paper that the "#RMF campaign could also be seen as a collective project of resistance to normative memory production, creating a new landscape of 'minority' memory and bringing to the fore the memory of groups that have been rendered invisible in the landscape and in doing so speaking to a different interpretation of historical events" (Bosch 2016, p.2). Social network analysis is therefore useful in the understanding the network structures of whole communities on social media platforms such as Twitter. These studies were conducted in fields outside of indigenous knowledge however they illustrate the potential for the use of social media data for understanding different areas of research interests.

There have been many research papers published where social network analysis has been applied to hashtag related Twitter data looking at communities created around a hashtag or topic where one is able to identify the most influential users and gatekeepers and other social network metrices. This is a whole or global network analysis approach where an attempt is made to find all relations within a network (Otte et al., 2002). While this whole network approach to social network analysis is useful for social network analysis of Twitter hashtag communities, it is challenged by the phenomenon of hashtag hijacking which is the malicious misuse of a hashtag for purposes such as signal boosting unrelated content (Mousavi & Ouyang, 2021; VanDam & Tan, 2016). When hashtags are hijacked, irrelevant communities are created, leading to false conclusions about community structures. The whole network approach is also not ideal for social network analysis on YouTube and interview data, as this data tends to be egocentric in nature. Egocentric network analysis is able to analyse community structures that are anchored on an individual entity.

Djomba and Zaletel-Kragelj (2016) analysed egocentric social networks in public health research. They used interviews to collect data from an ego and members of her/his social network as the alteri and were able to determine the size, composition and structure of the

egocentric social network. Felsher et al. (2021) found that women were more likely to share pre-exposure prophylaxis (PrEP) information with peers allowing for the diffusion of information on PrEP among a network structure. PrEP is medication used to prevent human immunodeficiency virus (HIV). Both of these studies used qualitative methods, specifically interviews and questionnaires, to understand the network structures of communities. Edwards (2010) argues that qualitative approaches generate a range of narrative, observational and visual data on social networks. While the data is collected in a qualitative manner, the analysis may be conducted quantitatively thereby resulting in a mixed methods approach to data collection and analysis. Conti and Doreian (2010) used a combination of ethnographic and social network analysis techniques to understand the creation of relationships between recruits in a socialisation process on a longitudinal basis. Indigenous knowledge data collection methods are predominantly qualitative in nature. These studies show how qualitative and quantitative data collection and analysis methods can be applied together for the purposes of social network analysis.

Campisi (2019) analysed the use of the social networking sites Twitter, YouTube and Facebook by gang members to recruit potential gang members. Through sampling 23 Twitter users, 36 Facebook users and 10 YouTube rap videos created by gang members and conducting a network analysis on this data. The research was able to ascertain the influence of gang members as well as demonstrate their centrality in online gang communities. Akrouf et al. (2013) conducted a social network analysis of information propagation on the social network sites YouTube and Flickr that sought to understand the influence of an initial set of nodes (egos) on the diffusion of information in a network. The study found that information spreads farther through explicit connections rather than through implicit relations.

Mogallapu (2011) sought to understand the structure of the video blogger network on YouTube found that the video blogger community on YouTube revolved around a few central people in the network, making those people key influencers in the network. Complementary to Mogallapu, Warmbrodt et al. (2008) found, in their analysis of video blogger communities, that the structure of the communities of video bloggers has a core/periphery structure indicating that no individual or small group of individuals has a communication advantage on everyone else.

The Campisi (2019), Akrouf et al (2013) and Mogallapu (2011) studies then show the usefulness of egos in communities as first anchors for the creation of communities. However even though the ego node might be the first to share information the community around the ego

is not solely dependent on the ego to share information and can freely do so facilitating the faster sharing of information.

In an effort to understand social network structures, it is also useful to understand the sentiments present in the structures. Loucif et al. (2018) argue that to exploit the best features of the existing social network analysis research needs to add a semantic analysis layer of social networks. Through content analysis, the thesis by Campisi (2019) found that the prominent type of *cyber-ganging* is content that promotes gang ideologies. Bermingham et al. (2009) conducted research where they combined social network analysis and sentiment analysis to explore the potential for online radicalisation. Through the combination of the two they were able to find patterns of correlation between radical speech and gender. The studies by Loucif et al. (2018) and Bermingham et al. (2009) show that by layering social network analysis with sentiment analysis one is able to find, in the text, potential reasons for the structure of communities. Communities could be structured based on sentiment, emotions, themes, language or key words. Another example is that of the study mentioned previously in this literature review by Grandjean (2016) where he found that linguistic groups were key factors to explain clustering in a network.

2.4 Women and Social Media Data

Mass media in Africa and the world has traditionally been the domain of men thereby resulting in the sidelining of the voices and participation of women and women's issues (Sesanti, 2009). Like traditional mainstream media social media also has a skewed demography that sees more male users and content consumers (Mislove et al., 2011). While there has been a steady increase in the number of women who use social media over the years globally, men continue to outnumber women in social media use. Statista (2021) reported that 70.4% of Twitter users are male while only 29.6% are female. Omnicore (2022) reported that 56% of YouTube users are male while 44% are female.

Although the use of social media is skewed in the favour of men, women have been able to create communities on Twitter that facilitate the amplification of their voices through information sharing and storytelling. In her study that explores the experiences of 12 Black women in the United States and Britain who use social media for storytelling and testimony about their lives as racial and gendered minorities, Macias (2015) finds that social media helps Black women to counter their routine denied visibility and humanity within

society. Naudin and Patel (2019) argue that online platforms are an important space for self-employed cultural workers. Even in sport social media can help to transcend the structural challenges that traditional media has placed on women's sport (Vann, 2014).

In a thematic analysis of 10 YouTube videos by young female activists that have messages against rape culture, Garcia and Vemuri (2017) found that the videos demonstrated the complex ways in which girls and young women shape discourse on rape culture through the production and dissemination of videos on YouTube. The study on the gender divide on YouTube by Molyneaux et al. (2008) found trends that favour women vloggers on YouTube. While women vloggers tend to post less vlogs than male vloggers, women vloggers are also more likely to engage with their viewers through questions and answer sessions, the comment section and soliciting feedback from viewers (Molyneaux et al., 2008). This creates a stronger sense of community between viewers and the female vloggers.

It is evident then, based on past research, that social media platforms have the potential to be used for the creation of community network structures dedicated to topics of particular interests. While social media platforms are mostly used by men, research does indicate that women - including Black women - have used these platforms to create their own communities focused on topics ranging from the combating of rape culture to personal life updates. Based on this, it is reasonable to assume that African indigenous women can also create communities on these platforms that are focused on indigenous knowledge with the intention of the sharing and preserving indigenous knowledge and practices.

2.5 Social Media as a Tools for Sharing and Preserving Indigenous Knowledge

Research on the use of social media platforms to preserve and disseminate indigenous knowledge is scarce. Oroma and Ali (2018) recommend that research be conducted on the use of media such as TVs, social media and broadcast radio to transmit and disseminate indigenous knowledge. They posit that new media has changed the way people socialise, relate and exchange knowledge (Oroma & Ali, 2018). Owiny et al. (2014) propose libraries as custodians and moderators of indigenous knowledge databases and should integrate social media and mobile technologies their processes. The proposition sees community members being trained on how to collect and document oral and visual materials based on community needs and upload information to social media platforms in efforts to reach broader audiences (Owiny et al., 2014).

2.6 Limitations of Existing Research

Literature on indigenous knowledge systems in the South African context is largely based on qualitative research with little quantitative research (Khumalo & Baloyi, 2017; Njiraine et al., 2010; Ocholla, 2007). Of the quantitative research that exists, there currently exists no research that seeks to use big data and computational social science methods to understand indigenous knowledge production, preservation and sharing using social media tools such as Twitter and YouTube and doing so with a postcolonial feminist lens.

2.7 Conclusion

This chapter has defined indigenous knowledge by looking at how the two words that make up the concept are understood in academia and then how they come together to create the concept of indigenous knowledge. This literature review has highlighted how indigenous knowledge has evolved and its contrast to European understandings of indigenous peoples and communities. The role of women in the preservation of indigenous knowledge was also outlined, showing that they play a key role in the preservation of indigenous knowledge even in rural communities where many scholars assume their oppression and lack of agency.

The literature introduced the idea of social media as an alternative space for the sharing of indigenous knowledge building on the idea that like any other kind of knowledge, indigenous knowledge is not immune to changes in society and environment. The literature shows that while South Africa, like many other developing countries, suffers from issues of internet penetration, it too has seen a substantial uptake of the social media platforms Twitter and YouTube. This therefore creates a great opportunity for using these platforms as conduits for sharing indigenous knowledge.

Building on the previous two chapters, the following chapter will delve into the theoretical framework that informed the research data collection, analysis and discussion.

3 Research Framework

3.1 Introduction

The last two chapters outlined the importance of the preservation of indigenous knowledge, showing a need to understand social media spaces as platforms for sharing indigenous knowledge. It also looked at how women are key agents in the preservation and dissemination of indigenous knowledge. In this chapter an integrated research framework will be presented outlining how postcolonial indigenous research paradigms, social network theory, and postcolonial indigenous feminist theory come together.

3.2 Framework

Postcolonial Indigenous Research Paradigm

Relational accountability is what guides the postcolonial indigenous research paradigm and promotes the rights of the researched, respectful representation and reciprocity (Chilisa, 2012). Relational accountability requires accountability by the researcher for both participants as well as participants' communities (Reich et al., 2017). The paradigm challenges the deficit framed understanding, that is also pathological, of those who have been historically oppressed. In the context of this study this means viewing women as agents of change and key knowledge holders in the preservation of indigenous knowledge. In the process of doing this, there is a message of hope that promotes transformation and positive social change amongst those who are historically oppressed (Chilisa, 2012).

Relational ontology in the African context understands relations between people as inseparably an "I/We" relationship. Individual ways of knowing and doing are overshadowed by relational ways of knowing and doing. Therefore "I" can never overshadow "We" and "We" can never overshadow "I". The epistemology is understood through knowledge that emanates from the experiences and cultures of people and communities as knowers (Chilisa, 2011). The relational axiology has ethics that are based on the respect, reciprocity, responsibility to the other and rights of the researched (Chilisa, 2011).

Postcolonial Indigenous Feminist Theory

Postcolonial indigenous feminist theory builds on Western feminist theory to critique all forms of patriarchal oppressions and in addition critique Western feminisms for marginalising the voices of non-Western women (Chilisa, 2012). It does this through addressing and intending to dismantle power structures that are patriarchal and colonialist in nature that attempt to eliminate cultures that are egalitarian, multi-focal or challenged European male power (Chilisa, 2012). Contrary to the Western universality of women's experiences, this theory emphasises the contextual understanding of women's experiences. This study is therefore expected to address the nature of forms of erasure and exclusion women's voices (Chilisa, 2012).

The paradigm challenges researchers to adopt a bottom-up approach of research that uses as a foundation the experiences of women and diversity of indigenous knowledge systems (Chilisa, 2012). It challenges researchers to be radical activists who involve women and marginalised peoples in participatory transformative action research (Chilisa, 2012).

This approach is relevant for the study because the study seeks to understand the experiences for indigenous women with indigenous knowledge as well as their experiences as they navigate the social media in an effort to preserve and share indigenous knowledge. With social media historically being a platform mostly used by men in South Africa (New Media, 2020), the experience of indigenous women on the platform will carry the complexities of patriarchal power that Chilisa (2012) speaks of. Both Twitter and YouTube are platforms created in the United States of America and historically used by people of European descent across the world. The use of YouTube and Twitter by indigenous women in South Africa, will be met with Chilisa's understanding of colonialist Eurocentrism. This means that the study is ever aware of the Eurocentric nature of the platforms and therefore the kind of colonialist biases that that could impact indigenous knowledge shared on the platform. By actively involving the indigenous women who control the Twitter and YouTube accounts of interest in this research, it will be possible to adopt a bottom-up approach of research. This done through the research participants guiding the direction of the research by way of highlighting what is most appropriate for a study of this nature as well guiding the analysis of the research results.

Social Network Theory

Social network theory provides general guidelines for the development and appraisal of particular theories of knowledge creation, diffusion, and utilisation. The theory is centrally

concerned with structured relations among persons who create, disseminate, and utilise various types of knowledge (Dunn, 1983).

Dunn (1983) identifies four assumptions of social network theory:

1. Knowledge structures and processes are constituted by relations among persons, objects, events, and actions -and not by attributes of individuals or categoric entities.
2. Relations are structured, with structures viewed as regularities in the patterns of relations among concrete entities, as distinguished from covariant properties (such as size, centralisation, and differentiation) of categoric entities.
3. Structured relations involve overt behavioral properties (for example, frequency of direct contact) as well as cognitive ones (such as congruence of beliefs, orientations, and meanings; the meaning of such terms as social, political, and organisational is not confined to directly observable actions or overt behaviour.
4. Structured relations form the foundation from which behavioural and cognitive behaviours emerge.

Behavioural and cognitive properties emerge from structured relations (Dunn, 1983). This includes symbolically meaningful transactions and exchanges; relations are not intrinsic properties of individual or categorical entities (Dunn, 1983). The organisation of social relations thus becomes a central concept in analysing the structural properties of the networks within which individual actors are embedded, and for detecting emergent social phenomena that have no existence at the level of the individual actor (Dunn, 1983).

The study uses this theory in order to understand the persons who are involved in the sharing of indigenous knowledge both on and off social media. The study expected that there would be clear patterns showing the most central persons in the sharing of the knowledge and how big or small knowledge sharing networks are. The theory also makes it possible to understand the thematic content of the knowledge shared.

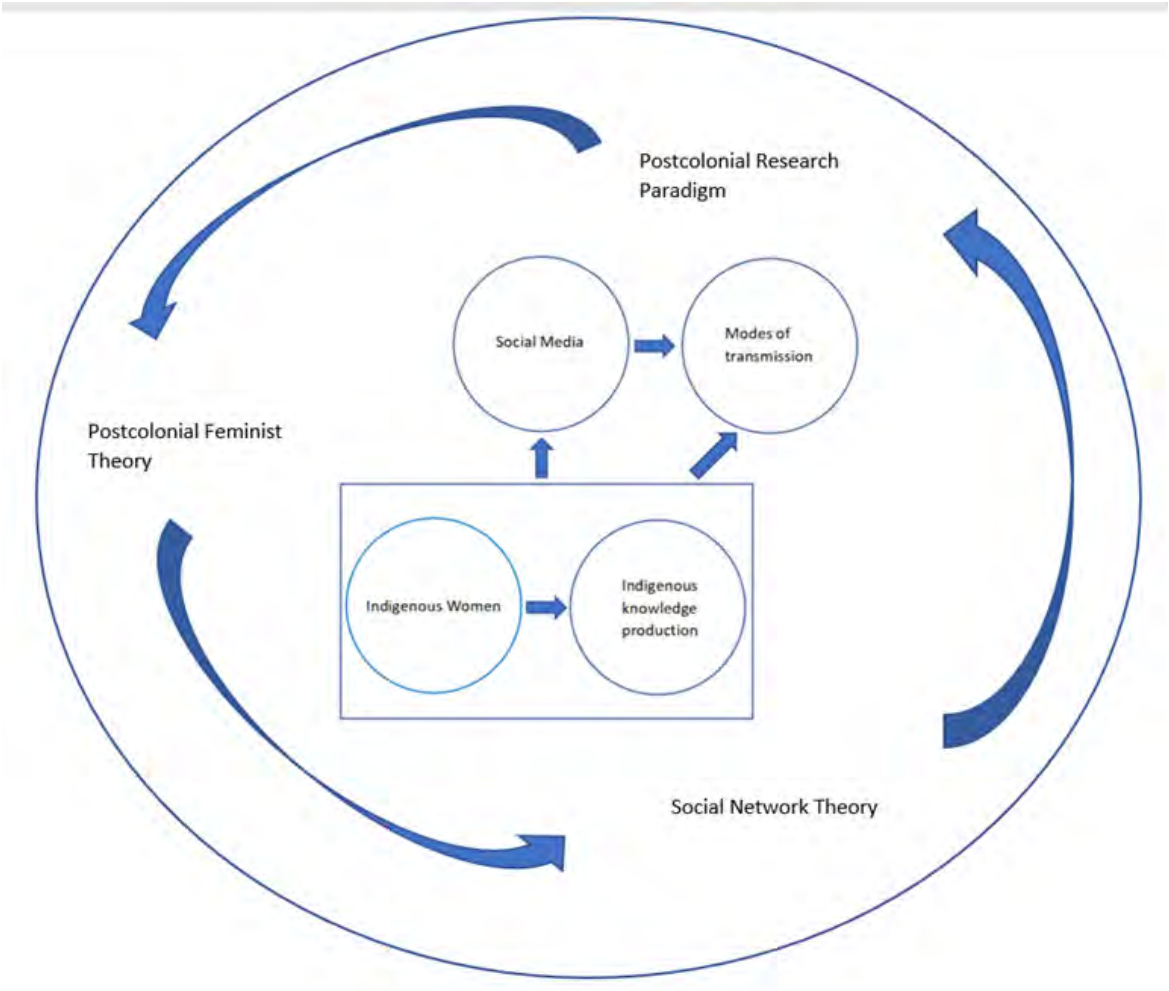
An Integrative Framework

The integrated approach sees the postcolonial research paradigm informs the postcolonial feminist theories that guide the processes of data collection. The postcolonial paradigm and feminist methods also then guide how data is analysed through social network theory and methods.

In this study indigenous women and their experiences may have a direct influence on the type of indigenous knowledge that is shared as well as how, when and for what purposes it is shared. It is expected that gender is a determining factor on how the information is shared. The main variables of analysis are:

- Indigenous women
- Social Media
- Modes of transmission

FIGURE 3.1: Research Framework



The independent variable social media has a direct effect on modes of transmission of indigenous knowledge on social media platforms. Indigenous women have a direct influence on the dependent variables social media used and the modes of transmission. The women's

aptitude and comfort with certain social media channels bears a direct influence on which of those channels they use and how they use them. The knowledge held and shared by the indigenous women also influences how the knowledge is consumed and disseminated.

3.3 Conclusion

The next chapter speaks to the methodological approach taken in the study process.

4 Methodology

4.1 Introduction

This chapter explores the methods used in the collection, cleaning and analysis of data. The research applied a mixed-methods design of quantitative and qualitative methods to investigate the network structures found in physical communities and online social media platforms, with a focus on networks that are indigenous women led. It also sought to understand the sentiments of conversations on indigenous knowledge. The methods used were chosen with the research questions in mind, specifically:

1. What is the make-up of networks of transmission of indigenous knowledge on the social media platforms YouTube and Twitter as well as in rural communities in South Africa?
2. What role do indigenous women play in the transmission of indigenous knowledge both on and offline?
3. What are the sentiments of the conversations on indigenous knowledge?

4.2 Transformative Participatory Research

In keeping with the postcolonial indigenous and indigenous feminist approach, the research endeavoured to employ transformative participatory research in its methodology. In its ontology this approach understands that there are multiple realities that are socially constructed, but it is necessary to be explicit about the social, political, cultural, economic, ethnic, racial, gender, age, and disability values that define realities (Mertens, 2007). The understanding of epistemology is that the respect for culture is important and awareness of power relations is critical (Mertens, 2007). Chilisa (2012) states that "on the question of what is truth, Is within this paradigm maintain that knowledge is true if it can be turned into practice that empowers and transforms the lives of the people".

In understanding the axiology of this approach it is important to understand, states Chilisa (2012), that "researchers achieve objectivity by reflecting and examining their values to ensure that they are appropriate for carrying out the research study".

In understanding the methodology the reasearcher needs to understand that they can choose a quantitative or qualitative research or mixed methods approach but "there should be an interactive link between I and the participants in the definition of the problem, methods should be adjusted to accommodate cultural complexity, power issues should be explicitly addressed, and issues of discrimination and oppression should be recognised" (Mertens, 2007).

A mainly quantitative approach complemented by a qualitative approach was taken in the collection and analysis of data. The field of indigenous knowledge is a very qualitative field, therefore trying to apply quantitative methods of analysis proved difficult. However, the two were able to complement each other by using quantitative methods for some of the data collection where they were most useful, then using quantitative methods for some data collection and all of the data analysis. The process involved taking an activist approach in collecting and analysing the data, understanding the geopolitical power relations, reflexivity and the intention to bring about change and transformation (Chilisa, 2011).

Due to being based over 900km away from the rural communities in which the research participants live, it was difficult for me to allow for an organic process of finding participants through a process similar to that used in participant observation. I therefore relied heavily on the knowledge of the contacts I have in the rural communities to determine the kind of direction the data collection and subsequently data analysis process the research took. Prior to commencing the research and interview process, I had informal conversations with the research participants to understand what the possibilities are in terms of the kind of research that can be undertaken based on the position of the women who would later be interviewed in their communities.

For the internet-based data collection and analysis, it was impossible to speak to all the participants. However, for a year prior to begin the research, I did engage with two women who own the some of the social media accounts analysed. I was able to do this because of prior existing relationships that were related to the work of the women on social media. So, while the initial conversations were not a part of the research process, they did influence the idea to conduct research in the field. The purpose of the conversations was to understand

the motivation behind opening the social media accounts including what the intended impact was. During the process of analysis, I discussed with the research participants what the preliminary results were showing, and their input was sought which was then integrated into the analysis process.

4.3 Preparation

In preparing for the data collection and analysis process, three sites of data were explored to understand the kind of data that could be collected and what kind of work would be necessary to complete to present the data in a research report.

Twitter

Like many other communities on Twitter, the indigenous knowledge community has grown tremendously over the years since the introduction of Twitter in the year 2006 (Twitter Inc., 2012). In preparing for the collection of data on this social networking application the intention was to understand what the most common topics. The intention was also to identify the key accounts which share information on indigenous knowledge. Initial searches on Twitter included searches of keywords including:

- Indigenous knowledge
- African spirituality
- Camagu - an isiXhosa greeting that acknowledges ancestors (Sandlana, 2014)
- Thokoza - An isiZulu greeting acknowledging ancestors (Mlisa, 2009)
- Embo - Meaning to return to one's roots
- African culture
- Lesedi - Meaning 'Light' in seTswana often used to refer to an understanding that ancestors bring light to one's life.
- Kganya - Meaning 'Light' in seSotho used to refer to an understanding that ancestors bring light.

These are words commonly used by people who converse on indigenous knowledge on Twitter.

By conducting the qualitative analysis of following the conversations on Twitter, it was possible to isolate some of the most prominent figures who participate and are sometimes

the main knowledge holders during conversations on indigenous knowledge. This process begins with an understanding of *what* is said in order to identify *whom* these opinions belong to (McCormick et al., 2017). Based on a list of accounts identified, it was then possible to narrow down the accounts to focus on those that are owned and managed by indigenous women in South Africa. The rest of the research then focused on a sample of four accounts; (i) Afrosavvy, (ii) Gogo Dineo Ndlanzi, (iii) Gogo Moyo and (iv) Sangoma Society. Through a form of snowball sampling, the four users selected then became ego nodes which would be used to understand the network of nodes that interact with them whether directly or indirectly (Gatti et al., 2016). All the accounts chosen are owned and managed by indigenous women who practice as traditional healers and leaders in their respective communities. While traditional healing is not the only indigenous knowledge practice and in-fact, it is a small aspect of indigenous knowledge, the accounts chosen were interested in sharing indigenous knowledge only. Selecting them significantly reduced the possibility of including tweets in the database that have absolutely nothing to do with indigenous knowledge. While the accounts shared a lot of information on traditional healing, they also shared information on indigenous knowledge in general. The profiles of these accounts will be elaborated on in the data section.

YouTube

The exploration on YouTube sought to find channels which have the sole purpose or at least predominantly share indigenous knowledge. Exploration on YouTube is much easier than on Twitter in respect of finding channels that have a focus on indigenous knowledge. Due to YouTube being somewhat structured similarly to television channels, it is easy to switch from one channel to another to get a sense of the offerings on each channel. This is different to Twitter where the process includes wading through a large amount of noise in the form of hashtags and conversations before finding what is most useful. However, unlike Twitter where all information is almost sitting at the surface waiting to be sorted through, on YouTube one has to contend with the YouTube algorithm that deprioritises channels with low viewership and subscribers in favour of those with high viewership and subscribers. In their paper on the YouTube algorithm, Kirdemir et al. (2021) argue that the the YouTube algorithm contributes significantly to echo chambers, filter-bubbles as well as polarisation and favours a small number of videos, content producers or channels.

In an attempt to maintain some continuity across the Twitter and YouTube platforms, the YouTube search was first focused on finding channels owned by the four women whose accounts were selected for the Twitter sample. When those had been exhausted the search

then broadened into a qualitative sampling of YouTube to find other South African indigenous women owned channels. The YouTube search resulted in a focus on a sample of four YouTube channels led by indigenous South African women; (i) Afrosavvy, (ii) Gogo Moyo, (iii) Nonkwenkwezi and (iv) Sangoma Society. Like the Twitter accounts, all the channels sampled are owned and run by women who are practising traditional healers and leaders in their communities. As stated in the Twitter section, traditional healing is not the only indigenous knowledge practice and in-fact, it is a small aspect of indigenous knowledge. While the accounts shared a lot of information on traditional healing, they also shared information on indigenous knowledge in general. This was most relevant for YouTube accounts as the storytelling format of the site allows for the accounts to take a more holistic approach to the kind of information shared. This means that the accounts share more holistic information on African culture and indigenous ways of knowing and doing. As was the case for the Twitter accounts, these channels will be elaborated on in the data collection and analysis sections.

Physical Communities

In a continued effort to ensure some continuity, an attempt was made to approach some of the women who had been identified as account holders on social media. The intention was to include them in the sample of women for interviews and therefore be a part of the sample of physical communities. The rationale behind this was that these women continue to operate in spaces that are highly involved in the preservation and sharing of indigenous knowledge in physical communities through their work. Of those engaged, it was only Mama Nonkwenkwezi who participated in the interviews. The conversation with the women when approaching them to participate in the interviews was premised on using the research to amplify the voices of the women and the work they do to preserve indigenous knowledge. Nonkwenkwezi expressed that she wanted to participate in the research because she wanted to influence the type of academic products created on indigenous knowledge. The process of preparation of data sites then shifted to purposive sampling approach that sought to find women in physical communities who could be interviewed. Through consultations with the women who had assisted in the initial conceptualisation of the research a further two women were asked to participate in the research. The three women included in the sample are; (i) Nokukhanya (Mama Nonkwenkwezi) Bovula, (ii) Noluntu Nolwazi Maponye and (iii) Nombulelo Ntsenge. These are their real names. In keeping with the intention to treat the research participants as co-creators of the research it was important for I to give the participants an opportunity to be recognised for their part in the research. When given the option to remain anonymous or have their names included in the research paper, all interview participants requested that their real names be included in

the research paper. The profiles of these women will be elaborated on in the data collection section of this chapter.

4.4 Launching

Following the identification of accounts, the process of data collection on Twitter and YouTube was prepared for. This was done through applying for application programming interfaces (APIs) on Twitter Developer and Google Developer for the data collection on YouTube. An API acts as an intermediary tool between I and the site where the data is stored. I uses the API to fetch the data and download it to I's computer. Appropriate packages to be used in R were identified that would be most appropriate for acting as the tools for the extraction and analysis of data from the social media sites.

Due to the COVID pandemic and resultant national lockdowns, there were limitations on the ability to travel inter-provincially and to meet with groups of people. There were also considerations of potentially spreading COVID. Therefore, most interactions and conversations had to occur through WhatsApp and telephone calls. For the interviews all the women were contacted via the social media application WhatsApp and permission was received to conduct interviews with them. WhatsApp is a web and cellphone application that began as an alternative to short messaging service (SMS) and supports the use of sending and receiving a variety of media including text, voice calls, documents, location and videos by over two billion people in over 180 countries in the world (WhatsApp, 2021).

4.5 Data

The data process included data collection, data cleaning and data analysis.

4.5.1 Data Collection

The main tool used for online data collection and analysis was R software for statistical computing and graphics. R is an open-source software and is often used for research in statistical methodology (R Core Team, 2017). R allows a user to download packages that act like applications that specialise in various aspects of statistical analysis. For this research the following applications were used for data collection: academictwitteR, tuber and vosonSML.

Twitter

To analyse the data in R studio, it had to be downloaded from Twitter. To download Twitter data, a Twitter application programming interface (API) was created on the Twitter Developer website. Using the Twitter Developer dashboard, an academic API was applied for based on the fact that the API was intended for use for academic research at a university. The academic API was approved by Twitter within two weeks. The function of the API is to act as a conduit for relaying information between the R software and the Twitter data that is collected. To collect the data from Twitter, the 'academictwitteR' package was used in R Studio. The academictwitteR package was released in May 2021 with the intention of meeting academic and other researcher's needs. academictwitteR is differentiated by its ability to allow users who have been granted a researcher or academic status API by Twitter to download all historical data since the beginning of Twitter without limits imposed on other packages (Barrie & Chun-ting Ho, 2021) except a tweet cap of 10 million tweets per month (Twitter Inc., 2021). While there are enterprise APIs that allow for the collection of all historical data for a fee, the academic API allows for free use by users approved by Twitter.

Twitter data was collected for the accounts; (i) Afrosavvy, (ii) Gogo Dineo Ndlanzi, (iii) Gogo Moyo and (iv) Sangoma Society.

The initial intention was to collect tweets based on hashtags, however through inspection of initial hashtag data collected on Twitter it was evident that hashtag data is highly unreliable due to a phenomenon called 'hashtag hijacking'. An analysis of this data would therefore produce false trends and communities making the data unacceptably unreliable. The focus on individual accounts forces the research into an ego-centric network analysis, which has the potential for more reliable and valid results.

The time period for when the data was collected was based on when the Twitter accounts were created. Through the "get_all_tweets" function on academictwitteR the following variables were collected for all accounts; *user_id*, *status_id*, *created_at*, *screen_name*, *text*, *source*, *reply_to_screen_name*, *is_quote*, *is_retweet*, *favorite_count*, *retweet_count*, *quote_count*, *reply_count*, *hashtags*, *mentions_user_id*, *mentions_screen_name*, *lang*, *quoted_text*, *quoted_created_at*, *retweet_status_id*, *retweet_text*, *retweet_created_at*.These variables made it possible to collect the data necessary for a network analysis was well as a sentiment analysis. Table 4.1. shows the dates for which data was collected for each of the accounts.

YouTube

Twitter Account	Start Date	End Date	Number of Tweets Collected
Afrosavvy	2011-11-30	2021-08-28	935327
Gogo Dineo	2010-03-01	2021-08-28	286989
Gogo Moyo	2011-11-30	2021-08-08	53912
Sangoma Society	2011-06-01	2021-08-29	536

TABLE 4.1: Data Collection Periods on Twitter

Data was scraped from YouTube using the 'tuber' package for R. Tuber allows users to "get comments posted on YouTube videos, information on how many times a video has been liked, search for videos with particular content, as well as scrape captions from videos" (Sood et al., 2020, p.1). Data was collected for the channels; (i) Afrosavvy, (ii) Gogo Moyo, (iii) Nonkwenkwezi and (iv) Sangoma Society. Of the YouTube videos available on the channels, only those that were directly related to indigenous knowledge broadly were selected and scraped for use in the research. As stated previously, however, most of the channels belong to traditional healers therefore creating an inherent bias towards videos on traditional healing making other types of indigenous a smaller portion than those on traditional healing. In order to identify the most appropriate content, portions of all the videos on the channels were watched before they were included in the list. The entire process of identifying channels and filtering videos for inclusion in the research database resulted in over ten thousand (10,000) minutes or over one hundred and sixty six (166) hours of watch time on YouTube. The YouTube variables collected were *Comment*, *AuthorDisplayName*, *AuthorChannelUrl*, *ReplyCount*, *LikeCount*, *PublishedAt*, *UpdatedAt*, *CommentID*, *VideoID*. These variables allow for a social network analysis and sentiment analysis. Please see Appendix C: YouTue Videos for the list of YouTube videos included in the data scraped as well as their categorisation identifying the content as mainly traditional healing content or indigenous knowledge broadly. Table 4.2. shows the number of videos included in the analysis for each of the channels.

YouTube Channel	Number of Videos
Afrosavvy	18
Gogo Moyo	30
Nonkwenkwezi	44
Sangoma Society	46

TABLE 4.2: YouTube Videos Collected

The Afrosavvy channel has the fewest videos because when the data was collected the channel had recently moved the bulk of its content to a paid section of the channel. There was

the option to pay for access to the rest of the videos however the purpose of this report is to understand information that is freely available to users once basic data and technology costs have been covered. The other channels, while mainly focused on indigenous knowledge, also had some videos that did not focus on indigenous knowledge. Of the four channels only the Nonkwenkwezi channel had videos that are mainly in an African indigenous language and predominantly focus on the isiXhosa culture. Therefore, the comments section of the Nonkwenkwezi channel also has comments written in isiXhosa. The data collected on YouTube included both video statistics and comments from viewers.

Interview Data

Interviews were conducted with three indigenous women over telephone. As stated previously, the COVID pandemic and its resultant lockdowns resulted in limitations on interprovincial travel and face to face meetings. Major limitations of conducting telephone interviews are the inability to observe body language during conversation and having to schedule specific times for interviews instead of having a form of continuous data collection through observation and questions asked at intervals. In keeping with the ethics approval, interviews were mostly conducted telephonically. The interviews were recorded with the consent of the research participants. The interviews had open ended questions that prompted the interviewees to focus on their life histories as they related to how they gathered indigenous knowledge and who the key people were who were involved their acquisition of indigenous knowledge. Please see "Annexure D: Interview Questions" for interview questions. The approach took a name-generator approach that sees interviewees give a list of names of people within their network Marin (2004), Marin and Hampton (2007), and Shakya et al. (2017). Table 4.3 shows a brief introduction of the women's demographics and the interview dates. Continuous engagement with the women beyond the first interview was made easy by the fact that I had relationships with the women outside the scope of the research.

Name	Geographic Location	Relationship to Researcher
Khanya "Nonkwenkwezi" Bovula	Alice, Eastern Cape	Spiritual Mentor
Noluntu Nolwazi Maponye	Engcobo, Eastern Cape	Aunt-in-Law
Nombulelo Ntsenge	Engcobo, Eastern Cape	Aunt-in-Law

TABLE 4.3: Physical Communities Participants

Having close acquaintances as research participants has both strengths and weaknesses. As a strength it means that I did not need to establish relationships of trust because they

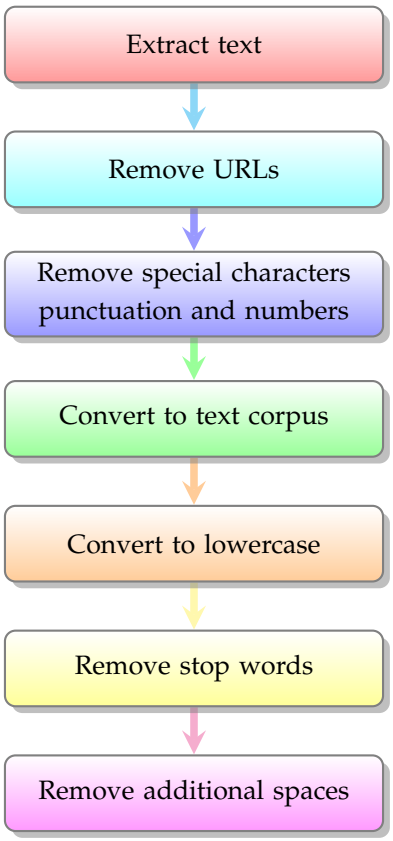
have existed years before the beginning of the research. The participants are more eager to participate in a project of an acquaintance. Participants are also more comfortable with introducing me to their networks because they already trust me.

A major weakness experienced during this research process is the fact that the research participants were elders compared to me. In the communities in which the participants live, I was considered a perpetual equivalent of a teenager; old enough to have intelligent thoughts but too young to be considered an adult with adult decision-making capacity. This despite the fact I am a 30-year-old woman. This is one of some of the key criticisms of indigenous knowledge also discussed in the literature review. However, there also lies a strength in this. Unlike Khupe (2014) who required cultural guides in the community, I began the research process with a prior understanding of the cultural context and social norms and rules. This allowed me to greatly mitigate the potential for unintentionally breaching cultural protocols and rules. To respect the cultural dynamics, I had to always be acutely aware of their position during engagements which had a direct impact on the phrasing of questions and when to ask questions.

As stated previously, there were conversations with participants prior to the initiation of the research. However, interviews considered to be a part of the research were conducted in the months of July to September 2021. At the beginning of all interviews, participants were given the option to remain anonymous or have their names included in the report. All participants elected to have their names included in the final report. The interviews were recorded with the consent received at the beginning of each recording and recorded. Initial interviews were an hour long with follow up conversations to gain clarity on issues that were not clear. The participants also influenced the writing of the report through conversations about the emerging results.

4.5.2 Data Cleaning

In preparation for the analysis, the social media data was cleaned in R. The analysis that was conducted on the data was social network analysis (SNA), topic modelling and sentiment analysis. The analysis that required the greatest data cleaning effort was text analysis and sentiment analysis. The figure below depicts the data cleaning process which began with extracting tweet text and YouTube comments and ended with the removal of additional spaces.



4.5.3 Data Analysis

The data analysis process comprised of two processes; (i) Social Network Analysis (SNA) and (ii) Text Analysis.

Social Network Analysis

In conducting the social network analysis, there are two approaches that could have been taken, the 'Whole Network Analysis' and the 'Ego Network Analysis'. The whole network approach seeks to understand whole communities and the relationships between the units within those communities (Djomba & Zaletel-Kragelj, 2016). The egocentric approach focuses on individual units and seeks to understand the many ties that they have (Borgatti & Ofem, 2010). For the purposes of this research, the egocentric approach was taken. This approach was most appropriate because it allows for application across all the data sets collected whereas the whole network approach would not have proven useful for the interview data.

Interview data was coded by creating a node list and an edge list based on the connections the interviewees had identified. The relations were coded in such a way that they were able

to be linked to their own family member. The Twitter and YouTube data was also saved into network graphs suitable for analysis.

Data was processed in R to create network graphs and to find network measures. The Twitter data was coded using native R functions as well as igraph (Csárdi & Nepusz, 2019). The YouTube data was coded using vosonSML (Graham et al., 2020).

The network graphs were then exported to Gephi where network plots were created. In Gephi different layout algorithms were used on the interview data compared to the social media data. This is because of the size of the data sets. The interview data had less than hundred nodes for each of the participants making it ideal for the Fruchterman-Reingold layout. The Fruchterman-Reingold layout is ideal for graph sizes of 1 to 1000 nodes and is force-directed (Fruchterman & Reingold, 1991; Gephi, 2011). The social media data on the other hand has approximately 20000 nodes for each data set. This large number of nodes makes the Fruchterman-Reingold layout unsuitable for this kind of dataset, therefore the OpenOrd Layout was used for the social media data. The OpenOrd layout is ideal for graph sizes of 100 to 1,000,000 nodes (Gephi, 2011; Martin et al., 2011). The layout is best to distinguish clusters (Gephi, 2011; Martin et al., 2011). The edge cut was set to 0.95, the number of iterations were set to 850 to expand the clusters and the seed was set at -6308261588084905834 (Gephi, 2011). The seed is used to get comparable results across all networks. The seed size chosen was recommended by the Gephi application.

The analysis calculated the following: number of nodes, number of edges, network diameter, graph density, modularity, number of weakly connected components and number of strongly connected components.

Number of Nodes

In the context of this paper, the number of nodes is the number of people connected to an ego or the main person of interest.

Number of Edges

The data analysed for this report was directed. This means that the relationships between people can either be reciprocal or non-reciprocal. These relationship directions are then called edges and they can be calculated in a network graph to find how many ties there are

in the network. The formula for calculating edges in a directed graph is:

$$2* = \frac{N(N-1)}{2} \tag{4.1}$$

Network Diameter

The network diameter of a network graph is the shortest distance between the two most distant nodes of the network. The diameter is calculated with the following formula:

$$\delta = \frac{max\{s(j,i)\}}{ij} \tag{4.2}$$

where s(*i*,*j*) is the number of edges in the shortest path from vertex *i* to vertex *j* (Flitter & Grossman, 2016).

Graph Density

Graph density calculates the degree of connectivity of a graph and is defined as:

$$\beta = \frac{E}{V} \tag{4.3}$$

where E is the total number of edges and V is the total number of vertices in the network (Flitter & Grossman, 2016).

Modularity

The modularity formula is used to calculate the strength of a community and is used to test how easily a network can be clustered into different communities. Mathematically it is defined as:

$$M = \Sigma_{i=1}^{k}(x_i - y_i^2) \tag{4.4}$$

where xi is the probability that an edge is in the module i and yi2 is the probability that a random edge would fall into the module i (Khokhar, 2015, p132).

Strongly and Weakly Connected Components

The connected components indicate whether nodes are accessible from every other node in the network (Khokhar, 2015).

Text Analysis

The text analysis was only conducted on the social media data because the interview would not have provided rich insight. The interviews were conducted with just three participants and the conversations were aimed at understanding the networks that informed the indigenous knowledge gained and shared by the participants. While the sample size of the participants is small, it proved sufficient for the purposes of the study. Conducting a text analysis with this data would not have provided rich insights and therefore the interview data was excluded from the text analysis and only used for the sentiment analysis. Text analysis entailed visualising popular terms, topic modeling of text and a sentiment analysis. The topic modeling was built using the Latent Dirichlet Allocation algorithm (LDA). LDA is "a generative probablistic model for collections of discrete data such as text corpora" (Blei et al., 2003, p.1).

Sentiment analysis is used to determine the opinion and subjectivity of any text (Mohbey et al., 2019). To run the sentiment analysis, the Syuzhet package (Jockers, 2020), created by Mattew Jockers, was used in R with the NRC lexicon. The Syuzhet package has four different lexicons. The NRC lexicon was chosen because unlike the other three lexicons, it doesn't just categorise into positive and negative words. The NRC lexicon assigns a sentiment type and emotions. The sentiment type is either negative or positive while the emotions have eight categories namely: anger, anticipation, disgust, fear, joy, sadness, surprise and trust (Naldi, 2019). The lexicon has 13889 words that are distributed amongst the eight categories (Naldi, 2019). The lexicon has the South African languages isiXhosa, isiZulu, English, seSotho and Afrikaans. This allowed for a sentiment analysis of tweets and comments written in these languages.

4.6 Reliability and Validity

4.6.1 Reliability

Noble and Smith (2015) define research reliability as "The consistency of the analytical procedures, including accounting for personal and research method biases that may have influenced the findings". The analytical framework for this research emphasises the importance of prioritising the perspectives of the research participants just as much as my understanding of the participants' perspectives. This approach was consistently applied for both the social media data and the interview process. This meant ensuring that the women inform the direction of the research by giving insight as stated previously including informing the kind of data collected and the analysis conducted. With that approach in mind, the research

process endeavored for replicability to ensure as much as possible that should a similar decision trail be followed, similar results could be replicated. However due to the nature of the data collected which is very likely to change, like an increase in the tweets retweeted and the increase in video views, some data is likely to change over time.

For the interview data it would be impossible to replicate the data unless the three women interviewed in this research were interviewed again. And even then, life experience could have shifted their perspective on the people most important to their understanding on indigenous knowledge. In understanding the reliability of the interview process, the research sought to examine trustworthiness. Seale (1999) argues that "trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability" (Seale, 1999, p.266).

4.6.2 Validity

Golafshani (2003) quoting Joppe (2000) states that "Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object?" (Golafshani, 2003, p.599). In the absence of a study like this one to replicate, it was not possible to follow exact steps from another successful study. However, for the different data management and processing sections previous studies were followed. For the social network analysis, other studies were used as a guide, similarly for the text analysis. To ensure that the research truly measures that which it was intended to measure the data was collected and analysed always keeping the research questions in mind. In the results section of the research, the report will demonstrate how each of the research questions and objectives are addressed by the results of the analysis.

4.7 Ethical Considerations

For the telephone interviews, consent was requested from individuals for their participation in the research. In the case of the social media platforms, consent is complicated by the fact that it is physically impossible to gain consent from all the millions of users whose retweets, comments, likes and dislikes were collected. To mitigate for this, the research relied on the privacy policies of Twitter and YouTube that all users opt into when using the platforms.

Beyond consent the other ethical considerations that informed the research, is how participants could potentially be harmed by the research and how to mitigate for this. The research process engaged in continued and constant self-reflection and self-questioning that promotes and privileges the right of the disempowered to be heard (Chilisa, 2011). This included making sure that participants informed the research conceptualisation, data collection and analysis. The participants are all considered key contributors of the research report therefore all aspects of the research were conducted keeping in mind that the voices and stories of participants remain key in understanding the results of the research.

Ethics approval was obtained for this study from the University of the Witwatersrand ethics committee with Protocol Number: H21/05/37. Ethical requirements were complied with.

In the next chapter, the report will delve into the research results which will identify the key trends and insights.

5 Results

5.1 Introduction

Part 1 of this chapter will present the results of the social network analysis of both the interview and social media data. Part 2 will present the results of the text analysis of the social media data.

5.2 Part 1: Social Network Analysis

The social network analysis section seeks to answer "Research Question 1: **What is the make-up of networks of transmission of indigenous knowledge on the social media platforms YouTube and Twitter as well as in physical communities in South Africa?**" and "Research Question 2: **What role do indigenous women play in the transmission of indigenous knowledge both on and offline?**".

In order to respond to the question of the make-up of the physical communities and the online communities, the report will present descriptive statistics looking at the following: the number of nodes, the number of edges, the network diameter, the graph density, the modularity, the number of weakly connected components and the number of strongly connected components. Each of these will be explained in context in the graphs and tables to follow. Then the network graphs will be explored to understand trends. All formulas for calculating statistics have been elaborated on in the methodology section.

5.2.1 Physical Communities

The statistics below are intended to give insight into the composition of the communities. The statistics are calculated using the people identified by the research participants as being part of the community of people they learn from or share indigenous with. The interview data in Table 5.1 shows a low number of nodes across all interview data with 22, 11 and 36 nodes for Noluntu, Nombulelo and Nonkwenkwezi respectively. The nodes tell how many

people each of the participants identified as important in their acquisition and sharing of indigenous knowledge.

Interview Statistics			
	Noluntu	Nombulelo	Nonkwenkwezi
Number of Nodes	22	11	36
Number of Edges	55	46	612
Network Diameter	3	3	3
Graph Density	0.119	0.418	0.486
Modularity	0.218	0	0.118
Number of Weakly Connected Components	1	1	1
Number of Strongly Connected Components	11	1	5

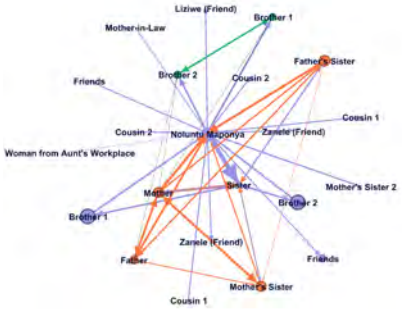
TABLE 5.1: Descriptive statistics for interview data

The number of edges speaks to the number of connections between the nodes or people identified by the participants. Although all participants have significantly higher edge values than nodes, Nonkwenkwezi's nodes have a very high number of edges. The high number of edges seen in Nonkwenkwezi's physical network shows that there is a high interconnection amongst the people identified by Nonkwenkwezi. It is expected that the social network graph of the community will also reflect this.

Table 5.1 above shows that for all three data sets the network diameter is 3 which is the maximum distance between any pair of nodes in the graph. Therefore, each person is connected through 3 people from the person furthest to them in the network.

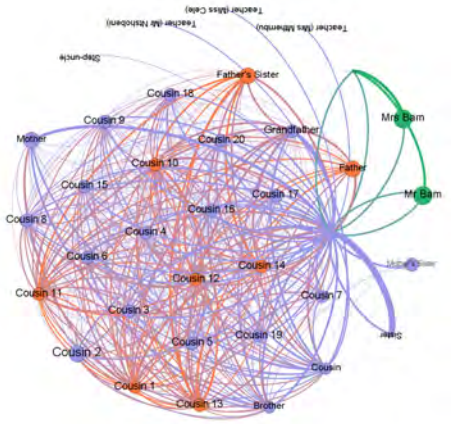
The graph density statistics in Table 5.1 of the interview data show that Noluntu has a low graph density while Nombulelo and Nonkwenkwezi have high graph densities. Therefore, one can conclude Noluntu's network has a low potential of connections between people while Nombulelo and Nonkwenkezi have networks where people have a higher potential of knowing each other.

Through the modularity score it is possible to understand whether it would be easy to cluster the communities into distinct separate communities. The modularity scores of the interview data are low therefore suggesting that although there are communities that exist, they are not very strong as separate communities. This statistic also corresponds with the



(A) Noluntu Maponya's Network Graph

(B) Nombulelo Ntsenge's Network Graph



(C) Nonkwenkwezi Bovula Network Graph

FIGURE 5.1: Community Network Graphs for Physical Communities

connected components statistics which show that each data set has high number of strongly connected components; 11, 1 and five for Noluntu, Nombulelo and Nonkwenkwezi, respectively while the statistic for weakly connected components is 1, 1 and 1 for all data sets.

5.2.2 Social Media Communities

Twitter Statistics

The Twitter data shows that the Afrosavvy account has the greatest number of nodes or accounts engaging in its community network with 16234 nodes. This is then followed by Gogo Dineo with 372 nodes, the Sangoma Society account with 45 nodes and the Gogo Moyo account with 36 nodes. As is to be expected, the Afrosavvy account also has the highest number of edges at 3570. What is interesting is that the Gogo Moyo Twitter account

has more edges than the Gogo Dineo and Sangoma Society accounts even though it has less nodes than these two accounts. This indicates that although the Gogo Dineo and Sangoma Society accounts have more people interacting with the accounts, there is less interaction amongst the people in the network while the people in the Gogo Moyo account are more connected to one another.

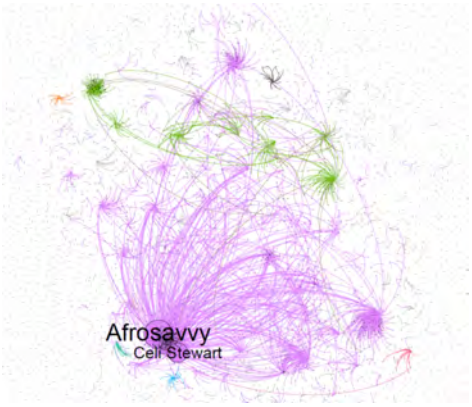
The network diameter is 1 for all accounts except the Gogo Moyo account which has a network diameter of 3. The higher diameter for the Gogo Moyo account points to a larger network of connections the radiate further than just the Gogo Moyo account. This means that two people who are furthest from each other in the network are connected to each other through 3 people. The other network diameters of 1 suggest that people in the network are linked through just the ego accounts being Afrosavvy, Gogo Dineo and Sangoma Society. In the absence of these accounts, there would likely be no connection between the people in the networks.

Twitter Statistics				
	Afrosavvy	Gogo Dineo	Gogo Moyo	Sangoma Society
Number of Nodes	16234	372	36	45
Number of Edges	3570	371	612	44
Network Diameter	1	1	3	1
Graph Density	0	0.003	0.486	0.022
Modularity	0.749	0	0.045	0
Number of Weakly Connected Components	13103	1	1	1
Number of Strongly Connected Components	16234	1	5	1

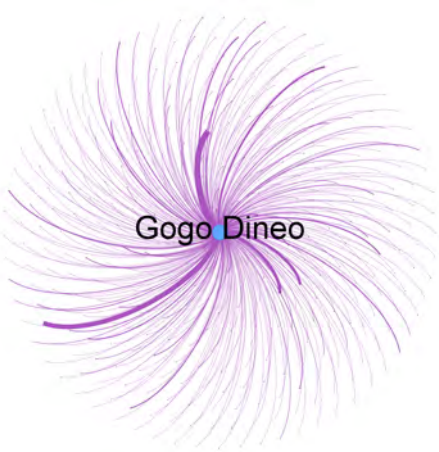
The graph density statistics are all close to zero except for the Gogo Moyo account which has a graph density of 0.486. Again, this reiterates the understanding that while the other accounts have communities that are only connected to the ego, the Gogo Moyo account has a more connected community with more people engaging with each other in addition to engaging with Gogo Moyo.

As previously mentioned, the modularity score speaks to the existence of distinctly separate communities in a network and the higher the score, the higher the number of distinctly separate communities. The Twitter statistics show that there is a high modularity score for

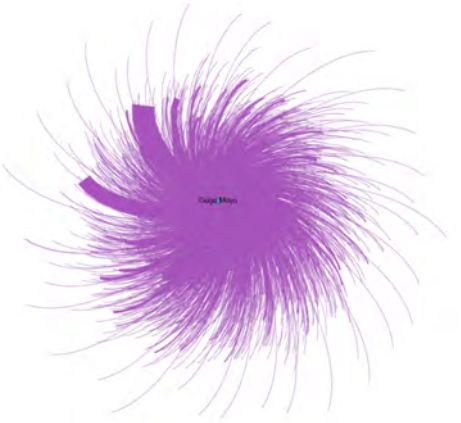
the Afrosavvy community (0.749) indicating a number of distinct communities whereas the modularity scores for the Gogo Dineo, Gogo Moyo and Sangoma Society networks are zero or close to zero at 0, 0.045 and 0 respectively. Figure 5.2 indeed shows that Afrosavvy has community clusters seen with nodes coloured in green and others in purple. The Gogo Dineo, Gogo Moyo and Sangoma society graphs show that there is only one community for each of the accounts.



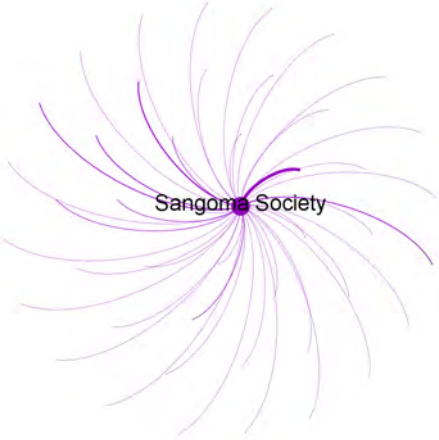
(A) Afrosavvy's Twitter Network Graph



(B) Gogo Dineo's Twitter Network Graph



(C) Gogo Moyo's Twitter Network Graph



(D) Sangoma Society Twitter Network Graph

FIGURE 5.2: Community Network Graphs for Twitter Communities

An exploration of the connectedness of the egos studied in the research showed that Afrosavvy, Gogo Moyo and Sangoma Society engage with each other on Twitter seen through finding them in each other's networks. Gogo Dineo is the only ego that could not be found in any of the other networks.

YouTube Statistics

The number of nodes and edges are very close in number for all the YouTube channels at 1009:991, 1360:1600 and 539:658 for the Afrosavvy, Gogo Moyo and Nonkwenkwezi accounts respectively. By looking at the statistics for the nodes and edges alone it is possible to assume that the other network statistics will tell a story of communities that are largely connected to just the ego node with little to no connections amongst nodes beyond the connection with the ego node.

The network diameter statistics show that in the Afrosavvy network the two people furthest from each other in connection would each need to travel through two edges in order to reach each other. Those in the Gogo Moyo Moyo network would need to travel through five edges while those in the Nonkwenkwezi network would need to travel through three edges. Based on the network diameter statistics it is expected that the Gogo Moyo network is the largest community network.

YouTube Statistics			
	Afrosavvy	Gogo Moyo	Nonkwenkwezi
Number of Nodes	1009	1360	539
Number of Edges	991	1600	658
Network Diameter	2	5	3
Graph Density	0.001	0.001	0.002
Modularity	0.876	0.756	0.553
Number of Weakly Connected Components	18	120	173
Number of Strongly Connected Components	1009	1360	537

The graph density statistics for the three accounts are all close to zero thereby indicating that the network is almost not connected at all save for each person's connection to the ego node. For the YouTube data the television analogy used previously can be applied here to explain the lack of connections across the entire network. As stated earlier in this report, YouTube channels are like television channels that a viewer can switch between. Within the channels, there are various programmes that the viewer can elect to watch and listen to. On YouTube unlike with televisions, the viewers have the additional benefit of being able to engage with the video through comments. At the writing of this report, it is not possible for a viewer to link a comment in one 'programme' to another 'programme' or one video to another video, thereby creating siloed communities who engage within a channel but

are restricted to only engaging with each video individually. However as can be seen in the example of Afrosavvy's YouTube network, it is clear that even when multiple viewers engage with a video, very little engagement occurs between viewers commenting on the same video. Instead, each viewer engages with the video only with few viewers engaging with other viewers who have already engaged. Figure 5.3 of the Afrosavvy community below illustrates the siloed communities.

FIGURE 5.3: Afrosavvy's YouTube Network Graph

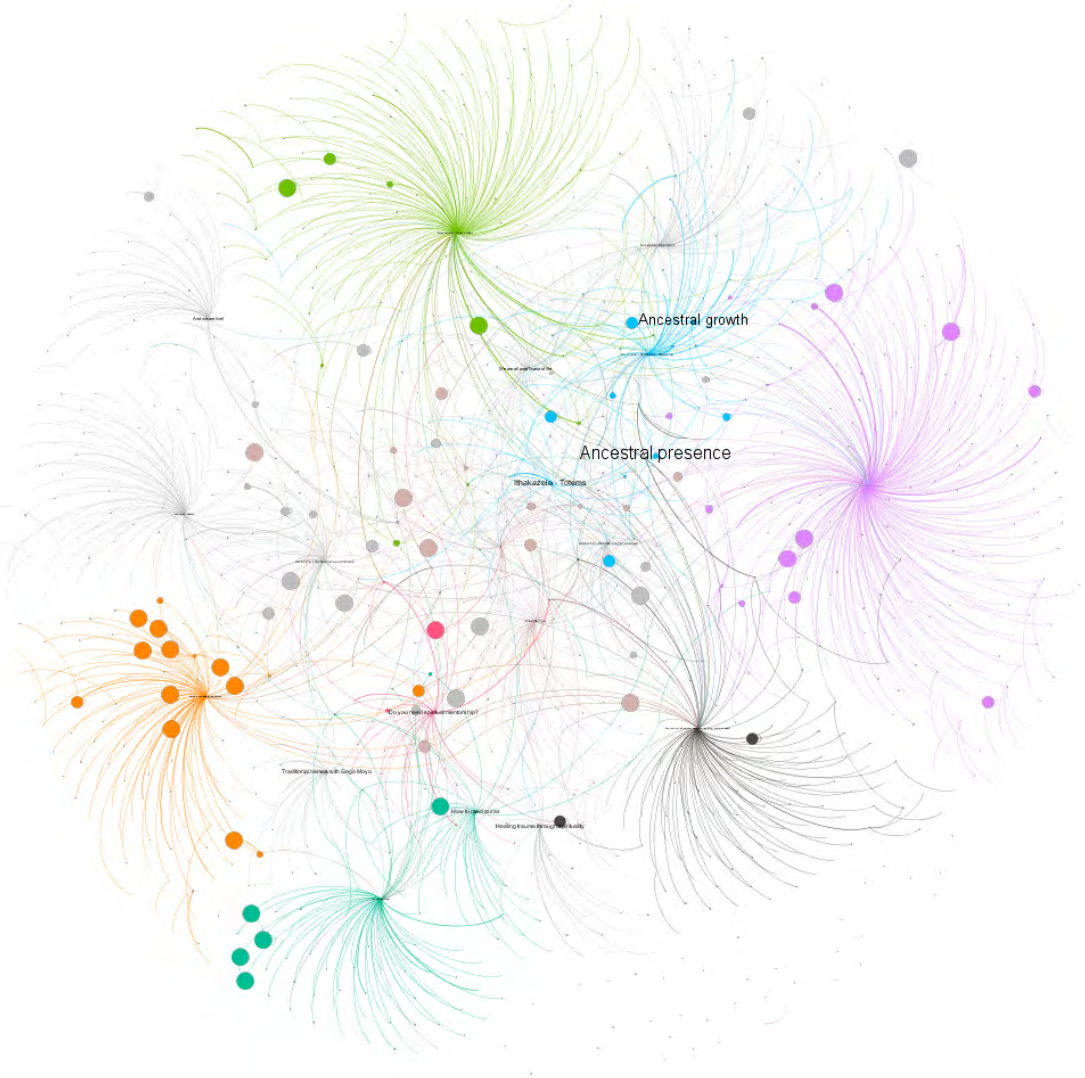


FIGURE 5.4: Gogo Moyo's YouTube Network Graph

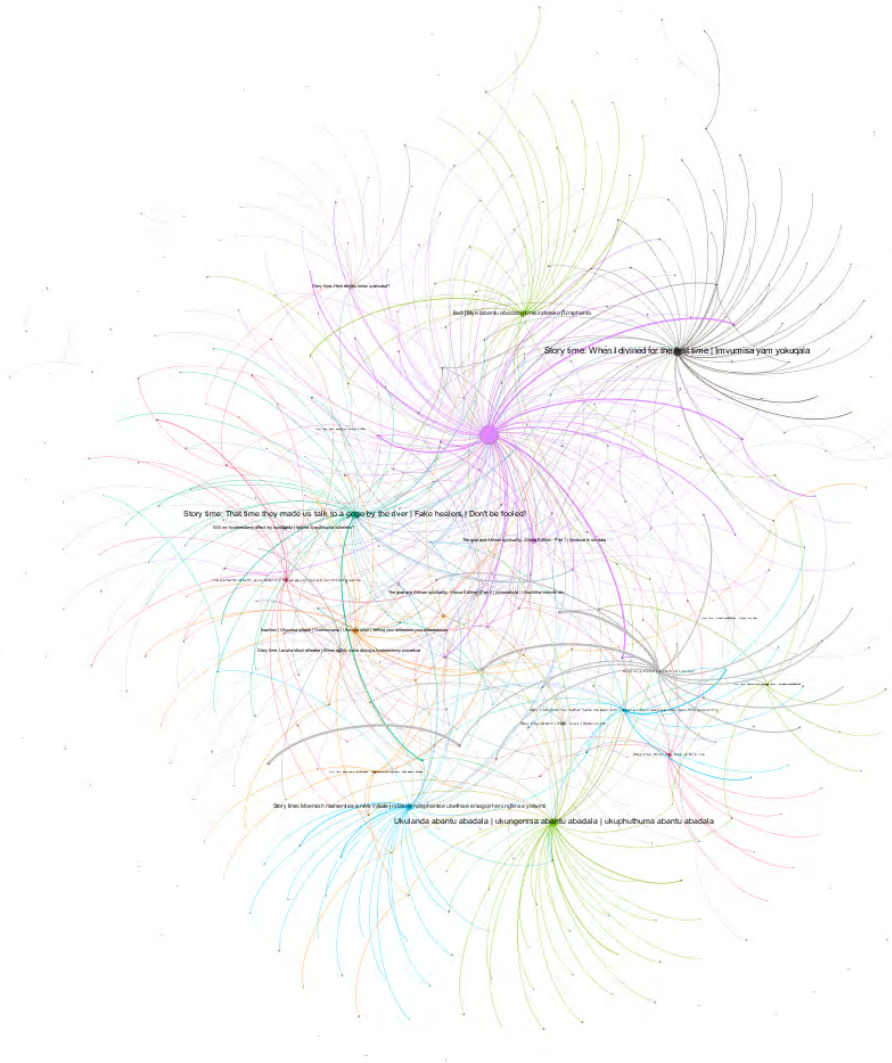


FIGURE 5.5: Nonkwenkwezi Bovula YouTube Network Graph

The modularity scores for the YouTube accounts are significantly high at 0.876, 0.756 and 0.553 for the Afrosavvy channel, the Gogo Moyo channel and the Nonkwenkwezi channel, respectively. This speaks to the separate communities created by separate videos.

Types of YouTube Video

While the Afrosavvy, Gogo Moyo and Sangoma Society channels have content that is formatted as clear teaching content, the Nonkwenkwezi channel also has personal stories that

are directly related to indigenous knowledge. This channel leverages the YouTube story time type of video where content creators tell personal stories on a subject that suits the type of subject matters the show is about. The YouTube videos with some of the highest engagement, that is the degree scores, are the story time as seen in the network graph.

An exploration of the interconnectedness of the ego accounts to one another showed that at the level of comments, there was no relationship between the Afrosavvy, Gogo Moyo and Nonkwenkwezi channels. However, even though these accounts do not engage one another on the YouTube platform it does not exclude the possibility that the account holders watch each other's videos and their content possibly influenced by each other.

5.2.3 Social Network Analysis Summary

The social network analysis statistics and graphs show that the main difference between physical communities and social media communities is the connectedness of the people in the communities. The physical communities are highly connected communities due mainly to the fact that they tend to be familial, community and friendship networks. The social media communities on the other hand are very ego focused using one person or account as the main point of connection with rare interactions amongst other community members. For the YouTube communities, the engagement from community members is largely dependent on the type of video uploaded and the topic content. Part 2 of this analysis chapter will present results on community member sentiments about the content of conversations for the social media data.

5.3 Part 2 - Text Analysis

Part two of the results are intended to respond to **Research Question 2: What are the sentiments of the conversations on indigenous knowledge**.

As discussed in the data analysis section of the report only the social media data was processed for text analysis specifically sentiment analysis. This was done because the intention of the text analysis in this research process is to understand community sentiments during conversation related to indigenous knowledge. The social media data collected in this research process is suited to this task. The interviews however were with individuals instead of communities around the main individual of interest. As discussed in the methodology chapter, the NRC lexicon used two sentiments and eight emotion categories.

The sentiment graphs for all the Twitter accounts show significantly high scores for positive sentiments in words used during interactions on Twitter. The *positive* emotion score is followed by *trust* as the next emotion with a high score across all Twitter account interactions. The emotions with the least scores are *disgust* followed by *anger*.

FIGURE 5.6: Emotion scores for Twitter Afrosavvy text

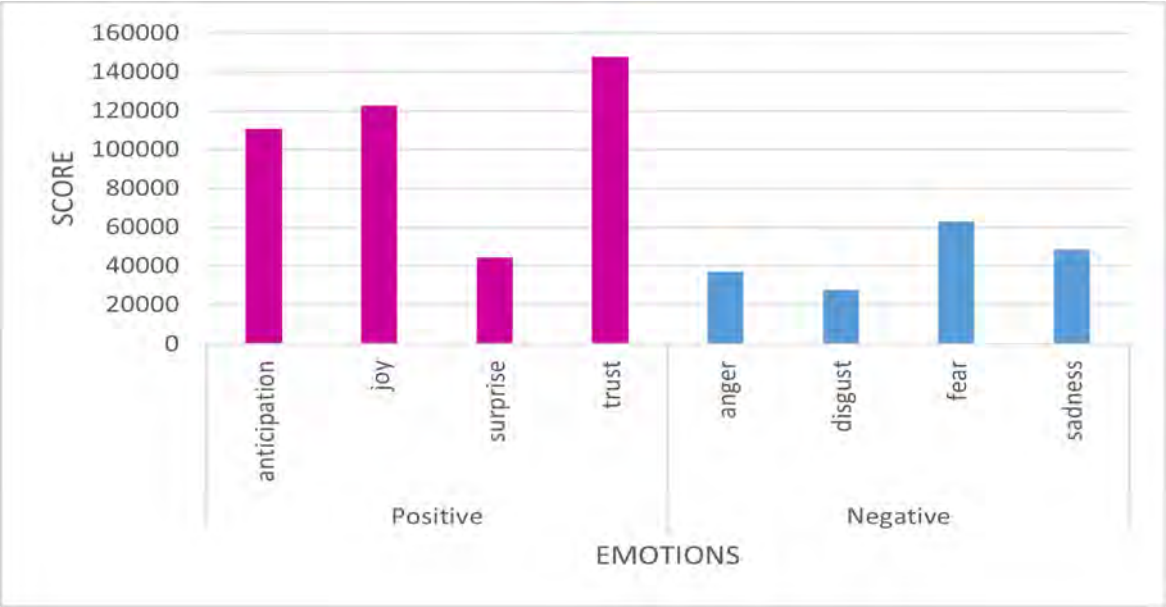


FIGURE 5.7: Emotion scores for Twitter Gogo Dineo text

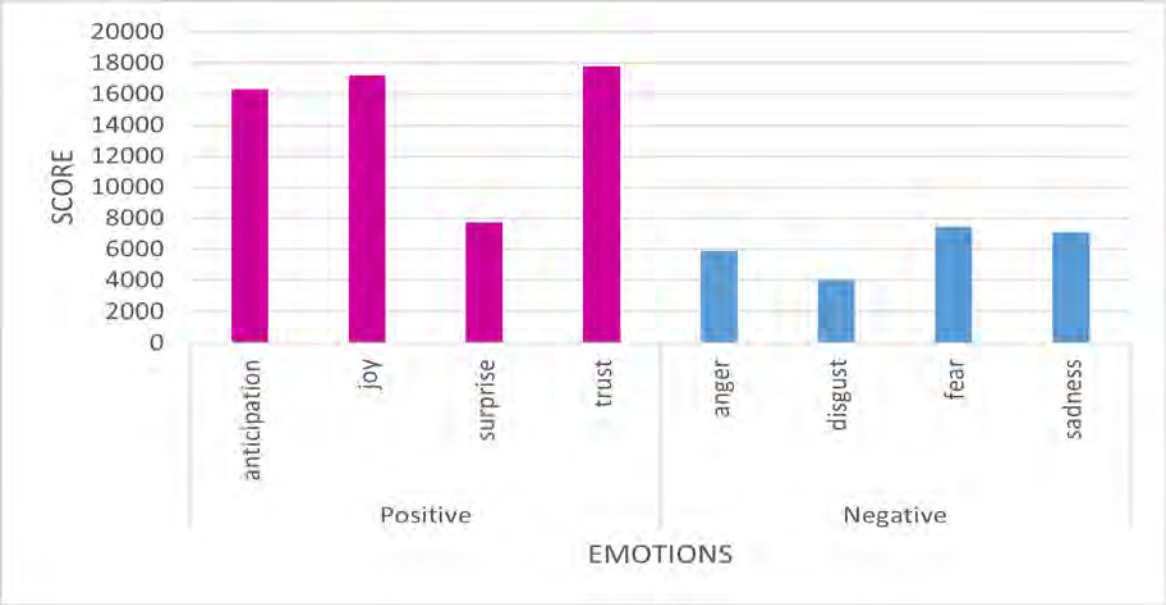


FIGURE 5.8: Emotion scores for Twitter Gogo Moyo text

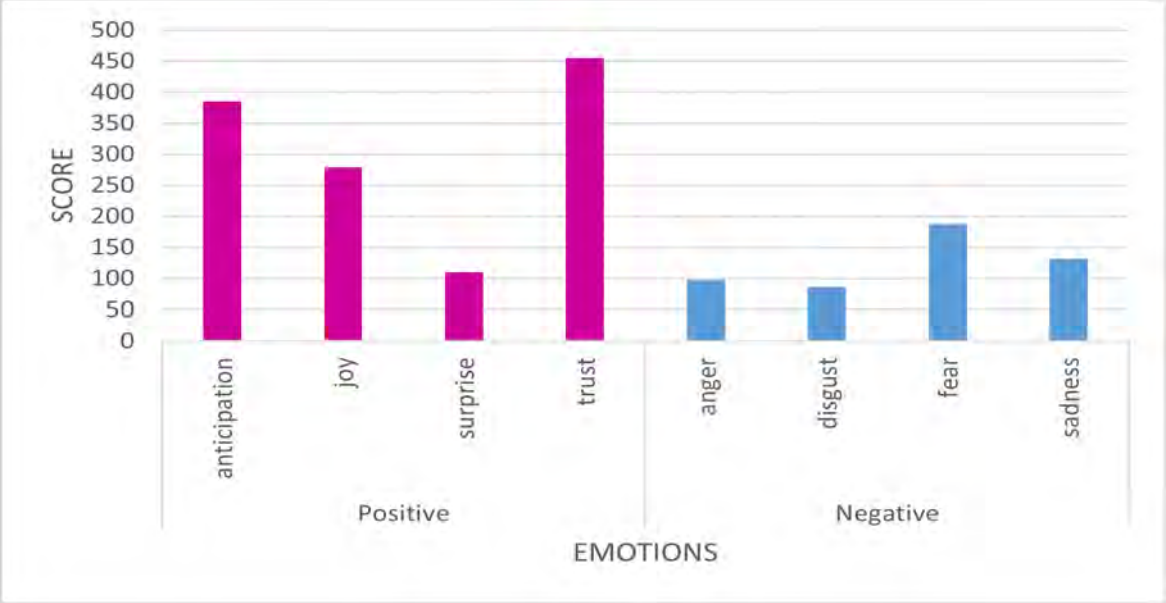


FIGURE 5.9: Emotion scores for Twitter Sangoma Society text

The YouTube sentiment scores have a similar trend as the Twitter sentiment scores. The YouTube scores show high *positive* and *trust* emotions while also showing low *anger* and *disgust* emotions across all YouTube accounts. The Nonkwenkwezi account also shows a

slightly higher *joy* score than the *trust* score which is a trend that is different to the other sentiment graphs for both the Twitter and YouTube data.

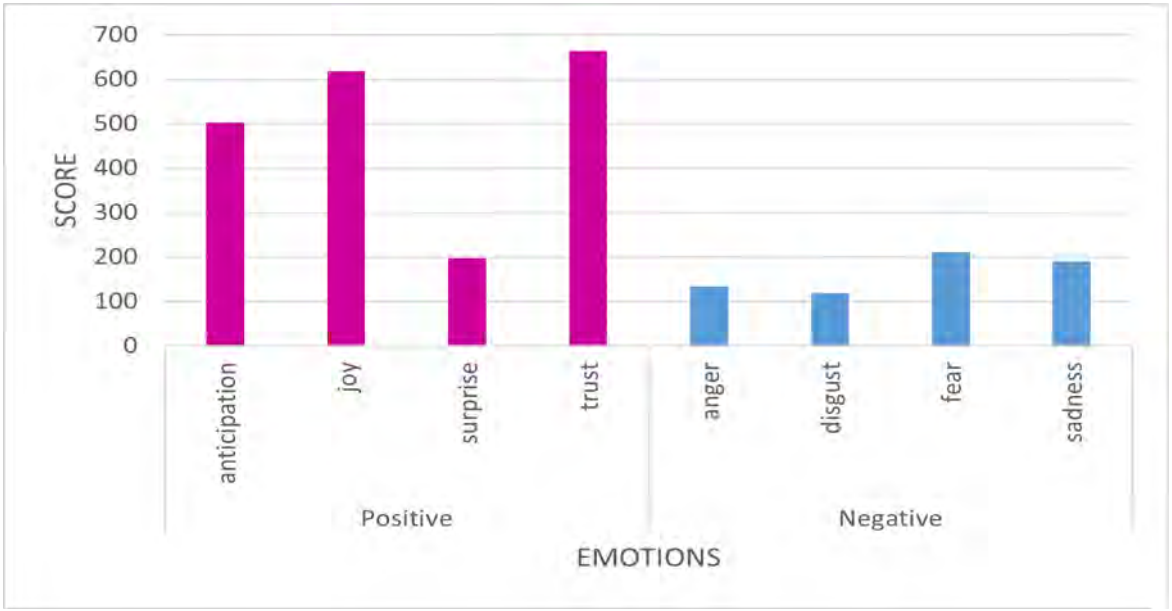


FIGURE 5.10: Emotion scores for YouTube Afrosavvy text

FIGURE 5.11: Emotions scores for YouTube Gogo Moyo text

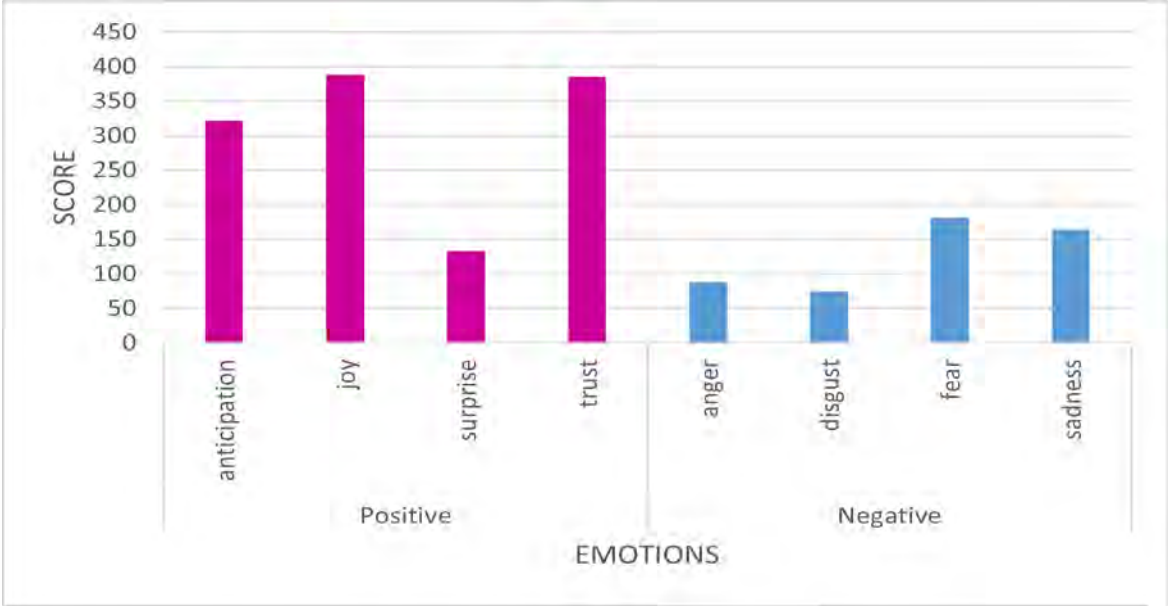


FIGURE 5.12: Emotions scores for YouTube Nonkwenkwezi text

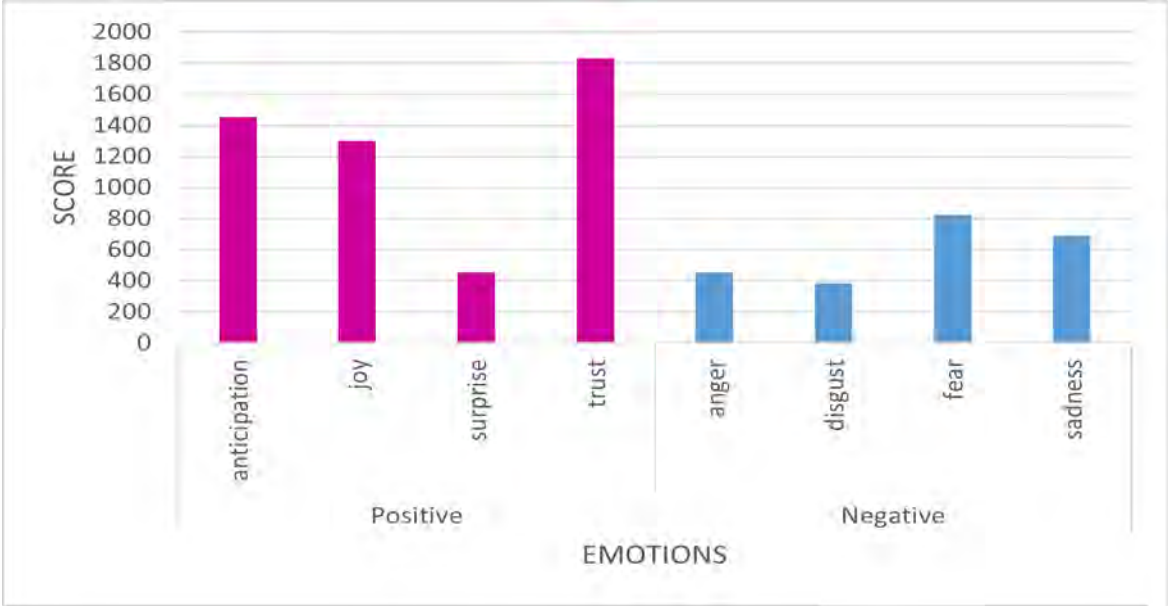


FIGURE 5.13: Emotions scores for YouTube Sangoma Society text

5.3.1 Sentiment Analysis Summary

The sentiment analysis shows a generally positive sentiment on social media. The high emotion score for trust for conversations that are led by content created by indigenous women shows that they indeed play a key role in the transmission of indigenous knowledge online.

5.4 Results Conclusion

This chapter has presented the results of the social network analysis and sentiment analysis conducted on the data sets discussed in the methodology section. The results show a difference in the composition of the physical communities and the social media communities as they relate to the sharing of indigenous knowledge. The physical communities are well connected while the social media communities are very poorly connected outside of the ego node. The sentiment analysis has shown generally positive sentiments on discussion on indigenous knowledge. The next chapter will discuss the meaning of the results and how they relate to existing literature seen in the literature review section of the report.

6 Discussion

This chapter will discuss how the results of the research assist in answering the research questions posed at the beginning of the research report. The chapter will be arranged according to the research questions and the objectives and the discussion linked to the existing literature on women's role in the preservation of indigenous knowledge through social media as seen in the literature review section of the report.

6.1 Network of Relationships

To answer the question of the make up of communities of relationships around the sharing of indigenous knowledge, a social network analysis was conducted on interview and social media data. Looking at the results of the social network analysis it is possible to see how the communities are able to meet the four basic assumptions of social network theory presented by Dunn (1983) in the methodology chapter of this report: (1) There are knowledge structures and processes that are constituted by relations amongst persons in both the physical and social media communities. (2) There are structured relations with regularities in the patterns among people. (3) The structured relations involve overt behavioural properties including the amount of direct contact informed by cognitive properties that is the belief or at least curiosity about indigenous knowledge. (4) Structured relations form the foundation from which cognitive and behavioural behaviours emerge.

A comparison of the interview data versus the social media data shows a clear distinction between the make up of the communities that share indigenous knowledge. The interview data shows that the sharing of information is largely a communal and reciprocal process. While parents and elders lead the communities, those who receive the information also share the information with others. This supports the literature that states that traditional ways of sharing indigenous knowledge are through everyday ways of knowing, doing and living (Aikenhead and Ogawa, 2007; Barnhardt and Kawagley, 2005). The way indigenous knowledge is shared is embedded in and forms a critical component of the social ties that indigenous people have. This is also reflected in the high number of edges in the interview data that show strong networks of connections.

In contrast to the interview data results, the social media results show unconnected communities that rely predominantly on the ego for information. The contrast in the make up of the communities is reflective of the contrast between Ubuntu and individualism. Indigenous knowledge and its systems has as its foundation the notion of Ubuntu where reciprocity in community is at the core of interactions and by giving, one tends to receive (Gumbo, 2014). The communities seen on social media reflect an individualistic and one directional approach to the consumption of indigenous knowledge. Both YouTube and Twitter have a functionality for interactions between viewers and accounts, respectively, however there is very limited interaction that occurs between viewers and accounts. One might speculate, however, that reciprocity occurs after people have consumed from social media. They might take their new found information and apply it in their everyday lives thereby contributing their indigenous knowledge to their own physical communities.

Lubbers et al. (2019) estimated that Spaniards know approximately 536 people which is line with earlier studies on estimates of acquaintanceship volume. While Spain is a country outside of Africa with possibly different structures of community, this finding helps us have an idea of some community sizes of connected networks of people. In their paper on the social network size of humans, Hill and Dunbar (2003) conclude that the mean network size for humans is 124.9 for individuals who are explicitly connected and the proportion of kin connections remained at approximately 21% for all their samples. The number of people identified by the interview participants is small with the participants identifying just 36 people or less in their networks. This could be due to participants were asked to identify only people who they identify as being a resource or recipient in the sharing and acquisition of indigenous knowledge in particular. The other issue could have been that memory fades and people sometimes forget who they might have had in their social circles over time. This shows an important flaw of the ego recall methodology applied in the research.

Twitter and YouTube networks are quite large with communities of people who have no familial ties to one another and were not raised in the same community. This shows the greatest strength of social media platforms for the sharing of indigenous knowledge. While the sharing of information is largely not reciprocal, the information is shared with large numbers of people. It is also important to remember that the data analysed was for those viewers and accounts who engaged with the content on the social media channels and excluded those who watched or read without engaging through comments, likes and retweets. Therefore there are likely many more people who have gained from the indigenous knowledge shared on these platforms.

Indigenous women have played a critical role in the knowledge sharing communities of the interview participants. The networks show that the mother, the sister of the mother and the sister of the father are key players that determine how and when information is shared. Seeing as the research participants are all Xhosa speaking women, this reiterates Mndende's assertion that Xhosa women are the protectors and implementers of indigenous tradition however they are often overlooked for their importance (Mndende, 2021).

Through the social media platforms data, one is able to see that indigenous women are indeed reservoirs of indigenous knowledge and are central figures in the preservation and dissemination of indigenous knowledge, at least in the context of this study. There are no large sub-communities - which would have been seen in high modularity statistics - that show that beyond the information shared by the egos there are other people who have a higher influence than the women in the network. All of the accounts have a large number of followers and subscribers which demonstrates that a large number of people trust these women to be custodians of and share credible indigenous knowledge.

Unsurprisingly the interview data showed that there are no connections between interview research participants. This is to be expected because the research participants are geographically far from each other with very minimal chance of engaging with one another. It is interesting however that three of the egos in the Twitter data can be found in each other's networks showing that there is a cross-sharing of information across egos. In the YouTube community networks, none of the egos were found in any of the other community networks. This does not preclude the potential that the egos engage outside.

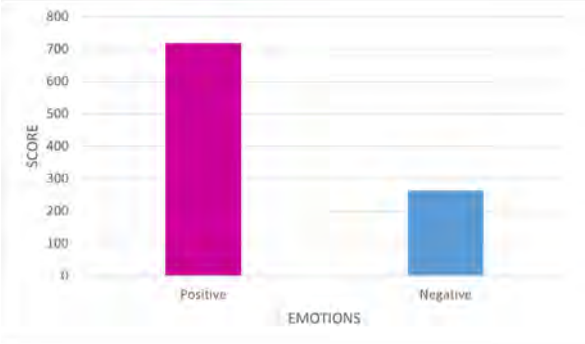
6.2 Sentiments of Conversations

Sentiment analysis helps with understanding the network structure better because it gives an idea of the sentiments that bind people together in the network. It could have been that the networks had largely negative sentiments which would give and indication that instead of being built on a need to co-learn and strengthen indigenous knowledge, the networks would have been based on fighting against indigenous knowledge. The results of the sentiment analysis show a generally positive response to tweets and videos that discuss or share information on indigenous knowledge with emotions with the highest scores being; *trust*, *joy* and *anticipation* in that order. The figures below show the difference in positive and negative sentiment across both the Twitter and YouTube networks. The positive sentiment is consistently significantly higher than the negative sentiment.

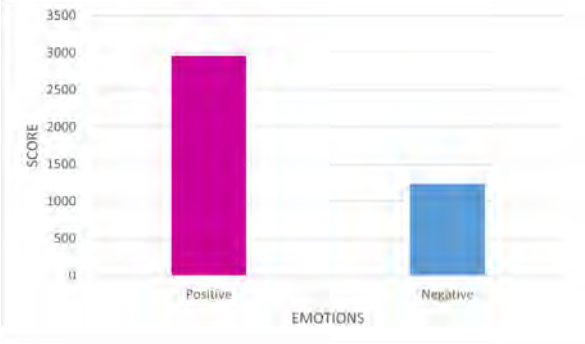
This is consistent with increase in the literature and efforts to preserve, promote and mainstream indigenous knowledge. As discussed in the literature review, communities and the state have been actively engaged in processes that are intended to lead to an increase in the mainstreaming of indigenous knowledge. The fact that people are engaging with content on indigenous knowledge coupled with the fact that sentiments are largely positive shows that there is an appetite for such content on social media and it is largely welcomed. The high *trust* emotion scores also show that indigenous women are trusted as custodians of indigenous knowledge on social media. The high *trust* score also shows that the people who engage with their content on indigenous knowledge do so with trust in the authenticity of the information shared.

(A) Afrosavvy's YouTube Sentiment

(B) Gogo Moyo's YouTube Sentiment



(C) Nonkwenkwezi's YouTube Sentiment



(D) Sangoma Society's YouTube Sentiment

FIGURE 6.2: Sentiment Scores for YouTube Networks

There are some negative emotions in the conversations on indigenous knowledge, the highest scores being that of *fear* and *anger*. These could possibly be people being unhappy with the information shared by the egos or people sharing their own experiences that indigenous knowledge related that could be negative.

6.2.1 Summary of Social Media and Indigenous Women's Use of Social Media

Like the NHI research report by Strutweg (2020), this research report has shown that it is possible to use graph theory in less studied social media research clusters. This research has shown that there are communities who form around the topic of indigenous knowledge in South Africa in the same way that communities formed around the around the topic of digital communities in Grandjean's (2016) research and the Australian floods topics in Cheong and Cheong's (2011) article. As the literature review has brought to the fore, indigenous knowledge has become a 'minority' because of a lack of protection and inclusion in mainstream education, government policy, media and other formal social structures in South Africa. Social media has given a new landscape for the memory of a minority group that has been rendered invisible in recent formalised social structures in a postcolonial South Africa. The social media communities, anchored by indigenous women as the most influential users, show that the platforms have created a space of collective memory where those who engage on the topics indigenous knowledge could potentially gain enough knowledge of indigenous knowledge that is influenced by the content they consume on Twitter as was found to be the case by Bosch (2016) in her research on the hashtag Rhodes Must Fall movement.

The platforms are particularly important because they have also created a space for indigenous women to address what Cannella and Manuelito (2008, p. 48) say is "the complex matrix of power generated by a patriarchal, colonialist Eurocentrism that attempted to eliminate all remnants of cultures that were multifocal or egalitarian". The literature states that prior to colonisation, women's position in their communities and homes was that of power as they were largely responsible for agriculture. With the advent of colonialism, indigenous culture and tradition were weaponised as a tool to disempower women and strip them of their agency. By being finding space to amplify their voices on indigenous knowledge on social media, the platforms have create an opportunity to begin to dismantle the complex matrix of power brought by colonialism to annihilate egalitarian systems that saw indigenous women being trusted and valued custodians of community systems and knowledge.

The platforms also allow a space for the understanding of indigenous women's experiences. This is particularly the case for YouTube where there is a popular category of videos called

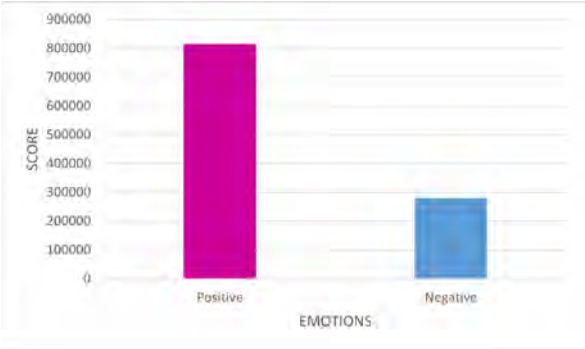
Story Time where indigenous women are able to tell personal stories of their lived experiences related to indigenous knowledge allowing them to challenge the erasure, domination and exclusion of their voices. This is similar to Macais' (2015) findings that through the use of storytelling and testimony about their lives as racial and gendered minorities Black women were able to counter their routine denied visibility and humanity within society. Like the woman and girls in Garcia and Vemuri's (2017) paper who shaped shaped discourse on rape culture through producing and disseminating YouTube videos, this study shows that the indigenous women who have used Twitter and YouTube to create communities on indigenous knowledge have contributed to popular discourse on indigenous knowledge.

6.2.2 Social Media's Influence on Indigenous Knowledge

This report has at the very least proven an appetite for the sharing of indigenous knowledge on social media platforms and that it is possible to use social media platforms such as Twitter and YouTube to share indigenous knowledge. However social media is a very Western construct, therefore information is organised and shared in very Western standards of sharing knowledge. This means that while there is opportunity for engagement, platforms such as Twitter and YouTube largely facilitate an extractive type of knowledge exchange where people consume information with no obligation to give back. Indigenous knowledge at its core in the physical world is rooted in Ubuntu where when one takes, they are immediately obligated to give back in some way. In the literature review Owusuh-Ansah and Mji (2013) state that knowledge, including indigenous knowledge, is subject to change from economic, environmental and social forces. With indigenous knowledge finding a space on social media platforms it has found itself having to operate on the rules of Western forms of information sharing where people/users often take the information without necessarily giving back.

6.3 Discussion Conclusion

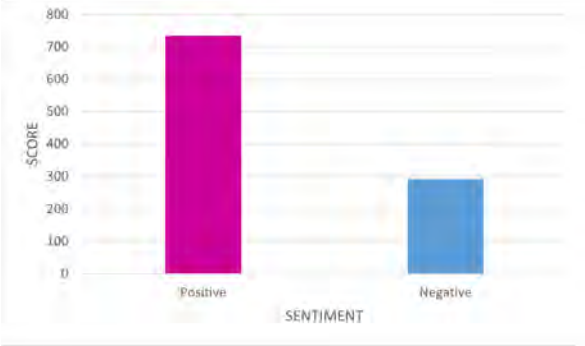
This chapter has discussed how the research results are linked to existing literature on women's role in the preservation of indigenous knowledge through social media and in their physical communities. The next chapter will conclude the report as well as present recommendations for future work.



(A) Afrosavvy's Twitter Sentiment

(B) Gogo Dineo Twitter Sentiment

(C) Gogo Moyo Twitter Sentiment



(D) Sangoma Society Twitter Sentiment

FIGURE 6.1: Sentiment Scores for Twitter Networks

7 Conclusion and Recommendations

7.1 Conclusion

This research study was conducted with the intention of answering three questions; (i) What is the make up of networks of transmission of indigenous knowledge on the social media platforms YouTube and Twitter as well as physical communities in South Africa?, (ii) What role do indigenous women play in the transmission of indigenous knowledge both on and offline? and, (iii) What are the sentiments of the conversations on indigenous knowledge? The literature evidenced the continued relevance of indigenous knowledge even though it, like many other systems, has its own flaws. The literature further showed the gap in knowledge on indigenous knowledge and social media. The literature showed that social media is a key tool for the sharing of information and that it has contributed to the mainstreaming of many minority issues and created an opportunity for like minded people to connect across geographies, creating cross border communities. It also showed that social media has allowed women a space to amplify their voices on issues that concern them directly.

The study then used an intergrative framework that incorporated postcolonial research paradigm, social network theory and postcolonial feminist theory to research and understand the research questions and results. The study adopted a transformative participatory research methodology for data collection and analysis. The data was further analysed used social network analysis and sentiment analysis. Indigenous women in physical communities participated in the study and on social media Twitter and YouTube accounts owned by indigenous women were analysed. The results of the research showed different community structures for physical communities and social media communities of indigenous knowledge sharing. The results also showed that indigenous women play a key role in the sharing and preservation of indigenous knowledge both in physical communities and on social media platforms. Conversations on social media about indigenous knowledge were found to be largely positive in sentiment.

Social media provides a new way of sharing indigenous knowledge at a large scale and across South Africa. It has also given indigenous women who are custodians of indigenous knowledge a platform to amplify their voices as credible sources of indigenous knowledge. The communities that share indigenous knowledge are not the same though across physical and and social media spaces. Where communities are highly connected, small and are predominantly kin in the physical communities, they are very disconnected, large and predominantly strangers in the social media communities. This difference in community structures raises questions about the influence of social media on the changes to indigenous knowledge in particularly what is shared and how it is shared. For example, this could change how quickly indigenous knowledge spreads across the country and how rapidly it might evolve as people adapt it to their own contexts.

Social media platforms are not without limitations however. Their very construct caters to limited methods of sharing indigenous knowledge, that is story telling, song and teachings. It is not possible to live through social media in the same way that one lives in a physical community that leads to learning through daily activities of living. Community interactions between 'knowledge holder' and 'knowledge receiver' are limited as one person or account is treated as the repository of indigenous knowledge even when engagement is encouraged by knowledge holders. This is in contrast to physical communities that allow for the sharing of indigenous knowledge through various dimensions of everyday life that determine ways of knowing and doing.

7.2 Implications and Recommendations

Future research should also seek to understand how the introduction of social media as a platform for acquiring indigenous knowledge has changed the way in which indigenous women understand and interact with indigenous knowledge.

In building on this research, future research could also seek to understand the demographics of those in the social media communities. It would be interesting to understand the demographics of those who consume the information shared on indigenous knowledge by indigenous women on social media. As discussed in the literature review, social media has and continues to be largely used by men. It would be interesting, therefore, to understand which demographic consumes the indigenous knowledge content shared by indigenous women on social media platforms. This would also allow for the creation of assumptions about the potential impact of the future of indigenous knowledge and its potential to disseminate in physical communities outside of the social media spaces.

Future research could also explore how the use of social media could be having a direct impact on the type of indigenous knowledge shared and how indigenous knowledge evolves.

A Appendix A - Ethics Clearance

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Ntsenge

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H21/05/37**
PROJECT TITLE	Women from physical to digital fires: The evolution of methods of transmission of indigenous knowledge
INVESTIGATOR(S)	Miss K Ntsenge
SCHOOL/DEPARTMENT	Social Sciences/
DATE CONSIDERED	21 May 2021
DECISION OF THE COMMITTEE	Approved Risk Level: Low
EXPIRY DATE	05 July 2024

DATE 06 July 2021 **CHAIRPERSON** J. Knight
(Professor J Knight)

cc: Supervisor : Dr C Khupe and Prof R Alence

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to submit an amendment of the protocol to the Committee. **I agree to completion of a regular progress report. For Minimal and Low studies, this is due annually on 31 December. For Medium and High Risk studies, this is due twice annually on 30 June and 31 December.**

KN Ntsenge
Signature

07 / 07 / 2021
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

B Appendix B - Consent Forms

Iphepha Lolwazi Lomthathi-nxaxheba
Umthathi-nxaxheba Ekuhlaleni

Igama lam ndingu Khanyisile Yolanda Ntsenge, ndingumfundi wesigaba se Masters ye e-Science kwi Nyuvesi yase Witwatersrand, eRhawutini. Ukuze ndigqibe izifundo zam kufuneka ndenze uphando. Ndiphanda *Indaleko yeendlela zokuhambisa ulwazi lwemveli kwizwekazi lase Mzantsi Afrika*. Ndiqeqeshwa ngu uGqirha Constance Khupe Constance.Khupe@wits.ac.za +27117172334 noNjingalwazi Rod Alence Rod.Alence@wits.ac.za +27117174494. Injongo yoluphando kukuqonda ukuba ubukho bamakhasi onxibelelwano angu Twitter kunye no YouTube kuyitshintshe njani indlela abantu ababhinqile bemveli eMzantsi Afrika abahambisa ulwazi lwemveli.

Njengba ndisenza oluphando, ndiyakumema ukuba ubeyinxalenye yodliwanondlebe. Udliwanondlebe luzothatha ixesha elingange yure enye kumathotho asihlanu ukuya kwasixhenxe. Ngokwazi kwam ngodliwanondlebe olukumila kunjengolu esizolenza, iyure enye ayizukwanela ukuthetha ngako konke esifuna ukuthetha ngako. Ke udliwanondlebe olulandela elokuqala lizobe linabisa esikuthethe ngaphambili. Ngemvume yakho ndinqwenela ukurekhoda udliwanondlebe ngobuxhakaxhaka balemihla. Okurekhodiwe kuzogcinwa kwi khompyuter yelaptop, nakwikhompyuter yecwecwe kunye nekhompyutha yamafu. Ngumphandi yedwa ozokwazi uzibona izinto ezigcinwe kobubuxhakaxhaka. Konke ndizokucima emva kweminyaka emihlanu. Iinxoxo zobuso ngobuso zizolandela umthetho wophando ngamaxesha eCOVID waseNyuvesi yase Witwatersrand.

Iindlela zophando endizisebenzisayo luphando olufuna inxaxheba evela kumthathi-nxaxheba, kunye nophando olubeka phambili impilo emveni kwekoloniyalizim kunye nophando ngobubhinqa emveni kwe koloniyalizm. Ezindlela zophando zinika abathathi-nxaxheba kuphando izwi lokuzithethela. Ke ngumnqweno wam ukuba amagama nezazisi zabathathi-nxaxheba zibalwe kwingxelo yophando ukubonakalisa ukuba ulwazi olufumaneka kumbalo wophando luvela kubaphi abathabathi-nxaxheba. Kodwa ungakhetha ukuba igama lakho lingaxelwa.

Xa ukhetha ukuba igama lakho lingaxelwa, kuzokwenziwa olundelayo ukufihla igama lacko: Igama lakho lizocinywa kufakwe ikhowudi. Igama lakho alizukubhalwa kwiingxelo ezinokwenza noluphando.

Awunyanzelekanga ukuba uthathe inxaxheba. Xa uvumile ukuthatha inxaxheba, ungakhetha ukurhoxa nah nini nah. Xa ukhethe ukurhoxa ulwazi ubusinike lona sizoligcina xa ungathanga silicime.

Imiphumo yoluphando kuzo kwabelwana ngayo ngezi ndlela: kuzo nikwa wena kunye nabanya abathathi-nxaxheba, umphandi uzobhala iphepha lophando, kwiwebhusayithi yeNyuvesi yase Witwatersrand, kwiwebhusayithi yeNETPPT nakwiindibano zocweyo.

Xa unenxalabo okanye isikhalazo malunga nemigaqo yokuziphatha yoluphando, wamkelekile ukuba uthintane nekomiti yomgaqo wokuziphatha kuphando ngabantu yase nyuvesi (engeyiyo eyezonyango), umnxeba uthi +27 (0) 11 717 1408, hrecnon-medical@wits.ac.za.

Ozithobileyo,
Khanyisile Yolanda Ntsenge
Khanyisile.Ntsenge@students.wits.ac.za
+27 (0) 73 577 1381

Iphepha Lolwazi Lomthathi-nxaxheba
Umthathi-nxaxheba Ekuhlaleni

Igama lam ndingu Khanyisile Yolanda Ntsenge, ndingumfundi wesigaba se Masters ye e-Science kwi Nyuvesi yase Witwatersrand, eRhawutini. Ukuze ndigqibe izifundo zam kufuneka ndenze uphando. Ndiphanda *Indaleko yeendlela zokuhambisa ulwazi lwemveli kwizwekazi lase Mzantsi Afrika*. Ndiqeqeshwa ngu uGqirha Constance Khupe Constance.Khupe@wits.ac.za +27117172334 noNjingalwazi Rod Alence Rod.Alence@wits.ac.za +27117174494. Injongo yoluphando kukuqonda ukuba ubukho bamakhasi onxibelelwano angu Twitter kunye no YouTube kuyitshintshe njani indlela abantu ababhinqile bemveli eMzantsi Afrika abahambisa ulwazi lwemveli.

Njengba ndisenza oluphando, ndiyakumema ukuba ubeyinxalenye yodliwanondlebe. Udliwanondlebe luzothatha ixesha elingange yure enye kumathotho asihlanu ukuya kwasixhenxe. Ngokwazi kwam ngodliwanondlebe olukumila kunjengolu esizolenza, iyure enye ayizukwanela ukuthetha ngako konke esifuna ukuthetha ngako. Ke udliwanondlebe olulandela elokuqala lizobe linabisa esikuthethe ngaphambili. Ngemvume yakho ndinqwenela ukurekhoda udliwanondlebe ngobuxhakaxhaka balemihla. Okurekhodiwe kuzogcinwa kwi khompyuter yelaptop, nakwikhompyuter yecwecwe kunye nekhompyutha yamafu. Ngumphandi yedwa ozokwazi uzibona izinto ezigcinwe kobubuxhakaxhaka. Konke ndizokucima emva kweminyaka emihlanu. Iinxoxo zobuso ngobuso zizolandela umthetho wophando ngamaxesha eCOVID waseNyuvesi yase Witwatersrand.

Iindlela zophando endizisebenzisayo luphando olufuna inxaxheba evela kumthathi-nxaxheba, kunye nophando olubeka phambili impilo emveni kwekoloniyalizim kunye nophando ngobubhinqa emveni kwe koloniyalizm. Ezindlela zophando zinika abathathi-nxaxheba kuphando izwi lokuzithethela. Ke ngumnqweno wam ukuba amagama nezazisi zabathathi-nxaxheba zibalwe kwingxelo yophando ukubonakalisa ukuba ulwazi olufumaneka kumbalo wophando luvela kubaphi abathabathi-nxaxheba. Kodwa ungakhetha ukuba igama lakho lingaxelwa.

Xa ukhetha ukuba igama lakho lingaxelwa, kuzokwenziwa olundelayo ukufihla igama lacko: Igama lakho lizocinywa kufakwe ikhowudi. Igama lakho alizukubhalwa kwiingxelo ezinokwenza noluphando.

Awunyanzelekanga ukuba uthathe inxaxheba. Xa uvumile ukuthatha inxaxheba, ungakhetha ukurhoxa nah nini nah. Xa ukhethe ukurhoxa ulwazi ubusinike lona sizoligcina xa ungathanga silicime.

Imiphumo yoluphando kuzo kwabelwana ngayo ngezi ndlela: kuzo nikwa wena kunye nabanya abathathi-nxaxheba, umphandi uzobhala iphepha lophando, kwiwebhusayithi yeNyuvesi yase Witwatersrand, kwiwebhusayithi yeNETPPT nakwiindibano zocweyo.

Xa unenxalabo okanye isikhalazo malunga nemigaqo yokuziphatha yoluphando, wamkelekile ukuba uthintane nekomiti yomgaqo wokuziphatha kuphando ngabantu yase nyuvesi (engeyiyo eyezonyango), umnxeba uthi +27 (0) 11 717 1408, hrecnon-medical@wits.ac.za.

Ozithobileyo,
Khanyisile Yolanda Ntsenge
Khanyisile.Ntsenge@students.wits.ac.za
+27 (0) 73 577 1381

Participant Information Sheet
Social Media Participants

Good day

My name is Khanyisile Yolanda Ntsenge and I am a Masters student in e-Science at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am investigating *The evolution of methods of transmission of indigenous knowledge in South Africa* under the supervision of Dr Constance Khupe Constance.Khupe@wits.ac.za +27117172334 and Prof. Rod Alence Rod.Alence@wits.ac.za +27117174494. The aim of this study is to understand how the introduction of the social media plat-forms Twitter and YouTube has changed the way in which indigenous women share indigenous knowledge.

As part of this project, I would like to invite you to take part in an online interview. Interviews should last for an hour each for a series of approximately 5-7 interviews. The research approach used which is postcolonial indigenous research has at its core the need to hold multiple conversations with participants in order to weave a deeper richer story and to make sure that the stories are represented as authentically as possible. Therefore, the follow-up interviews will be a continuation of the first interview picking up on any themes or issues that need further conversation. With your permission, I would also like to audio record the interview using a digital device during our online interviews. This recording will be stored on a laptop, tablet device and a Cloud and only the researcher will have access to this recording. It will be deleted after 5 years.

The research methods use a participatory research method as well as a postcolonial indigenous research approach and postcolonial indigenous feminist approach. These approaches are premised on giving the research participants a voice during the research. Therefore, it is preferred if the names and identities of research participants are included in the research to show that they are active co-contributors to knowledge generated through the research. Twitter and YouTube user policies require that participant usernames and account names be referenced in all academic research.

Your participation in this research is completely voluntary. If you decided to participate, you may withdraw at any time without any consequences or explanation. If you do withdraw from the study, the information you provided up to the time of withdrawal will be kept in the dataset unless you indicate otherwise. You may choose not to answer any questions without any consequences or explanation.

It is anticipated that the results of this study will be shared with others in the following ways: directly to participants, through a research paper written by the researcher, through the Wits University website, through the NETPPT website and through academic workshops and/or presentations.

If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,
Khanyisile Yolanda Ntsenge
Khanyisile.Ntsenge@students.wits.ac.za
+27 (0) 73 577 1381

Participant Information Sheet
Community Participants

Good day,

My name is Khanyisile Yolanda Ntsenge and I am a Masters student in e-Science at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am investigating *The evolution of methods of transmission of indigenous knowledge in South Africa* under the supervision of Dr Constance Khupe Constance.Khupe@wits.ac.za +27117172334 and Prof. Rod Alence Rod.Alence@wits.ac.za +27011 717 4494.. The aim of this study is to understand how the introduction of the social media plat-forms Twitter and YouTube has changed the way in which indigenous women share indigenous knowledge.

As part of this project, I would like to invite you to take part in an online interview. Interviews should last for an hour each for a series of approximately 5-7 interviews. The research approach used which is postcolonial indigenous research has at its core the need to hold multiple conversations with participants in order to weave a deeper richer story and to make sure that the stories are represented as authentically as possible. Therefore, the follow-up interviews will be a continuation of the first interview picking up on any themes or issues that need further conversation. With your permission, I would also like to audio record the interview using a digital device during our online interviews. This recording will be stored on a laptop, tablet device and a Cloud and only the researcher will have access to this recording. It will be deleted after 5 years.

The research methods use a participatory research method as well as a postcolonial indigenous research approach and postcolonial indigenous feminist approach. These approaches are premised on giving the research participants a voice during the research. Therefore, it is preferred if the names and identities of research participants are included in the research to show that they are active co-contributors to knowledge generated through the research. However, you may elect to remain anonymous.

Should you elect to remain anonymous several safeguards that will be put into place to protect your confidentiality. Your name will be removed and replaced by a code. You will not be identified in any reports or papers emerging from the project. All data analysis will be conducted by the researcher and overseen by the co-supervisors. Nobody else will have direct access to your information or data.

Your participation in this research is completely voluntary. If you decided to participate, you may withdraw at any time without any consequences or explanation. If you do withdraw from the study, the information you provided up to the time of withdrawal will be kept in the dataset unless you indicate otherwise. You may choose not to answer any questions without any consequences or explanation.

It is anticipated that the results of this study will be shared with others in the following ways: directly to participants, through a research paper written by the researcher, through the Wits University website, through the NETPPT website and through academic workshops and/or presentations.

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C Appendix C - YouTube Videos

Channel	Web Link	Video Title
Afrosavvy	https://www.youtube.com/results?search_query=rFeT43xK1eU	Sound healing in Africa and Mapungubwe Cosmology
Afrosavvy	https://www.youtube.com/results?search_query=e7QFoMwSI3A	iNgonyama/Leo season (African cosmology part 2)
Afrosavvy	https://www.youtube.com/results?search_query=IT9b1_gfwIU	African cosmology and the Sun God (An introduction)
Afrosavvy	https://www.youtube.com/results?search_query=jDM7z3pSh4c	Africanism in youth with Zanemvula (TransAfrica Radio)
Afrosavvy	https://www.youtube.com/results?search_query=VVjoEKCpPo4	Honouring our ancestors
Afrosavvy	https://www.youtube.com/results?search_query=Zu4fSu8R03Q	Thokoza Dlozi - A creative spiritual journey with Vus Ngxande
Afrosavvy	https://www.youtube.com/results?search_query=ypsYgzxPPBs	African calendar breakdown (Origin of the Zodiac)
Afrosavvy	https://www.youtube.com/results?search_query=N_Hrk8wfcQ8	Totems in African spirituality
Afrosavvy	https://www.youtube.com/results?search_query=Bhz--nF96So	uMuthi: Lesson 1 (How to source muthi)
Afrosavvy	https://www.youtube.com/results?search_query=q_UTEQ6EYcw	Podcast: The biology of Surnames (Part 1)
Afrosavvy	https://www.youtube.com/results?search_query=1AgFgSrRpAw	Amanono ancestral spirits (Spiritual school workshop part 1)
Afrosavvy	https://www.youtube.com/results?search_query=vOM4zo2UFic	Winter solstice new moon with Gogo Simenjalo
Afrosavvy	https://www.youtube.com/results?search_query=fcq88CCMrXM	We gave the world cosmology - Blondie Makhene
Afrosavvy	https://www.youtube.com/results?search_query=0bKvX3bDcuM	Moon ritual fundamentals with Gogo Simenjalo
Afrosavvy	https://www.youtube.com/results?search_query=Ns5_OznVLu0	The African New Year
Afrosavvy	https://www.youtube.com/results?search_query=BSSSeWeMj24	Invoking spirit through song with Nyaniso Dze Dze
Afrosavvy	https://www.youtube.com/results?search_query=uHi97-y7N3M	Spiritual in language with Gogo Khanyakude and Mkhulu Philip
Gogo Moyo TV	https://www.youtube.com/results?search_query=bAJDX7M3sxc	Are you a gifted person, what are the most common signs?
Gogo Moyo TV	https://www.youtube.com/results?search_query=6Yc8Wg8_elo	Ancestral cloths. Masela a badimo
Gogo Moyo TV	https://www.youtube.com/results?search_query=xBEahjsR4O4	Ukuhlola - Ancestral reading
Gogo Moyo TV	https://www.youtube.com/results?search_query=MHbBoXgqp1U	Ithakazelo - Totems
Gogo Moyo TV	https://www.youtube.com/results?search_query=T0wrdo8Yh9w	TheYearOf10
Gogo Moyo TV	https://www.youtube.com/results?search_query=I_1gtTVwGlg	TheYearOf10 - Part 2of3
Gogo Moyo TV	https://www.youtube.com/results?search_query=t35aNbRyv8A	TheYearof10 - Part3of3
Gogo Moyo TV	https://www.youtube.com/results?search_query=boP-4Eeiamc	Umsamo - Sacred prayer spaces
Gogo Moyo TV	https://www.youtube.com/results?search_query=t-xgMNZc33w	Ancestral bead work
Gogo Moyo TV	https://www.youtube.com/results?search_query=qFPmGKmsxZ4	Cleansings
Gogo Moyo TV	https://www.youtube.com/results?search_query=ppzVrI20o-s	We are all amaTwasa of life
Gogo Moyo TV	https://www.youtube.com/results?search_query=lst1VIWwh3E	Late nights with Gogo - Whats your why?
Gogo Moyo TV	https://www.youtube.com/results?search_query=0Q50nFz2HHs	Dating a spiritually gifted person open line
Gogo Moyo TV	https://www.youtube.com/results?search_query=e3ptOK722kQ	Traditional names with Gogo Moyo
Gogo Moyo TV	https://www.youtube.com/results?search_query=9g38lXzWDss	And we are live!
Gogo Moyo TV	https://www.youtube.com/results?search_query=kZOf0WZM2-w	Ancestral presence
Gogo Moyo TV	https://www.youtube.com/results?search_query=q0X9nNoZeNQ	Ancestral growth
Gogo Moyo TV	https://www.youtube.com/results?search_query=mrVvlK5pss0	Vuka dlozi
Gogo Moyo TV	https://www.youtube.com/results?search_query=D5_rIQNKWxY	Ancestors acknowledging the intwaso ceremony
Gogo Moyo TV	https://www.youtube.com/results?search_query=q3RYi7qwRK8	Intro to self care
Gogo Moyo TV	https://www.youtube.com/results?search_query=vM-TqEQFynU	Self-care | Essential oils
Gogo Moyo TV	https://www.youtube.com/results?search_query=YOne7Vd52CA	Self-care | Salts and ukuphalaza
Gogo Moyo TV	https://www.youtube.com/results?search_query=eNpuqX6wpGU	Self-care | Diwasho
Gogo Moyo TV	https://www.youtube.com/results?search_query=4gED1WKr9b8	Social media
Gogo Moyo TV	https://www.youtube.com/results?search_query=cC6PN7eFV8w	Do you need spiritual mentorship?
Gogo Moyo TV	https://www.youtube.com/results?search_query=flR456vjxpY	Healing trauma through spirituality
Gogo Moyo TV	https://www.youtube.com/results?search_query=afEUqDe0F9U	Sex and spirituality
Gogo Moyo TV	https://www.youtube.com/results?search_query=j_KYOckNUq4	Shadow work
Gogo Moyo TV	https://www.youtube.com/results?search_query=Mb0JrY_i37U	How to read auras
Nonkwenkwezi	https://www.youtube.com/watch?v=udw-cT2c5Kg&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=1	How I went from normal to CRAZY!
Nonkwenkwezi	https://www.youtube.com/watch?v=vPj1Jyv-FEI&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=2	Inwaso gone wrong - Wrong turn vibes
Nonkwenkwezi	https://www.youtube.com/watch?v=a9J1J-vFQ0g&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=3	From Sangoa to Online Psychic: Part 3
Nonkwenkwezi	https://www.youtube.com/watch?v=d7u8PwcLt9o&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=4	When they took us for a ride
Nonkwenkwezi	https://www.youtube.com/watch?v=uVfosszbtY8&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=5	How do you know uyathwasa?
Nonkwenkwezi	https://www.youtube.com/watch?v=1m2oR8aNHR0&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=6	My journey has seen me go through the most: including renting an RDP house
Nonkwenkwezi	https://www.youtube.com/watch?v=HX8Nyhj4r4E&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=7	When I divined for the first time | Imvumisa yam yokuqala | It was for a missing person
Nonkwenkwezi	https://www.youtube.com/watch?v=0PKgjx0xPr4&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=8	Lavuka idlozi Etheatre | When spirit woke during a hysterectomy procedure

Channel	Web Link	Video Title
Nonkwenkwezi	https://www.youtube.com/watch?v=yYiUehbM74U&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=9	That time they made us talk to a gogo by the river | Fake healers | Don't be fooled!
Nonkwenkwezi	https://www.youtube.com/watch?v=kdMYDhx1DVk&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=10	When my mother made me wash with intelezi elumayo because I was back from galavanting
Nonkwenkwezi	https://www.youtube.com/watch?v=bxmtKge4TW0&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=11	At work | Water rituals | Water spirits
Nonkwenkwezi	https://www.youtube.com/watch?v=qxvjIDpiZ3w&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=12	Moemish moment as a new initiate | dakhe ndaphantse ubethwa emagqirheni ngenxa yolwimi
Nonkwenkwezi	https://www.youtube.com/watch?v=47hy_x8hp8Q&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=13	Spiritual conversations with Nkwe
Nonkwenkwezi	https://www.youtube.com/watch?v=nQBfuJOyNGg&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=14	How I was pressured for quit my job | Are sangomas/amagqirha not meant to work?
Nonkwenkwezi	https://www.youtube.com/watch?v=HnO1V60H0u8&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=15	Bush camp yamanyange | siwisa incamazane engetheni | sigula abantu abadala
Nonkwenkwezi	https://www.youtube.com/watch?v=r31Icpnp188&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=16	When a traditional healer says they will apply muthi on you using their penis...RUN!
Nonkwenkwezi	https://www.youtube.com/watch?v=EBEGh6dqKLs&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=17	Owamie's divorce process reminds me of my very own | You too can get out of your abusive marriage
Nonkwenkwezi	https://www.youtube.com/watch?v=jwPDL7u4isE&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=18	Encountering unknown spirits | Emajikeni akwaNdundulu
Nonkwenkwezi	https://www.youtube.com/watch?v=fD8GeiFFXH0&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=19	An initiate accused me of witchcraft | Do sangomas really have the power to steal idlozi
Nonkwenkwezi	https://www.youtube.com/watch?v=Oomxbd6DLno&list=PLV-EZb3IuKSnKPTUevTJnArM9aX9J9u1s&index=20	When a traffic officer feared giving me a ticket when they saw I'm a traditional healer
Nonkwenkwezi	https://www.youtube.com/watch?v=gGEslPqfzmk&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=1	Discovering your spiritual purpose
Nonkwenkwezi	https://www.youtube.com/watch?v=72uxXGZvg-Q&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=15	Ukuthwetyulwa komoya: Can spirit be captured by evil doers? Ukuphehlelwa amanzi amnyama
Nonkwenkwezi	https://www.youtube.com/watch?v=xq_mX7F6Pms&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=17	Will my hysterectomy affect my spirituality | Igqirha liyasikhupha isibeleko?
Nonkwenkwezi	https://www.youtube.com/watch?v=R-uaNNsx1zY&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=19	Iladi | Itiye labantu abadala | Umsindleko | Umphahlo
Nonkwenkwezi	https://www.youtube.com/watch?v=DF0kb0bO4zs&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=20	The Goat and African Spirituality: Xhosa Edition - Part 1 | Ibhokwe is our data
Nonkwenkwezi	https://www.youtube.com/watch?v=BOMj5RBsOYY&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=22	The Goat and African Spirituality: Xhosa Edition - Part 2 | Imvumakufa | Ukuchitha intsimbi | etc.
Nonkwenkwezi	https://www.youtube.com/watch?v=2geFtDv4Bd0&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=25	"Its okay not to be okay", Somizi Mhlongo | Anxiety/Depression | Imfukamo | South African Youtuber
Nonkwenkwezi	https://www.youtube.com/watch?v=FWTGDkwdHcs&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=28	Spiritual Awakening in 2021 | What's in a name? | Masculine / Feminine Energy | Soul Alignment
Nonkwenkwezi	https://www.youtube.com/watch?v=XHISBOSV0gk&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=29	Mental Health and Spirituality | Depression | Suicide | Anxiety
Nonkwenkwezi	https://www.youtube.com/watch?v=b9Ch0jvfmq8&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=30	Futha gabha cima / Gquma Phalaza Chatha / Cleansing may not always be the solution. Learn to wait
Nonkwenkwezi	https://www.youtube.com/watch?v=bDvG-JchWR4&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=32	Idliso | Intando | Love spells | Finding Love After Divorce | Valentine's Edition
Nonkwenkwezi	https://www.youtube.com/watch?v=X1Nl-zN1roc&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=34	Tranditional Healers are meant to be the custodianss of traditions and customs | Moja Love Umndeni?
Nonkwenkwezi	https://www.youtube.com/watch?v=EX5EYLPSjhA&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=40	Isazimzi | Ukumisa ixhanti | umthonyama | ukuvula umzi | Telling your ancestors of your whereabouts
Nonkwenkwezi	https://www.youtube.com/watch?v=5g1564KLUgc&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=42	Utsiki | Intando | Isibambelelo | Ingidi/ukhiye | Isiphephetho | Love Spells
Nonkwenkwezi	https://www.youtube.com/watch?v=VZMt2O_jkZk&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=43	The elements of Earth, Wind, Water, and Fire as we connect with our ancestral spirits
Nonkwenkwezi	https://www.youtube.com/watch?v=Z8eCq2mt0zk&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=48	Ukulanda abantu abadala | ukungenisa abantu abada | ukuphuthuma abantu abadala
Nonkwenkwezi	https://www.youtube.com/watch?v=aFDdX1kdoOI&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=49	Isidanga | Isankwana | Isinxibo segqirha | Ukuzimasa amasiko
Nonkwenkwezi	https://www.youtube.com/watch?v=J6ROsHOEkhY&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=50	Healing Yourself | Healing Your Family | Healing Your Ancestry | Vipassana Meditation
Nonkwenkwezi	https://www.youtube.com/watch?v=9WLqTHhayh0&list=PLV-EZb3IuKSkB7cxlWU5tDEYr4Fs3slfO&index=52	African spirituality is very clear on building families as opposed to destroying them
Nonkwenkwezi	https://www.youtube.com/watch?v=uV7UXHGjUgM	Inkomo yezilo vs inkomo yenguqulo
Nonkwenkwezi	https://www.youtube.com/watch?v=D-nUk47efkI	Isiko vs Isithethe | Custom vs Tradition
Nonkwenkwezi	https://www.youtube.com/watch?v=D-nUk47efkI	African spirituality | Ubuntu bethu | They call us psychotic when we talk of the talking snake
Nonkwenkwezi	https://www.youtube.com/watch?v=bO8crU5lORI&list=PLV-EZb3IuKSnsd3_JuT9pWiacpG7U9zGu&index=2	Why do we forget dreams?
Nonkwenkwezi	https://www.youtube.com/watch?v=AlYFez44JHk&list=PLV-EZb3IuKSnsd3_JuT9pWiacpG7U9zGu&index=3	The Power of 3 a.m. | Vukulawule ithongo | Praying at 3am | Ukuphahla entathakusa
Sangoma Society	https://www.youtube.com/watch?v=hVf7Owaigv4	Black tax and the ancestors
Sangoma Society	https://www.youtube.com/results?search_query=Eq3rlCOR_AE	Connecting with Candles
Sangoma Society	https://www.youtube.com/results?search_query=gyoedRkricE	Impepho protocol
Sangoma Society	https://www.youtube.com/results?search_query=J5_ol8CFkqg	Making an appointment with a sangoma
Sangoma Society	https://www.youtube.com/results?search_query=FelE_1ZocG0	Self compassion for healing in the context of african spirituality
Sangoma Society	https://www.youtube.com/results?search_query=iuwd2ePdZIQ	Sleep as self care | Sleep as a portal to ancestral contract
Sangoma Society	https://www.youtube.com/results?search_query=JNF8y4kd064	Spiritual accountability
Sangoma Society	https://www.youtube.com/results?search_query=EuCLwKZQU5I	The language of dreams
Sangoma Society	https://www.youtube.com/results?search_query=iPBWbvy2SwM	What to know when you consult a healer
Sangoma Society	https://www.youtube.com/results?search_query=xv7zGaDm0U4	Why are you waking up at 3am
Sangoma Society	https://www.youtube.com/results?search_query=H7z4IcjkSpM	Why do I have to change my surname?

D Appendix D - Interview Questions

Semi-Structured Interview Instrument

The interviews to be conducted will be unstructured in nature. This means that all although there are prepared probing questions, the interview will be allowed to naturally flow in any direction that remains relevant to the research topic. Therefore, follow up interview questions will be modified to suit the candidate's specific experiences.

Focus Area	Probing Questions
Participant Introduction	Please tell me about yourself? Where did you grow up? Who raised you? What is your current occupation?
Understanding of Indigenous Knowledge	What is your understanding of indigenous knowledge? How has indigenous knowledge shaped your life? How has the way you find and receive indigenous knowledge changed from childhood to adulthood? Do you think indigenous knowledge is as easily accessible now as it was in your childhood?
Name Generator	Based on your understanding of indigenous knowledge please share with me a list of people who you think have been very important in your acquisition and sharing of indigenous knowledge. Of those people who do you think you shared knowledge with? Of the people you mentioned who do you think you regard as a source of indigenous knowledge for you?

E Appendix E - Interview Participants and Social Media Accounts

E.1 Interview Participants

1. Nombulelo Ntsenge
2. Noluntu Maponye
3. Khanya (Nonkwenkwezi) Bovula

E.2 Twitter Accounts

Twitter Account	Twitter Handle
Afrosavvy	@afro_savvy
Gogo Dineo	@gogodineo
Gogo Moyo	@GogoMoyoSpeaks
Sangoma Society	@SangomaSociety

E.3 YouTube Channels

YouTube Channel	Channel URL
Afrosavvy	https://www.youtube.com/c/AFROSAVVY
Gogo Moyo TV	https://www.youtube.com/c/GogoMoyoSpeaks
Nonkwenkwezi	https://www.youtube.com/channel/UCWnDTUMouqaJXvy-ZkTUVhA
Sangoma Society	https://www.youtube.com/c/SangomaSociety

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