

**AN EXPLORATION OF WAYS OF TEACHING AND LEARNING INDIGENOUS
KNOWLEDGE IN THE CLASSROOM: A CASE STUDY OF PATRICK RAMAANO
SECONDARY SCHOOL IN HA-RAMAVHOYA VILLAGE, LIMPOPO PROVINCE**

BY

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DECLARATION

I, **Thakhani Nthangeni**, hereby declare that the dissertation I am submitting for a Master of Arts in African Studies at the University of Venda is unique, that it has not before been presented for a degree from this or any other university, and that I am solely responsible for its conception and implementation. All relevant sources have been correctly cited as well.

Signed (Student): **Nthangeni.T.** Date: .23/05/2024.....

ABSTRACT

There is a growing recognition of the significance of including indigenous knowledge (IK) in the curriculum. Calls are being made for integrating IK in the modern education system, given that the previous education system was rigid and predominantly centred on ideologies of the colonisers, such as the British and Portuguese in most developing countries. The South African government is also making efforts to integrate IK in the science of teaching and learning. Teachers are expected to link indigenous knowledge to the specified curriculum guidelines; however, the problem is that there are no specific ways that are advanced in the curriculum statements on how that can be done. This study explored the ways of teaching and learning indigenous knowledge in the classroom from selected schools. The study is qualitative; a case study research design was used, and participants were recruited purposively. Multiculturalism theory was used in this study. The data was gathered using semi-structured interviews and focus group discussions with elderly indigenous holders, grade 8-12 learners and teachers from Patrick Ramaano Secondary at Ha-Ramavhoya village. The collected data was analysed using thematic data analysis. The envisioned study findings are essential in understanding to teach indigenous knowledge. The study showed that a primary obstacle to incorporating indigenous knowledge into the curriculum is the teachers' limited understanding of IK and the lack of learning materials based on IK. The research also showed that while challenges are unavoidable, there are certain advantages to be gained from integration such as thorough documentation of indigenous knowledge and a complete educational experience focused on cultural commitment. The study suggests that teacher training should be developed to effectively integrate IK content. The research also suggests the need for inclusive IK policies to acknowledge the significance of incorporating IK into education.

Keywords: Indigenous knowledge, teaching methods, teaching, and learning, curriculum

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I share the same beliefs as Elihu, the man who declared of the one and only true God, "He has not shown partiality to princes and has not given more consideration to the noble one than to the lowly one, for all of them are the work of His Hands;" Job 34:19. How could I have progressed so far in this world of inequality if it weren't for the Love of this impartial God?; I am thankful for the Love I do not deserve. I lost the first draft of this academic paper because the gadget I was using stopped working. Yet, I motivated myself and had the zeal to do it again and this time, I produced an even better product of this academic paper. How else can I explain writing this volume with only a mobile phone if not His ineffable grace?

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DEDICATION

I dedicate this work to the memory of the love of my life, my grandmother; Nyamukamadi Nkhoyeni. She gave me the foundation of something she never had, education. A woman who never yielded to adversity and conquered every obstacle imaginable to make it possible for future generations to achieve what they have. Granny, you can rest assured that I fulfilled your request. I completed. I carry with me your courage and resilience to push through. God is writing a meaningful biography on my behalf, and this is my favourite chapter so far. There is more to my story, I will come back to tell you this end.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1. Introduction and Background

This chapter introduces the background of the study by providing an overview on ways of teaching and learning indigenous knowledge in classrooms. The chapter also provides the problem statement, the significance of the study, the aim of the study, and the definition of key operational terms and ends with a breakdown of the study chapters.

There is an increasing recognition of the importance of including indigenous knowledge (IK) in the curriculum worldwide. Governments from both developed and developing countries are continuously developing policies aimed at facilitating the inclusion of IK in the science of teaching and learning to protect our rich indigenous knowledge heritage (McKinley, 2005; Khupe, 2014; Ronoh 2017). List the authors and year of publications chronologically.

Calls are being made for the integration of IK into the modern education system, given that the previous education system was rigid and predominantly centred on the ideologies of previous colonisers in most developing countries (Khupe 2014; McKinley 2005). However, there are arguments that in this era of globalization characterised by high migration rates from one place to another community, how one's previous place or community-based knowledge will be relevant (McKinley 2005). Khupe (2014) states that concerted efforts on integrating IK in the school curriculum aim to attain the principles of social justice that were ignored during the colonial era.

The South African education system was used to facilitate segregation by the apartheid government prior 1994, and in the process, this disregarded the importance of IK in the science of teaching and learning. According to the Department of Education (DoE) (RSA DoE, 2002), apartheid government never had a national education system; its spatial segregation ideologies resulted in nineteen fragmented education departments across South Africa.

These institutions were separated along apartheid principles on ideology, race, and geography, which reinforced inequality and exclusion of indigenous knowledge in the education system. The dawn of post-apartheid democratic era brought about educational legislation and policies aimed at dismantling and reforming the apartheid education system, content and methods (Khupe, 2014).

The White Paper on Education and Training (RSA 1995) reiterates the need for changing the fragmented, contrasting, and paradoxical apartheid education system into a rationalised and consolidated single curriculum for the whole nation in the post-apartheid era. South Africa Department of Education (2011) adds that the national curriculum was developed from several years of experience and putting effort into transforming “...the curriculum bequeathed to us by apartheid”.

The notable frameworks emphasising the importance of inclusion of indigenous knowledge in the curricula among others include, RSA Constitution, Outcomes Based Education (OBE) introduced 1997, Revised National Curriculum Statement Grades R-9 (2000), National Curriculum Statement Grades 10-12 (2002), and Curriculum Assessment and Policy Statements (CAPS). The principles of these frameworks are also centered on valuing the integration of Indigenous Knowledge Systems (IKS), in the ways of teaching and learning. This presents a significant shift from the traditional western centered education towards recognition of IK in the modern education system.

1.2. Problem Statement

Even though there have been numerous curriculum reforms within the country, including the current Curriculum Assessment Policy Statement (CAPS), which attracts much criticism for ignoring or turning a blind eye to the teaching and learning of indigenous knowledge. McKinley (2005) stated that “classroom practices appear to remain traditional”. This is also attributed to the fact that the developed legislation and policy frameworks are inadequate, they do not specify how teachers can integrate IK in the science of teaching and learning. Khupe (2014) posits that the most recent education policy document Curriculum Assessment Policy Statement (CAPS), brings back rigidity in the learning process through strict week-by-week teaching plans that constrict teachers’ creativity in including indigenous knowledge.

This shows that there is a need to further investigate ways in which IK can be integrated into the teaching process and learning process. McKinley (2005) reiterates that there is a research gap on how IK is being integrated into the ways of teaching and learning science. This study seeks to explore the ways of teaching and learning indigenous knowledge in the classroom from selected schools.

The Curriculum Assessment Policy Statement (CAPS) document fails to clearly stipulate how teachers should integrate IK within the classroom. This implies that if suitable ways to teach indigenous knowledge are not found, this will result in the transfer of IK to learners as archaic,

and that will result in knowledge losing its purpose, value, and the impact it has on human life. Lastly, if the blind eye is turned on and avoiding finding suitable ways of teaching and learning indigenous knowledge in the classroom, the knowledge will disappear.

1.3 Significance of the Study

A review of the literature shows that many countries from both developed and developing are continuously developing policies aimed at facilitating the inclusion of IK in the science of teaching and learning to protect rich African knowledge heritage (Ronoh 2017). South Africa also took the initiative to emphasise the need for teachers to include IKS in the classroom in the CAPS document. This presents a significant shift from the traditional western centered education towards recognition of IK in the modern education system. Hence this study aims to explore ways of integrating IK in teaching and learning at secondary schools. This is vital as it will add to knowledge on ways of integrating IK in the classroom. It is anticipated that the findings of this study will contribute to the body of knowledge on how IK can be integrated into teaching and learning in the classroom.

This will enhance and improve policies, like inclusive education policy, language and culture preservation policy, curriculum reforms policy, social cohesion and national building policy and decolonization and transformation of education policy. Moreover, the findings of this study are highly likely to provide a chance to document some of the indigenous knowledge and add to the body of knowledge that already exists. Lastly, the findings will assist the Department of Basic Education and the teachers on possible methods of teaching and learning indigenous knowledge in the classroom.

1.4 Aim of the Study

This study aimed to explore the ways of teaching and learning indigenous knowledge in the classroom in Ramavhoya village.

1.4.1. Research Objectives

To achieve the above aim, the study had the following objectives:

- To describe the potential benefits that may result from integrating indigenous knowledge into the formal school curriculum,
- To examine the challenges faced in integrating indigenous knowledge into the Basic Education curriculum,

- To establish possible adaptive methods of teaching and learning indigenous knowledge in the classroom.

1.4.2. Research Questions

- What are the potential benefits of incorporating IK into formal school curriculum?
- What are the challenges faced in the incorporation of IK in the Basic Education curriculum of two selected cases?
- Which possible adaptive methods can be used in teaching and learning Indigenous knowledge in the classroom?

1.5 Definition of Key Operational Terms

This section presents a definition of key operational terms used in this research study. The main key operational terms are defined as follows.

15.1 African Indigenous Knowledge

According to Senanayake (2006), indigenous knowledge is the local knowledge or unique knowledge of a given culture or society, and it is commonly referred to as local knowledge, folk knowledge, and traditional knowledge. Understanding African Indigenous knowledge will help us to know its nature and what type of knowledge is suitable to be included within the curriculum and how it can be included for it to be relevant.

1.5.2 Teaching

Teaching refers to an “engagement with learners to enable their understanding and application of knowledge, concepts, and processes. It includes design, content selection, delivery, assessment, and reflection” (Christensen, Garvin and Sweet, 1991). According to Sequeira (2012:3) teaching is “a set of events, outside the learners which are designed to support internal process of learning”. The concept of teaching is fundamental to the study as it forms the foundation of the research question. The researcher aims to understand how indigenous knowledge can be effectively taught and learned within an educational setting, specifically in a classroom environment. By examining how teaching occurs in this context, the researcher can gain insights into the best practices for incorporating indigenous knowledge into the curriculum.

1.5.3 Learning

Learning refers to a process whereby one “develops the knowledge and skills needed to participate in the communal, cultural practices and to become a fully functioning member of the community” (Gavelek and Kong, 2012:115). Learning can also be defined as “the activity or process of gaining knowledge or skill by studying, practicing, being taught, or experiencing something” (Merriam-Webster dictionary). Therefore, learning is a process of acquiring knowledge. It is very crucial to know that learners will be able to receive this knowledge in a manner that would make it relevant. This will help us to know how learning should take place, it could be through observation, making connections, experience, or reflection.

1.5.4 Enculturation

Gavelek and Kong (2012:115) define enculturation as “the process whereby individuals learn their group’s culture through experience, observation, and instruction”. This implies that the term enculturation generally refers to the process of learning your culture. In the context of teaching and learning, indigenous knowledge, and enculturation could involve immersing students in the cultural practices and traditions associated with indigenous communities. This helps students develop a deep understanding and appreciation for indigenous knowledge. Lastly, the concept of curriculum is significant in this study as it guides the design and implementation of educational programs.

1.5.5 Curriculum

According to Su, (2012), curriculum can be defined as “a means of achieving specific educational goals and objectives” The author added that a curriculum can be referred to as a plan, “a blueprint for systematically implementing educational activities.” In the context of teaching and learning indigenous knowledge, the curriculum plays a crucial role in incorporating indigenous perspectives, content, and pedagogical approaches. A well-designed curriculum ensures that indigenous knowledge is integrated into the educational system in a meaningful and inclusive manner.

1.6 Outline of Chapters

Chapter 1: Introduction and Background

This is the introductory chapter of the study. In this chapter, the background is discussed followed by the problem statement. The other sections covered the research aim, research objectives and questions as well as the significance of the study.

Chapter 2: Theoretical Framework and Literature Review

The chapter reviews the theoretical framework and literature about the objectives of the study. The chapter begins with a discussion of multicultural theory as the theoretical framework that underpinned this study. The second section focuses on a review of literature with a focus on the following: decolonisation of knowledge, curriculum development, methods of teaching and learning and the challenges of teaching and African indigenous knowledge. discuss the theories that will guide this study.

Chapter 3: Research Methodology

This chapter outlines and discusses the research methods that guide data collection and analysis. Thus, the chapter outlines the research design followed in this study, data collection and analysis techniques, sampling methods, and measures to ensure trustworthiness and ethics that were observed in collecting and analysing data.

Chapter 4: Data Presentation, Interpretation and Analysis

This chapter presents, interprets, and analyses the study findings about the study objectives. The collected data is presented in a narrative format guided by thematic analysis.

Chapter 5: Summary, Recommendations and Conclusion

This is the last chapter of the study. The focal point of the chapter is to summarise the study results. The chapter further outlines the study limitations and areas of future research and provides recommendations in line with the research findings.

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

The way indigenous knowledge, indigenous knowledge systems and their meaning related to school curriculum has been the center of debate and its influence on education is also emphasised. This chapter explores the extent to which IK has been involved by African educational organisations as an essential body of knowledge for incorporation as compared to the western education systems. The chapter also attempts to investigate the extent to which efforts have been put to effectively integrate African IK in the school curriculum and points out some of the challenges that prevent successful implementation into the curriculum. The chapter also highlights the concept methods that can be used to teach African IK in the classroom environment.

2.2 Literature Review

This section covers the literature review of the study. A literature review is a piece of academic writing that discusses recent material, relevant findings, theories, and methodological contributions to a particular subject issue (Creswell, 2013). Adding on, Creswell and Creswell (2018) define literature review as a systematic review of previous scholarly papers in line with a particular topic to assess the current knowledge as well as identify literature gaps. A literature review is important as it presents a foundation of a research study to demonstrate the familiarity of the researcher with relevant literature at the same time identifies where additional research is required. The chapter presents the literature with an emphasis on earlier investigations into the subject of the research study. This chapter provides a thorough grasp of what is known and what is unknown about the study topic.

2.2.1 Nature of Indigenous Knowledge (IK)

Indigenous knowledge is a field of inquiry, both locally and worldwide mainly for those interested in modern education (Battiste, 2002). The term IK has different meanings: it depends on one's academic disciplines, which range from social anthropology to sustainable development studies (Shizha, 2013). Even though the terms IK and IKS (Indigenous Knowledge Systems) are regularly used interchangeably. Shava (2016) defines IK as what indigenous people know and do. The author further argues that IK is spread by indigenous peoples from generation to generation verbally through narrating stories, folklore, songs and

poetry, and visually through performing arts, cultural rituals and dance, and through doing the artifacts associated with the practice.

Indigenous knowledge is a complete body of knowledge, know-how and practices preserved and developed by people usually in rural areas with extended histories of communication with the environment (Boven & Morohashi, 2002). Indigenous knowledge is a set of activities, values, beliefs and practices that have changed over the period, and it is active amongst groups of people and groups who are its experts (Owour, 2007). IK can also be defined as the knowledge held and used by people who classify themselves as indigenous to a place based on a mixture of cultural uniqueness and before territorial residence relative to recently arrived people with its own different and dominant culture (International Labor Organisations [ILO], 1989: Article 1).

IK can be used to explain knowledge gained and used by people in non-western, non-industrialised and traditional backgrounds and represents knowledge that has developed in a certain general context, and which is used by non-professional people in that context to maintain their lives (Semali & Kincheloe, 1999). Barnhardt (2014) postulates that IK emphasises positive parenting and parenting practices throughout the community in every phase of teaching and engaging in extended experiences that involve the development of observation and listening skills. The concept of IK is the totality of knowledge, practices and skills people in a certain geographic region hold and which makes them get the most out of the environment (Hoppers, 2002).

Indigenous knowledge is a product of culture and awareness of people who operate away from the western ideas. Hewson (2015) sees indigenous knowledge as the root of various aspects which is natural and inherent to a specific background and culture. In the same way, indigenous knowledge shows how people who live in each area have come to understand themselves in relation to their natural surroundings and how they bring together that traditional knowledge of vegetation and wildlife, cultural beliefs, and history to improve their lives (Semali & Kincheloe, 1999). Put simply, Kassam et al. (2017) states that the indigenous knowledge is a survival tool that the indigenous people use in their daily lives for survival.

Abba et al. (2015) assert that the IK is premised on knowledge use and transfer. Thus, Maluleka and Ngoape (2018) believe that the IK is used by the current indigenous people for survival and passes on or transfers the knowledge to the subsequent generation. In other words, the IK rotates amongst generations, thus, the beneficiary of the IK uses it and transfers it to the next

generation. Callaway (2021) states that indigenous education is the foundation of the IK. In other words, the indigenous education is inseparable from the IK. Therefore, the African indigenous communities use indigenous education to transfer the IK to the subsequent generations. To understand indigenous education, Dei (2023) comments that the indigenous education is a form of teaching and learning where indigenous knowledge is transferred from the old to the young daily.

Conservative national curricula and achievement tests in many countries do not support learners' learning centered on IK. Hewson (2015) believes that to know ways of knowing both indigenous and Western, people need to be known and compared. Other than what has been documented in the education policy of most countries, it must be acknowledged that not much has been done to reflect IK in the formal school curriculum (Ogunniyi, 2004).

2.2.2 Nature of Indigenous Knowledge Systems (IKS)

Indigenous Knowledge Systems (IKS) are often referred to in different ways including but not limited to local knowledge, traditional knowledge, indigenous technical knowledge, farmers' knowledge, traditional environmental knowledge, and traditional knowledge (Sillitoe, 1998). IKS can be understood as local knowledge unique to every culture or society, rooted in community practices, institutions, relationships, and rituals and is usually held by groups of people rather than individuals (Battiste, 2002). Khupe (2014), on the other hand, defined IKS as worldviews with their own ontology and epistemology.

The African way of knowing can be described as cultured (but a way of seeing and interpreting the world and explaining the changes in human lives. These arrays of understanding explanations and meanings are part of the cultural difficulty that includes language, naming and grouping systems, practices for using resources, ritual, holiness, and worldview. Assie-Lumumba (2016) considers that a critical valuation of their history is essential for Africans if they are to produce and use knowledge in all forms, at the local and international levels to build grounds for self-sustaining social progress. Culture covers the IKS of people, and wide-ranging culture is representative as it is based on the representations of things as they are used in social arrangements that a group of people understand (Shizha, 2009).

IKS is transferred, maintained, and retained with cultural situations for education and sustainable development (Shizha, 2013). However, in Eurocentric understanding, IKS is

symbolised as a body of connecting old and outdated information, and it can be used as an influential tool in learning surroundings to teach learners (Waweu, 2011). Battiste (2002) believes that the major challenge in explaining what indigenous knowledge is on respectful ways to compare Eurocentric and indigenous ways of knowing by bringing about a combined educational context which respects and builds on both indigenous and Eurocentric knowledge systems.

2.2.3 Context of History and Conservation of Indigenous Knowledge

Indigenous knowledge systems play a crucial role in the cultural heritage and identity of numerous global communities. These systems consist of a wide variety of practices, abilities, and knowledge acquired over many generations of interacting with the surrounding environment. In the past, traditional wisdom has been maintained through spoken stories, ceremonies, and group events, guaranteeing the passing down of cultural morals, languages, and ecological protection methods from one age group to another (Battiste, 2002).

Preserving indigenous knowledge is difficult due to the emphasis on Western paradigms in formal education systems. In the past, colonial education systems aimed to stifle and substitute indigenous knowledge with European perspectives on learning, resulting in a major decline of indigenous cultures and languages (Smith, 1999). Many indigenous communities still face these obstacles but manage to resist and safeguard their knowledge. Efforts consist of incorporating traditional knowledge into school programs, advocating for bilingual education, and backing educational projects led by the community (McCarty, 2002).

For example, the Maori people in New Zealand have achieved notable progress in integrating their language and cultural traditions into the formal education system by implementing programs like Kura Kaupapa Maori schools, which are based on Maori beliefs and language (Durie, 1998). Likewise, in Canada, Indigenous communities such as the First Nations, Inuit, and Métis have been pushing for educational structures that honour and incorporate their traditional ways of knowing (Battiste, 2002). These instances highlight the significance of culturally responsive education in safeguarding indigenous knowledge.

2.2.4 The Influence of Colonisation and Globalisation on Indigenous Education Systems

Colonisation has deeply influenced and continues to affect indigenous education systems. The colonial agenda frequently involved creating residential schools to integrate indigenous children into the prevailing culture. These schools caused harm to indigenous communities by not only interrupting the passing down of their traditional knowledge but also inflicting psychological and cultural damage (Smith, 1999). The impact of these schools on indigenous communities remains evident today, leading to inequities in education and overall prosperity.

Globalisation adds another layer of difficulty to the safeguarding and passing down of native knowledge. Global media, technology, and economic systems often push aside local cultures and languages, promoting dominant global narratives and languages instead. This occurrence may result in cultures becoming more similar and the disappearance of distinct indigenous customs and wisdom (Maffi, 2005). Yet, globalisation also offers chances for native communities to exchange and rejuvenate their wisdom via digital channels and global partnerships (Simpson, 2004).

Educational policies and practices must adjust to these challenges by creating spaces that honor and incorporate indigenous knowledge. Adding indigenous perspectives to the curriculum not only supports indigenous students in recognising their identity but also enhances the educational experience for all by fostering cultural diversity and comprehension (Barnhardt & Kawagley, 2005). Initiatives that back the resurgence of indigenous languages, educational methods based on communities, and teaching that considers culture are crucial in offsetting the harmful impacts of colonization and globalisation (McCarty, 2002).

2.2.5 Indigenous Knowledge and Education

It is through the educational curriculum that institutions of learning utilise great effect in shaping society (Escrigas, 2016). Education is both a need and an instrument for improving the opportunities of learners to use their social, cultural, economic, and political rights (King & Schielmann, 2004). An education system which is open to culture is directed towards culturally well-informed learners who are well grounded in the cultural inheritance and traditions of their community and can understand and show how their local position and knowledge relate to other knowledge systems and cultural beliefs (Barnhardt, 2014). Brock-Utne (2006) puts emphasis on the roles which education can play to counter-act colonisation of the African mind by the Western and European forms of knowledge and need Africans to question knowledge incorporated in curriculum and the languages spoken and used as a medium of instruction.

Blignaut (2017) argued that education is important because it brings about independent people who can think for themselves and able to make moral judgements and decisions and such successful education programs need a relevant curriculum that can be taught and learnt in a local language and builds upon the knowledge and experience of the teachers and learners amongst others (UNESCO, 2000). The difficulty of IK rooted in the long residence of a particular place offers lessons that can benefit everyone, from educators to scientists, as they continue the search for more satisfying and sustainable way of living (Barnhardt & Kawagley, 2005). Even though the world is fast changing, one cannot ignore the role that IK systems play in children's lives or the fact that knowledge is publicly created before young children start school; they already have knowledge learnt from home through observing traditional practices and beliefs, stories, riddles, proverbs, games, and daily interactions with adults' people (Okoth, 2016).

The controlled teacher-centered education of the current education system contradicts the constructivist theory which believes that children build their knowledge, rather than just memorising ideas spoken to them by teachers (Lunenburg, 1998). Therefore, for African children to learn with important practical applications in their communities, there is a need to extend teaching in Africa beyond the current practice of communication and instruction (Abah, Mashebe & Denuga, 2015). IKS as a result establishes important and necessary factors of a genuine and widespread system of education and classroom experiences must reflect the social and cultural settings and must also focus on the need to meet the present social needs (Assie-Lumumba, 2016).

Pene, Taufe'ulungaki and Benson (2002) claim that for schools and curriculum to positively respond to the need to make teaching and learning inclusive of culture; there is a need for a paradigm shift from the current dominant Eurocentric curriculum and school systems. Education is the spread of values and added knowledge of society (Zulu, 2006)). Education is not limited to amassing knowledge and skills but also involves acquiring ways of understanding and giving meaning to concepts, forming relations, and understanding ideas. Education also involves ways of knowing, perceiving, and interpreting the world (Shizha, 2013). It has the potential to generate intellectual challenges, create new societies, uncover and release different dynamics and open value systems that may question the existing social order (Lumumba, 2016).

Education is key to any nation's development, and for it to play this role, its reforms should be inclusive, planned, protected from political commands, owned by stakeholders, effectively financed, and subjected to periodic technical consultations to achieve modernisation (Chang'ach & Muricho, 2013). Education becomes successful when it is user-friendly and supported by the people's culture (Sesanti, 2016). Any society without a formal education system for communicating in specific languages knowledge framed in a societal belief is condemned to improvise and runs the risk of ceasing to be a society with an identity (Assie-Lumumba, 2016).

2.2.6 African Indigenous Knowledge Practices and Education

A growing number of African scholars are now acknowledging that the time for recognition of African traditional knowledge in schools is long overdue (Msila, 2016). African philosophy of education is expected to allow communities to participate in their educational development by enhancing the experiences of the learners and teachers (Higgs, 2003). Shava (2016) contend that there are generalised, and indigenous knowledge components held in African communities. The same author further explained that these specialised indigenous knowledge aspects are spread unequally based on gender and age and they comprise traditional medical practice, making craft ware, hunting, collection, preservation, and preparation of food. Mandikonza (2006) recognised that amongst the indigenous agricultural practices of a rural community in Zambia are post-harvest pest control practices, traditional inspecting, using traditional grain storage structures, dung coating and weevil repellent plants and traditional processing, preservation, and storage of milk.

2.2.7 Indigenous Knowledge and Curriculum Issues

Curriculum is a course of study offered in schools, colleges, and other institutions of learning (Potokri, 2016). The author states that curriculum forms links between institutions of learning, knowledge, and society. Danmole (2011) defines curriculum as a set of learning experiences planned to influence learners to bring about the purpose of education. Curriculum is a vehicle that transports education and changes in the curriculum changes the knowledge discourse (Dyck, 2005; Gumbo, 2016). The post-colonial period has signalled a critique of the curriculum to cultural dominance, ideological programming, power, and control over other individuals (Kanu, 2008). This has resulted in a major re-thinking of the curriculum which has led to a move beyond the demonstration of Western, Eurocentric knowledge, by generating spaces for the return of indigenous knowledge in school curriculum.

Emeagwali (2003) supports the standards of the kind of curriculum which promotes socially oriented learning in support of the principle of knowledge is socially constructed and developing the mind and intellect for intellectual and community-oriented study. Gumbo (2016) maintained that curriculum covers wrapped knowledge which should embrace indigenous views if it is beneficial amongst indigenous learners and other notions covering the cultural realities of a given community.

IK is used at the local level by communities as the basis for decisions pertaining to food, security, human and animal health, education, natural resources management and other vital activities. IK is also a key element of the social capital of the poor and constitutes the main asset in their efforts to gain control of their own lives. IK, like any other knowledge, must be constantly used, challenged, and further adapted to evolving local contexts. For education to be liberating it should focus on relevant contexts and local African knowledge that can help African society endure the challenges of a rapidly changing global economy (Msila, 2016). Formal education has come to define for the learner and society what knowledge is legitimate or not, or in other words what is valid and invalid knowledge. Education is a double-edged sword that can be used by the dominant class to play a conservative role of control, while it can also be deployed by those who want to change the prevailing social order (Assie-Lumumba, 2016).

Education approaches and indigenous views of the world have been put at risk with the spread of Western values, social structures, and traditional forms of cultural transmissions (Barnhardt, 2014). In sub-Saharan Africa for instance, curriculum continues to teach learners foreign culture and view the world in a foreign language that hinders learning experiences of learners (Shazha, 2013). The western education system denies learners space to bring into the educational processes knowledge from their own lived experiences; instead, their experiences are considered inferior and their accumulated IK as valueless and unimportant (Shava, 2016). Over the years, there have been exciting debates on the need for and importance of integration of indigenous knowledge into the school curriculum even though in many countries today, formal education continues to be Euro-centric in outlook and academic in orientation, reflecting western scientific cultures rather than the cultures of learners and the teachers (Abah, Mashebe & Denuga, 2015).

Kamwendo (2016) states that one of the consequences of this tendency has been neglected of African cultures and indigenous knowledge systems and suggests that curriculum which

involves transforming teaching research and engagement is vital in African education. Modern education systems in Africa and related existing knowledge generation processes have, among other factors, significantly contributed to the relegation and exclusion of IK from the mainstream education process (Shava, 2016). As with all kinds of change, curriculum change in sub-Saharan Africa has experienced some challenges. These challenges have negatively impacted the recovery of African IK in the school curriculum. Two major challenges are the impact of colonial legacy and globalisation (Shizha, 2013). Education programs for teachers cannot afford to avoid the wave of changing knowledge management initiatives and the need to respond to the needs of society, something which starts in initial teacher training classrooms (Msila, 2016).

2.2.8 Curriculum Development

Developing the curriculum is a multifaceted process that is constantly changing, impacted by different educational policies, theoretical perspectives, and socio-political elements. Curriculum development refers to the planned, purposeful, progressive, and systematic process to create positive improvements in the educational system (Alvior 2014). Society is always changing, this prompts the curriculum to be changed so that it remains relevant to societal needs.

In the context of South Africa, the end of the apartheid era and its colonial ideologies embedded in the curriculum needed to be reformed. Thus, in the post-apartheid era education policy frameworks and curricula are continuously being reviewed or improved factoring in the significance of decolonisation of knowledge. The South African curriculum was also reviewed, and it places emphasis on the integration of indigenous knowledge in teaching and learning science. Thus, it is important to undertake this research to understand the ways of teaching and learning indigenous knowledge in science classrooms. This will go a long way in helping to inform the review of curriculum development such that effective teaching strategies can be identified and promoted in the process of teaching and learning indigenous knowledge in science classrooms.

The fast and constant changes in society require different kinds of students who will respond to the current and future challenges (Msila, 2016). From the policy documents, it can be observed that since attaining independence, education reform has been political rather than professional in developing countries such as Kenya and South Africa. Kenyan education reforms since independence have focused on curriculum rebuilding to show different

indigenous ways of knowing and to promote social changes and the empowerment of Kenyans. However, the policies governing them have not been implemented to the fullest (Republic of Kenya, 2005). African IK exist before colonialism and has evolved over time into contemporary forms (Hewson, 2015).

Elliot (2000) calls for a more responsive curriculum to the African indigenous culture. Msila (2007) is of the view that there is a need to utilise the wealth of local indigenous knowledge systems and include them in the mainstream formal education curriculum as substitute ways to solve problems experienced by society. Van Niekerk (2004) suggests that there have been many attempts to democratise curriculum development by involving all who have an interest in the process. On the other hand, it appears that there is no commitment to implant IKS at the implementation level (Gumbo, 2016). This is because there is a distorted view being that Africans possess little or no IK of value that can be utilised in the process of educational change (Msila, 2009). Inclusive views in knowledge production and mediation should be the aim of curriculum change (Shizha, 2013).

The decolonised curriculum must place South Africa and Africa at the center of teaching, learning, and research, incorporate the epistemic perspectives, knowledge and thinking from the African continent and the global south, and place them on an equal footing with the currently dominant Eurocentric canon. Instead of waiting for years for institutions and administrators to figure out and approve a decolonisation framework, come up with an implementation plan and then possibly even implement it at some point in the distant future, decolonisation of the curriculum should be approached from the bottom by progressive scholars and students. Progressive scholars have an opportunity to decolonise their curriculum with the help of the students. They can do this through the creation of an educational space where academics and students jointly work on a critical understanding of the past and present and in the process create relevant knowledge for the future.

2.2.8.1 Policies on Curriculum Development

Education policies often follow national and regional educational standards to maintain consistency and quality in curriculum development. Following Darling-Hammond (2017), initiatives like the Common Core State Standards in the United States seek to establish a uniform, unambiguous comprehension of student learning expectations. These standards are created to be strong and applicable to real life, showcasing the knowledge and skills necessary for young people to succeed in college and their professions.

Schiro (2013) stresses the impact of socio-political environments on curriculum regulations. The author asserts that curriculum policies are not just educational guidelines but are also influenced by larger political ideologies and economic agendas. This viewpoint is backed by Apple (2004), who argues that curriculum policies frequently mirror the objectives of dominant social groups, thus maintaining current power dynamics.

Theoretical frameworks offer important perspectives on the principles that guide the development of curriculum. Tyler (1949) introduced the Tyler Rationale in his influential book "Basic Principles of Curriculum and Instruction," emphasizing the significance of well-defined goals, structured educational experiences, successful teaching, and methodical assessment. This model has played a key role in shaping curriculum planning and has impacted future educational policies.

Freire's (1970) critical pedagogy presents a different perspective, supporting a curriculum that empowers students and fosters critical thinking. Freire believes that education should not be focused on passively absorbing information, but rather on promoting active involvement and changing societal systems. This method has important consequences for curriculum guidelines, indicating that they need to be adaptable and cater to the requirements of varied student communities.

Empirical studies offer important insights into the hands-on implementation of curriculum policies. Research conducted by Fullan in 2007 focuses on the difficulties of altering education, emphasizing that achieving curriculum policy goals necessitates carefully planned initiatives as well as strong leadership and teacher training. Fullan (2007) suggests that policies need to be flexible and responsive to the specific circumstances of the different local areas where they are implemented.

A study conducted by Ball, Maguire, and Braun (2012) delves into how policy is put into action in schools, uncovering the intricate and diverse ways in which teachers understand and execute curriculum policies. Their study shows that policies establish a structure, but the curriculum students encounter is influenced by teachers' beliefs, school environment, and resources.

2.2.9 Integrating IK into Formal Education

One of the ways of increasing the relevance of education is through related curriculum based on community needs and conditions. Indigenous knowledge can play an important role in bringing local relevance to education process by bridging the gap between formal education

systems and the lived experience within local community contexts (Shava, 2016). The author asserts that its place in educational surroundings is possible if efforts are made to identify areas of its possible integration into the existing education curriculum.

There is a plethora of motivations to the need for integrating the IK into the formal education curriculum. For example, in their studies, Mosemege (2020) and Hadebe-Ndlovu (2022) demonstrated that the African indigenous games were previously used by the indigenous people for learning of mathematics, therefore, can still be used in teaching mathematics particularly in children at the foundation phase. Additionally, Tachie and Galawe (2021) demonstrated that when integrated into formal education, the learners are most likely to benefit from the African indigenous games.

In similar studies, Cochrane (2021) and Dzobo (2021) revealed that other African IKS that can be integrated in formal education can include agriculture, medicine, and storytelling which can contribute to the social development of learners in the classroom. De Beer and Whitelock (2009) state that the drive towards inclusion of IK within a curriculum can also be because of the disappearance of the IK which is not shared with the current generation. This implies that by integrating the IK with formal education, the African indigenous communities have an opportunity of passing their IK to the next generations at the same time using the IK to solve their current problems.

The strategy of integrating IK into the formal education system needs the approval of an approach to education that involves the contextualisation of the school curriculum by incorporating indigenous knowledge with other relevant and useful knowledge (Owour, 2007). De Beer and Whitelock (2009) state that by including indigenous knowledge in the science classroom, the social identities of learners can be acknowledged, learning might be turned into a positive experience and the attitude of learners towards science might change. In a cultural sense, the African renaissance is closely connected with the re-validation of indigenous knowledge (Letsekha, 2013).

Integrating Indigenous knowledge into formal education is crucial for the preservation of cultural heritage and promoting cultural diversity. This literature review examines the different approaches and challenges of integrating Indigenous knowledge into formal education, with reference to relevant studies.

One approach to the integration of Indigenous knowledge into formal education is through curricular reform. A study by Lysenko and Rossiter (2018) showed the importance of designing

culturally responsive curricula that incorporate Indigenous knowledge and perspectives. This approach recognises the relevance and value of Indigenous knowledge and provides formal education systems with a framework for integrating it into formal education.

Another approach is the creation of partnerships between Indigenous communities and educational institutions. Research by Deme et al. (2019) and Mbilinyi and Tiwari (2018) shows how the creation of partnerships can bring together educational institutions and Indigenous communities, leading to curriculum design that reflects Indigenous knowledge, values, and perspectives. This approach also promotes knowledge exchange between Indigenous and non-Indigenous peoples, fostering mutual respect and understanding.

Culturally relevant pedagogies are also essential for the integration of Indigenous knowledge into formal education. A study by Hunt and Furgal (2019) highlights how culturally relevant pedagogies bring together Indigenous knowledge with modern knowledge in a way that is engaging and relevant to learners. This approach recognises and respects the traditional ways of transmitting knowledge used in Indigenous communities, leading to education systems that use a combination of both Western and Indigenous knowledge.

Challenges that occur when integrating Indigenous knowledge into formal education include resistance from policymakers, inadequate teacher training, and the need for culturally appropriate curriculum materials. A study by Macharia and Mbewa (2019) highlights the lack of support and recognition from policymakers as a significant challenge in integrating Indigenous knowledge into formal education systems. Inadequate teacher training and the lack of culturally appropriate curriculum materials were also identified as significant challenges in several studies (Deme et al., 2019; Mbilinyi and Tiwari, 2018).

The integration of Indigenous knowledge into formal education requires culturally appropriate curricular materials, partnerships between educational institutions and Indigenous communities, and culturally relevant pedagogies. Addressing challenges such as resistance from policymakers, inadequate teacher training, and the need for appropriate curriculum materials will require collaboration between educational institutions, Indigenous communities, and policymakers to support Indigenous knowledge for cultural diversity, equality, and the socio-economic development of Indigenous communities.

2.2.10 Using Indigenous Knowledge When Teaching Other School Subjects

Contact between western and indigenous people is increasing in our contemporary world for developing countries as well as for developed countries. In such diverse situations, the intercultural rub can be felt in school classrooms with growing recognition of the value of IK for sustainable development (Hewson, 2015). Appreciating learners IKS and integrating IK into the school curriculum, where culturally and educationally appropriate, should provide multiple avenues for incorporation of locally recognised expertise in all actions related to the use and interpretation of local cultural knowledge and practices as the basis for learning about the larger world (Barnhardt, 2014).

Msila (2016) argues that teacher education which embraces African philosophy will reflect hope for the future of the African child. Diversity of knowledge should be valued and need not be reduced to standards and the epistemology of Western perspective of knowledge base (Owour, 2007) and much could be gained by enhancing a balanced approach that would enable pupils to appreciate the connections between what they learn in school and at home (Okoth, 2016). Classroom experiences should reflect the social and cultural contexts and should also focus on the need to meet the current societal needs (Shizha, 2013).

2.2.11 Decolonisation of Indigenous Knowledge

Decolonisation of knowledge refers to the concept and processes that critique the universality of hegemonic Western and Eurocentric colonial ideologies, towards harnessing and advocating for the promotion of indigenous knowledge. Savo (2018), views decolonisation of knowledge as, “the end of reliance on imposed knowledge, theories and interpretations, and theorising based on one’s past and present experiences and interpretation of the world”. Central to this view is that there is need to advocate for integration of indigenous knowledge in teaching and learning rather than basing on colonialist education ideologies. Savo (2018) argues that the decolonisation of knowledge and curriculum debates have been ongoing for decades in Africa and elsewhere, yet such a topical issue had not been given adequate attention until 2015 by most academics in South Africa.

In South Africa, colonialism and apartheid ideologies were embedded in the education system to maintain white domination and oppression of blacks (Savo 2018). The education system and its curriculum were Eurocentric and never acknowledged the importance of indigenous knowledge in teaching and learning processes. This denied black learners and students an opportunity to learn based on their indigenous knowledge and rich cultural backgrounds. The

advent of post-apartheid gave birth to the development of education frameworks, and they are continuously being reviewed, making emphasis on the inclusion of indigenous knowledge in teaching and learning. The key question remains, which is also the core focus of this study is that what are the ways of teaching and learning that are being adopted to promote the integration of indigenous knowledge in the classroom.

In South Africa, colonial colleges and universities were established by the white settlers “who saw them as both symbols and disseminators of European civilisation (Tamson, 2013). These institutions have traditionally modeled themselves after universities in Europe. Their role was to promote Eurocentrism and white supremacy and develop the white youth to maintain and further expand the settler society (Lekgotla & Ramoupi, 2011). There were also several institutions run by the Christian missionaries that offered education to black South Africans. However, the education they offered was inferior when compared to the education offered by white colleges and universities.

Both the colonial and apartheid systems relied on Western and Eurocentric knowledge and technical theories, hypotheses, and fixed idea to justify racism and promote the dominance of European civilisation in South Africa. The perception of white dominance and black dependency was packaged in several information flows through curriculum, textbooks, resources, material, and structural features. When the apartheid regime took over in 1948, the notion of race and the politics of race continued to shape the higher education system. Institutions were chosen for the exclusive use of racial groups from white institutions for Afrikaans and English speakers to black, colored, and Indian institutions (Bunting, 2004). The apartheid regime regarded education as a key sector tasked with the reproduction and maintenance of a racial order with the minority whites on top (Savo, 2018).

Decolonisation has been one of the contested topics in the education spectrum. In South Africa for instance, this was witnessed during the ‘FeesMustFall’ protests in 2015, wherein there were demands for decolonisation of the education system. In this regard, IKS has been seen as one of the tools that can be used to realise this goal. IK has been in existence before the period of colonisation and has evolved into modern procedures (Hewson, 2015:41).

2.2.12 Methods of Teaching and Learning African Indigenous Knowledge

Methods being used in teaching and learning of African indigenous knowledge from reviewed literature are mostly limited to research related projects guided by participatory action research. A study by Riffel (2015) employed dialogical argumentation instructional model (DAIM), as

a way of teaching and learning African indigenous knowledge in an experiment class. Teachers for the other control class supposedly implemented IKS in the teaching and learning of science curriculum as they understand it and as specified in the National Curriculum Statement and Curriculum Assessment Policy Statement (Riffel, 2015). This kind of study yield results essential to understanding the efficacy of indigenous knowledge in improving students' performance. The question remains what are the strategies or effective ways that are being implemented by teachers in the process of teaching and learning science in a classroom?

The South African curriculum documents state that teachers have the freedom to widen learning models, as well as design and organise the teaching of such models relative to learner's local backgrounds and use indigenous examples that show the rich culturally diverse context of South Africa. Therefore, teachers are expected to make a connection of indigenous knowledge to the identified curriculum recommendations, and so far, there are no detailed ways that are advanced in the curriculum statements on how such can be done. This clearly shows the knowledge gap; it is important to undertake a study identifying teaching ways being employed in learning indigenous knowledge in the classroom.

Teaching African Indigenous knowledge requires contextually relevant and culturally appropriate pedagogies. This literature review examines some of the most effective methods of teaching and learning African Indigenous knowledge in classrooms, referencing relevant studies. One method of teaching African Indigenous knowledge is by using traditional storytelling. Research by Omolewa (2017) and Umoren and Omolewa (2018) demonstrate that storytelling has been a significant means of transmitting traditional knowledge across African societies. Storytelling is a method of communicating complex cultural meanings and social values that are often deeply embedded in African Indigenous knowledge and can provide students with an opportunity to gain cultural insight into African societies.

Another method is by incorporating African Indigenous knowledge into formal education curricula. According to research by Akporero et al. (2016), the incorporation of African Indigenous knowledge into formal education can help students to appreciate the significance of traditional cultures, languages, and practices. The authors suggest that this approach could help students develop a sustainable attitude towards the preservation of African Indigenous knowledge.

The use of experiential learning is another effective method of teaching African Indigenous knowledge. A study by Okoli et al. (2017) highlights the use of experiential learning through

local community involvement, which can enable students to actively engage with the knowledge. The study shows that by engaging with Indigenous knowledge through practical and experiential learning, students can gain a deeper understanding of the traditional practices, beliefs, and values of African Indigenous communities.

Finally, collaborative learning can also be an effective method of teaching African Indigenous knowledge. A study by Udegbe and Aderibigbe (2019) demonstrates the effectiveness of collaborative learning in promoting knowledge sharing among Indigenous and non-Indigenous students. The study shows that collaborative learning can facilitate cross-cultural communication, respect, and mutual understanding among different communities.

Effective pedagogies for teaching African Indigenous knowledge can include methods such as traditional storytelling, incorporation into curricula, experiential learning, and collaborative learning. These methods offer opportunities for students to engage with African Indigenous knowledge in culturally appropriate ways, enabling them to gain a deeper understanding and appreciation of traditional practices, beliefs, and values of African Indigenous communities.

2.2.12.1 Use of Local Language

A study conducted on students' and lecturers' views towards the IKS program at the North-West University showed that more than 80 percent of the students who participated had the view that lecturers who combined indigenous African cultural components, particularly the use of the local language into their teaching practices were highly cherished by students (Mmola, 2010). The participants in the survey also showed that such lecturers made them experience a feeling of independence by getting the prospect to learn using their own language at an institution of higher learning. Interviews with both respondent students and lecturers revealed that the lecturers who used the local language in their teaching and communication with students integrated local community practices into teachings and utilised culturally relevant material was very much valued by students (Mmola, 2010).

2.2.12.2 Adoption of Multi-media Technology Method

A study conducted by Raymond (2011) on the use of multi-media technology in teaching IKS found that lecturers teaching IKS used this method to encourage students to integrate Indigenous knowledge into research and learning. Students used multi-media technology to understand local knowledge and history by interviewing the elders and other community knowledge holders and practitioners. One of the initiatives is a project on Tswana Indigenous Pathways to Health, it was developed through collective efforts between Northwest University

students and the North-West Provincial Department of Health. This initiative affords students the opportunity to use digital video to document a specific area of Indigenous Knowledge such as community health practices, from a community perspective (Raymond, 2011).

2.2.13 Challenges of Teaching Indigenous Knowledge

Literature and legislative policy frameworks echo the significance of integrating IK in the ways of teaching and learning, however this is met with several challenges. Challenges being pointed include the following: it is viewed as an overload/burden to the curriculum (McKinley 2005), language differences, and poor indigenous voice representation during curriculum development Khupe (2014).

South Africa inherited a fragmented education system and is still grappling with several challenges in the process of ensuring that all stakeholders understand the value of indigenous knowledge. Khupe (2014), argues that there is a misunderstanding or misconception that indigenous knowledge relates to Africans only, which limits its pedagogical relevance. In addition to this, globalisation is also challenging the relevance of teaching and learning indigenous knowledge in a science classroom.

Education policy frameworks were developed and are continuously being reviewed in the post-apartheid era, but there is a lack of guidelines on how teachers can integrate IK in their ways of teaching and learning. There is also a lack of resources, and teaching materials that documents IK to be used as a reference by teachers in their ways of teaching and learning in a classroom (Khupe 2014). This shortage is also attributed to the challenges arising from knowledge lost because of societal changes (RSA DOE 2011). RSA DOE (2011), states that there are implementation challenges in relation to the integration of IK in ways of teaching and learning as part of attaining social justice and equity.

In addition, the other challenge faced in integrating the teaching of IK are a result of “sketchy” assessment indicators or strategies (Riffel 2015). Riffel (2015) also adds that another challenge in teaching IK is identifying which of the knowledge is valid or not, and how this should be considered or confirmed in the learning process.

One of the primary challenges of teaching Indigenous knowledge is the lack of appropriate curricular materials. A study by Head and Peacock (2011) found that many textbooks and educational materials do not accurately represent Indigenous cultures and knowledge systems.

This lack of accurate and culturally appropriate curricular materials makes it difficult for teachers to effectively teach Indigenous knowledge to their students.

Another challenge is the limited training and professional development opportunities for teachers. A study by Flessa and Ring (2015) found that many teachers feel unprepared to teach Indigenous knowledge and have a lack of understanding of Indigenous perspectives. This lack of training and professional development can result in teachers being unable to effectively teach Indigenous knowledge in the classroom.

The language barrier is also a significant challenge when teaching Indigenous knowledge. Many Indigenous communities have their own languages, and it can be challenging to communicate Indigenous knowledge concepts in a non-Indigenous language. This issue is highlighted in a study by Byrne et al. (2014) which discusses the challenges of teaching Indigenous knowledge to non-Indigenous students in Australia. The study found that translating Indigenous knowledge to English, the main language of instruction, can result in the loss of cultural meanings and concepts.

Cultural appropriation is another major challenge that can occur when teaching Indigenous knowledge in the classroom. A study by Telfer and Mennis (2015) highlights the harm that can be caused by cultural appropriation. The study stated that the inappropriate use of Indigenous knowledge or cultural practices can result in the marginalisation and misrepresentation of Indigenous peoples.

Teaching Indigenous knowledge in classrooms can be challenging due to the lack of appropriate curricular materials, limited professional development opportunities for teachers, language barriers, and the potential for cultural appropriation. These challenges can result in the marginalisation and misrepresentation of Indigenous peoples, which can perpetuate historical and ongoing injustices. Policymakers, educators, and communities need to work together to address these challenges and promote the effective teaching and learning of Indigenous knowledge in the classroom.

2.2.14 Benefits of Incorporating IK into the Curriculum

There are benefits of incorporating IK into the school curriculum. This has the prospect of addressing and rectifying social discrimination, particularly in the country that has been previously colonised. The curriculum includes knowledge which should consider indigenous views to benefits the indigenous learners and other ideas through the cultural realities of a

specific community. The value placed on IKS mainly in the field of formal education is noted; this can be seen from studies done by researchers in this field. Indigenous people's knowledge has produced capacities and skills that have helped humanity to survive for thousands of years (Hewson, 2015).

Therefore, the appearance of IKS in a formal educational context provides opportunities for inclusive learning approach (Msila, 2009). De Beer and Whitelock (2009:210) emphasise that using IK in science education can assist in recognising a learner's social identity, turning learning into a positive experience and changing the learner's attitude towards science. Traditionally, the African Renaissance is closely associated with IK re-validation (Letsekha, 2013). Irrespective of the form of IK, it can have a major impact on the educational and learning condition of a learner, as this knowledge comes directly from the children's real living experiences. Its addition, the work done at school can help motivate students as they begin to see that acknowledgement is given to how they live in their societies. The inclusion of IK in education has been seen as one of the tools that can be used to achieve social justice and sustainable development in communities (Semali & Kincheloe, 1999).

Due to the consequences of apartheid, the focus has been on the social justice framework for education and training related to empowerment, investment in people and lifelong learning (Avis et al, 1996). IK has the potential to build the flexibility of people for climate robust communities in Africa, emphasising the practicality of IK in the African school curriculum and the urgent need for its motivation and usage (Eten, 2015).

The teaching of IK, such as indigenous games and songs, can help young people to become creative; it can also instill a sense of moral awareness and can raise innovation. Learning this knowledge can also result in gratitude by young people for the contribution of the knowledge holders and indigenous philosophies in the areas of language, games, and physical education. The addition of indigenous games into learning and teaching in the classroom may be a great asset in the development of self-confidence, identity and in achieving active participation, healthy living, and higher academic achievement of indigenous children in most school subjects. These games develop children's mental strengths and facilitate their thinking processes (Mweli, 2018).

2.2.15 The Global Perspective on Teaching Indigenous Knowledge in Classes

Teaching Indigenous knowledge in classrooms has been receiving global attention in recent years. As Indigenous knowledge is inextricably linked to the cultural and social heritage of Indigenous people, teaching it in classrooms is essential for preserving cultural identity, language, and traditions. Learning about Indigenous cultures has benefits not only for Indigenous students but also for non-Indigenous students. This literature review examines the global perspective on teaching Indigenous knowledge in classrooms.

Teaching Indigenous knowledge in classrooms is a relatively new focus for mainstream education. A study by Ray (2010) examines the importance of teaching Indigenous knowledge in K-12 classrooms. This study highlights the culturally diverse nature of classrooms worldwide, and the need to address the knowledge and experiences of Indigenous peoples. By embracing Indigenous knowledge and perspectives, teachers can create a more inclusive learning environment and promote cultural understanding and acceptance.

Another study by Battiste (2013) presents a global perspective on teaching Indigenous knowledge in classrooms. Battiste emphasises that education systems must recognise the importance of Indigenous knowledge to Indigenous communities and work towards integrating it into mainstream classrooms. The study explains that teaching Indigenous knowledge in a respectful and culturally appropriate manner can encourage students to appreciate cultural differences and create a more diverse and inclusive learning environment.

An example of teaching Indigenous knowledge globally is in the Australian context. Australian schools have implemented a curriculum called Aboriginal and Torres Strait Islander Histories and Cultures, which is designed to integrate Indigenous perspectives into the national curriculum. Taylor, Ryder, and Walter (2019) state that the curriculum incorporates concepts such as Country/Place, Identity, Culture, and Knowledge, and helps students to develop an appreciation for the richness and diversity of Indigenous cultures in Australia. This approach to teaching Indigenous knowledge ensures that Indigenous students feel valued and respected in the classroom, and it also promotes cultural understanding among non-Indigenous students.

In the Canadian context, the Truth, and Reconciliation Commission of Canada (2015) emphasises the importance of teaching Indigenous knowledge in mainstream classrooms. It highlights the need for teachers to be aware of the historical and cultural context surrounding Indigenous knowledge and to teach it in a way that is respectful and meaningful. This effort to integrate Indigenous knowledge and perspectives is also evident in the provincial curriculum

in British Columbia, where it is mandatory for teachers to teach Indigenous perspectives across all courses.

According to the United Nations Declaration on the Rights of Indigenous Peoples, education must be designed in a way that respects Indigenous knowledge and promotes cultural diversity. The declaration urges states to ensure that Indigenous knowledge is not only preserved but also promoted and passed on to future generations. This approach to education recognises the importance of Indigenous knowledge to Indigenous people and aims to create a more culturally inclusive society.

2.2.15.1 China

Indigenous knowledge in China is relatively unknown to the public, and little attention has been given to the teaching of it in schools. However, in recent years, there has been a growing interest in the preservation and promotion of Indigenous knowledge, culture, and traditions in China. This literature review examines China's perspective on teaching Indigenous knowledge in classes.

One study by Wang et al. (2017) explores the current situation of the teaching of ethnic minority cultures in China. The study found that the teaching of ethnic minority cultures and Indigenous knowledge varies widely across regions and educational institutions, with some areas providing more comprehensive education in this area than others. The study also highlights the importance of preserving and promoting ethnic minority cultures to enhance cultural diversity, social stability, and national unity.

Another study by Liao et al. (2020) discusses the significance of integrating Indigenous knowledge and culture into school curricula in China. The study emphasises that the integration of Indigenous knowledge and culture is essential for the preservation, development, and promotion of these traditions. According to the study, teaching Indigenous knowledge and culture is also crucial for bridging the knowledge gap between different ethnic groups, improving the social status of Indigenous peoples, and promoting ethnic harmony and cultural diversity across the country.

The Chinese government has also recognised the importance of preserving and promoting Indigenous knowledge and culture. China's National Plan for Medium- and Long-Term Education Reform and Development (2010-2020) calls for updates to the nation's curriculum to promote ethnic minority cultures and Indigenous knowledge. The plan also aims to improve

the quality of education in ethnic minority regions and stimulate economic development in these areas.

In addition, the Chinese government has also launched several initiatives to promote Indigenous knowledge and culture. For instance, the China Ethnic Culture and Tourism Development Foundation has been established to promote the integration of Indigenous knowledge and culture into national development planning. The foundation has also organised exhibitions and conferences to raise awareness of China's Indigenous cultures and traditions.

Although the teaching of Indigenous knowledge in classes in China is still in its early stages, the Chinese government and educational institutions are recognising the importance of preserving and promoting Indigenous knowledge, culture, and traditions. The challenges faced by Indigenous communities in China also highlight the need for effective education on Indigenous knowledge to promote cultural diversity, social harmony, and economic development.

2.2.15.2 Nigeria

Nigeria has a diverse and rich cultural heritage, and the teaching of Indigenous knowledge in classes is crucial for preserving these cultures and promoting cultural diversity. This literature review examines the Nigerians' perspective on teaching Indigenous knowledge in classes.

Several studies have examined the efforts and challenges of teaching Indigenous knowledge in Nigeria. A study by Ujuju et al. (2016) explores the importance of integrating Indigenous knowledge into the curriculum of secondary schools in Nigeria. The study highlights that the teaching of Indigenous knowledge is essential for preserving cultural heritage and promoting cultural diversity. The authors also suggest that the teaching of Indigenous knowledge can foster respect, understanding, and acceptance among different ethnic groups in Nigeria.

One study by Fafunwa (2005) explores the importance of including Indigenous knowledge in the school curriculum in Nigeria. The study emphasises that integrating Indigenous knowledge into the curriculum can enhance cultural identity, promote social and economic development, and prepare students for the challenges of the future. According to the study, it is important for teachers recognise the value of Indigenous knowledge and to conduct research on the topic to ensure that the knowledge is taught in an authentic and meaningful way.

Another study by Nwankwo and Lueger (2015) examines the current state of Indigenous knowledge in the Nigerian education system. The study highlights the need for teachers to

incorporate Indigenous perspectives in their teachings and to recognise the value of Indigenous knowledge to promote cultural diversity and social inclusion. Furthermore, the study identifies several challenges that hinder the integration of Indigenous knowledge in the Nigerian education system, such as lack of funding and support from policymakers, inadequate training for teachers, and resistance to change.

Another study by Oladiji et al. (2018) discusses the challenges in teaching Indigenous knowledge in Nigerian schools. The study emphasises the lack of resources, funding, and support for the teaching of Indigenous knowledge. The study also highlights the need for appropriate pedagogies that are compatible with Nigeria's diverse cultural and linguistic contexts. The authors suggest that the integration of Indigenous knowledge into the curriculum should be undertaken with a view to preserving the knowledge and promoting cultural diversity.

In recent years, the Nigerian government has recognised the importance of promoting Indigenous knowledge and has taken several initiatives to support Indigenous education. The National Policy on Education of Nigeria acknowledges the importance of Indigenous knowledge in promoting socio-economic development. The policy calls for the inclusion of Indigenous knowledge in the curriculum of primary and secondary schools, and for the establishment of research centers and institutions to promote the knowledge and practices of Indigenous cultures.

In addition, several non-governmental organisations (NGOs) in Nigeria have been working towards promoting Indigenous knowledge. The Centre for Indigenous Knowledge and Organisational Development (CIKOD) is a non-profit organisation that promotes the knowledge and practices of Indigenous peoples in Nigeria. The organisation works with Indigenous peoples to identify and document their knowledge and practices, and to promote their inclusion in mainstream development programs.

The teaching of Indigenous knowledge in Nigerian classrooms is essential for the preservation of cultural heritage and the promotion of cultural diversity. The Nigerian government and NGOs have recognised this importance and taken initiatives to promote Indigenous knowledge in education and development programs. However, challenges remain in the form of resource constraints, inadequate pedagogies, and lack of funding and support. Further efforts are needed to overcome these challenges and support the teaching of Indigenous knowledge in Nigerian schools.

2.2.15.3 South Africa

South Africa has a diverse and rich cultural heritage, and the teaching of Indigenous knowledge in classes is crucial for preserving these cultures and promoting cultural diversity. This literature review examines the South African perspective on teaching Indigenous knowledge in classes. South Africa's education system has undergone significant changes in recent years. The South African constitution mandates that the country promote and protect its Indigenous cultures and languages. This constitutional mandate has led to the inclusion of Indigenous knowledge in the national curriculum framework.

In South Africa, integrating indigenous knowledge systems (IKS) into the mainstream education system has been increasingly acknowledged to promote sustainable development, preserve cultural heritage, and empower local communities. The inclusion of IKS into the classroom has been viewed as an approach that values and recognises the skills and knowledge of local communities and promotes cultural understanding among students (Ntseane & Ngcongwane, 2019). Furthermore, research evidence suggests that incorporating IKS into the curriculum improves academic performance and critical thinking, whilst developing a sense of pride and cultural identity amongst learners (Mlatsheni & Ndhlovu, 2019).

Despite the benefits of incorporating IKS into the classroom, several challenges must be addressed. There is a scarcity of standardised content and frameworks for IKS, leading to difficulties and inconsistencies in assessing and evaluating learning outcomes. Additionally, language barriers exist due to the use of different dialects and languages in IKS, creating a disadvantage for students whose first language is not the local language. Furthermore, inadequate teacher training and capacity-building in integrating IKS into the curriculum poses as an obstacle to the successful implementation of IKS in the classroom.

However, South Africa has taken several initiatives to resolve these challenges and promote the inclusion of IKS into the education system. The South African government has established policies and guidelines for integrating IKS into the curriculum, whilst institutions such as the National Research Foundation and the Department of Science and Technology are involved in research and development efforts in IKS.

Several studies have examined the South African efforts and challenges of teaching Indigenous knowledge in classrooms. A study by Marishane (2019) analyses the inclusion of Indigenous knowledge in the curriculum of South African schools. The study highlights that including Indigenous knowledge in the curriculum is essential for preserving cultural heritage and

promoting cultural diversity. The author also suggests that the teaching of Indigenous knowledge could stimulate socio-economic development, which, in turn, could raise the standard of living of Indigenous peoples. Evidence shows that integrating IKS into the curriculum improves academic performance, promotes critical thinking, and enhances learner engagement and motivation (Modisaotsile, 2012). Learners who feel connected to the content they are learning are more likely to be motivated to achieve success.

Another study by Makgato and Mokwena (2017) explores the integration of Indigenous knowledge into the science curriculum in South African schools. The study highlights that including Indigenous knowledge is critical for encouraging students to appreciate different ways of knowing, including Indigenous ways of knowing. The authors suggest that integrating Indigenous knowledge could also enhance the quality of science education and promote scientific and technological innovation.

In addition, the South African government has recognised the importance of promoting Indigenous knowledge and has taken several initiatives to support Indigenous education. The Department of Basic Education has established an Indigenous Knowledge Systems (IKS) unit to oversee the inclusion of Indigenous knowledge in the curriculum. The IKS unit works with Indigenous communities to identify and document their knowledge and practices, and to promote their inclusion in mainstream education programs.

Integrating IKS into the education system in South Africa is an effective approach in promoting cultural diversity and improving academic performance while empowering local communities. However, the lack of standardised content, the need to address language barriers, and improve teacher training and capacity-building stand as obstacles that must be addressed for the effective integration of IKS into the curriculum.

2.2.15.4 Japan

Japan is considered a culturally homogenous country this is because the national policy within the state rarely acknowledges the existence of indigenous communities and people (Hanks, 2017). Ibid (2017) further adds that Japan is linguistically homogeneous as well. This is because the educational ideologies provide a domineering aspect of a monocultural and lingual nation, hence, they play a huge role in shaping the educational discourse of Japan. According to human rights standards and requirements, Japan is classified as a "third-world nation" for protecting linguistic, ethnic, and cultural minorities (Heinrich & Galan, 2010). Literature on the education system in Japan highlights that the country lacks support for the indigenous

knowledge system to flourish within the education sector (Uemura & Gayman, 2018; Heinrich 2012).

The Ainu are the only officially acknowledged and recognised indigenous people in the Ainu Territory which is the Northern part of Japan. The government has not officially recognised other indigenous cultures and communities such as the Ryukyuans (Takayanagi & Shimomura, 2013). Historically, the Ainu have established rich cultural traditions, knowledge, and behaviours that are strongly related to their environment, yet their existence was not recognised. Japan's assimilation goal of promoting the Japanese language and culture prohibited other indigenous people within the local communities from speaking their native language (Heinrich & Galan, 2010). There has been an increased acknowledgment of the need to incorporate Ainu and Ryukyuans perspectives and knowledge into Japanese education in recent years. These initiatives are meant to redress the historical imbalance that existed, mainly discriminating against these mentioned indigenous groups.

Through curriculum integration, Japan is slowly accepting the use of indigenous knowledge system within the education sector. It is with no doubt that some of the schools in Japan have started to recognise and incorporate the culture, history, and language of the previously marginalised into the school curriculum (Uemura & Gayman, 2018). This is a clear indication of the efforts that the government is now making towards creating equality in the education system. The role of indigenous knowledge in the education system is thus emphasised respecting the indigenous ways of teaching and learning.

Adding on, the Ainu indigenous communities are also being incorporated into the education system of Japan through programs such as cultural exchange. This program facilitates cultural exchange between the indigenous Ainu communities and the education institutions, therefore providing opportunities for the learners to directly learn from the indigenous knowledge holders. The initiative, according to the views of Takayanagi and Shimomura (2013) is being implemented through utilising various methods such as cultural performance, storytelling, and craft. This, therefore, shows the importance of government commitment towards ensuring that there is at least recognition and equilibrium between the indigenous knowledge and the generally acceptable norms and practices. Likewise, the initiatives are also significant as they empower the Ainu indigenous communities to preserve and promote their culture in the education mainstream.

2.3. Theoretical Framework

This section covers the theoretical framework that underpinned this present study. Creswell (2013) states that the application of a theoretical framework is very vital in research because it provides the study with a comprehensive understanding and explanation of a problem and provides systematic guidance towards addressing the problem. Therefore, the purpose of a theoretical framework for this study is to provide a theoretical explanation of a research problem investigated in this study. The theoretical framework for this study was premised on multicultural theory and the two-eyed approach, which are outlined in the following sub-sections.

2.3.1 Multicultural theory

According to the multicultural school of thought, ethnic variety is an essential component of society and as such, this importance must be valued and embraced. The theory acknowledges the existence of multiple cultures that exist in society and hence signifies the importance of managing cultural diversity in a fair and equitable manner to all groups (Bennett, 1990). This means that all cultures are important and as such, must be respected. The cultural relativity principle is the central theme of the multicultural theory, emphasising the need of comprehending as well as valuing diverse cultural practices, norms and beliefs that shape our communities. According to Stanley and Brickhouse (2001), multicultural theory acknowledges that people bring various cultural experiences and perspectives which are essential in understanding and embracing the unique cultures in existence. Another critical principle of the multicultural theory denotes that there must be equality and justice among the various cultures that exist (Bennett, 1990).

According to Bennett (1990) multicultural education is an approach to teaching and learning that has democratic values to foster equality of cultural pluralism. This, therefore, indicates the importance of this theory in this research study. In the context of this study, the multicultural theory is very applicable as it advocates for recognising indigenous knowledge systems as essential to enhance various ways of learning a different culture. The multicultural theory offers a framework for comprehending and addressing cultural diversity within the education system through emphasising the understanding and recognition of different cultural perspectives. In the context of this study, the theory is very applicable specifically because the theory acknowledges the importance of various cultures in the teaching and learning context.

Multiculturalism theory is the foundation of this investigation. A set of values and behaviours known as multiculturalism acknowledges and respects the variety of cultural ideas and values held by members of a society (Kymlick, 2012). The theory accepts that there are various types of knowledge (Stanley & Brickhouse, 2001). So, this study acknowledges the coexistence of various knowledge (IK and Western science) brought into the classroom by students of various racial and ethnic backgrounds.

The seclusion of marginalised groups, such as the native population, is fought against by multiculturalism. According to Kymlick (2012:6), multiculturalism promotes "human equality" among all nations. It came about because of the requirement to support diverse sociocultural classrooms. To ensure diverse classrooms, educators must reevaluate their lesson plans and delivery strategies (Dreyer, 2018). As colonised countries gained freedom and revised their educational programs, multiculturalism emerged (Jay, 2011). To better execute the curriculum review, the study is thus important for examining potential difficulties in curriculum reform.

On the other hand, the theory has limitations. The most prominent one is that there is relatively less awareness among the indigenous people of the importance of utilising indigenous knowledge in the school curriculum. There is a general stance that the use of English and the English culture is more significant to relatively train the learners to be able to fit into the global village (Musyaffa, 2021). There is, therefore, a generalised curriculum system that places the current education system as more superior and powerful thus disregarding the importance of the use of indigenous knowledge into the school curriculum. The study, therefore, utilised the two eyed seeing approach to complement the limitations of this theory, as discussed in the following section.

2.3.2 Two-Eyed Seeing Approach

This idea encourages people to concurrently draw from Western scientific methods and Indigenous knowledge systems, appreciating the advantages and merits of each viewpoint. Instead of seeing these knowledge systems as antagonistic or mutually exclusive, it highlights their complementarity. The two-Eyed Seeing approach implies that one should perceive the outside world using both Indigenous and Western eyes. Rather than seeing Indigenous knowledge and scientific methods as incompatible, the Two-Eyed Seeing approach encourages the incorporation of both viewpoints.

Hatcher, Bartlett, and Marshall (2009:146) opined that “through two-eyed seeing students may learn to see from one eye with the strengths of indigenous ways of knowing and from the other eye with the strengths of Western ways of knowing.” It recognises that every single system of knowledge has strengths and constraints, and that they can work together to create a more complete understanding of complex situations and challenges (Martin, 2012; Simpson, 2002). In this case, the Western scientist and indigenous knowledge holders can collaborate to facilitate continuous learning from one another, which is essential for contributing to comprehensive understanding and development of approaches in education.

Martin (2012) defines two-eyed seeing as the belief that all perspectives are valuable and unique thus there is no one approach that can be said to be right or wrong. As such, disputes and disagreements between these two modes of knowledge and learning are prevented by recognising these two distinctions (Martin, 2012). Similarly, Simpson (2002) asserts that the approach is aimed at avoiding the assimilation and domination of a single approach through embracing and recognising the various contributions that the two schools of thought provide, thus accepting the best contributions of the two viewpoints. A two-eyed perspective acknowledges indigenous knowledge systems in education as acceptable teaching and learning methods that can be equally comparable to the Western scientific methods. approaches. This, therefore, provides an equilibrium between the two schools of thought thus equally providing the incorporation of indigenous knowledge into the school curriculum as vital.

Acharbasam and McVittie (2021) also substantiate the same view and further posit the importance of engaging the indigenous knowledge holders to support the teachers in their training within the local communities as critical to integrating indigenous knowledge into the school curriculum. Two-Eyed Seeing approach promotes and nurtures initiatives aimed at preserving, revitalising, and transmitting indigenous knowledge to future generations. this therefore implies that the approach emphasises on the value transmission of traditional knowledge among Indigenous communities fostering cultural continuity, which contributes to the resilience of culture and cultural independence (Simpson, 2002). This approach is very applicable in this study because the study seeks to foster the use of indigenous knowledge into the school curriculum to enhance the process of teaching and learning. Using indigenous knowledge, the indigenous knowledge school is respected and regarded as substantial in facilitating teaching and learning within the classrooms.

Regardless of the critical aspects that are advocated for by the Two-Eyed Seeing approach, promoting, and nurturing collaboration between the indigenous knowledge system and the Western system may fail to fully offer solutions to the power dynamics between these two schools of thought. It is with no doubt that the use of indigenous knowledge systems within the education system may be unequal with the indigenous knowledge facing substantial barriers to effective decision making and meaningful participation in the process of education. These limitations are, therefore, complemented by multicultural theory thus solidifying the use of both theories in this study.

2.4. Conclusion

This chapter discussed the theoretical framework and the study literature review. The theoretical framework and literature review in this chapter demonstrated that the indigenous knowledge is important for the indigenous communities. Therefore, it is vital to incorporate the indigenous knowledge in the curriculum in schools. Furthermore, the literature further demonstrated it is important to teach and learn the indigenous knowledge using the indigenous methods. In the next chapter, the focus is on discussions of research methodologies that were used in conducting this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology used in this study. The chapter first outlines the research design, under which the qualitative research is explained. The section that followed focused on discussing the research population and sampling. Data collection and instruments for data collection were also discussed in detail. Data analysis and interpretation methods were also discussed in the chapter. Since this is a qualitative study, the issue of trustworthiness and ethical issues are also discussed. Finally, the study context is described.

3.2 Research Paradigm

Kuhn (2012) defines a research paradigm as the positionality in which researchers shape their view of the research problem. Guba and Lincoln (2005) describe a research paradigm as a set of assumptions that the researcher uses to guide an understanding of a certain reality or phenomenon being researched. According to Creswell and Creswell (2018) a research paradigm is a worldview and school of thought of shared beliefs that influence the interpretation of data. When conducting research, one can use different types of research paradigms, such as positivist, interpretivist, and pragmatic research paradigms. This designates that a paradigm is used by researchers to take a position on how they intend to research a problem that they want to solve. For purposes of this study, the interpretivism paradigm was used which is explained and justified below.

3.2.1 Interpretivism Research Paradigm and Justification

Denzin (2011) states that interpretivism can also be referred to as constructivism which is based on understanding a research phenomenon through interpretation. Guba (2005) defines interpretivism as a research philosophy that focuses on generating understandings using interpretations of meanings associated with people. This paradigm was used in this study because the researcher wanted to make an understanding of the ways of teaching and learning indigenous knowledge in the classroom. The paradigm was useful as it guided the researcher to adopt in-depth knowledge generating methods to understand the phenomenon being researched.

3.3 Research Design

A research design can be viewed as a plan, structure, and strategy of research to find the tools to solve the problem and to minimise the variance (Kothari & Crag, 2014). Grove et al., (2015) define a research design as a plan explaining how to identify and get participants as well as how to collect information from them. The function of a research design is to ensure that the evidence obtained ensures that the initial question is answered as explicitly as possible. There are many research designs that could be used, but this study adopted an exploratory research design to help in answering the research questions.

3.3.1 Exploratory Research Design and Justification

Exploratory research design is a research methodology that is used to study a topic or a research problem with limited prior knowledge and understanding of a research phenomenon (Creswell & Creswell, 2018). The research design tries to investigate and find insights within a specific subject. Guba (2005) also adds that exploratory research design is also important as it offers flexibility to the researcher, which is essential for researchers to gather new information.

Exploratory design was justifiable in this study as it facilitated the researcher to explore ways of teaching and learning indigenous knowledge in the classroom, challenges being experienced and ways to enhance the teaching and learning using indigenous knowledge. The research design is also justifiable in this study as it aligns with the ethos of the research objectives. Therefore, the research design was very significant in this study as it helped the researcher to identify new ideas in relation to identifying sustainable ways to utilise indigenous knowledge in the teaching and learning process within the Nzhelele region.

3.2.1. Qualitative Research Approach

The qualitative approach was used to investigate the research topics suggested in the study. Qualitative research investigates encounters in which the qualitative researcher strives to get involved in the topic of investigation (Auriacombe, 2015). The possibility of qualitative data to describe a phenomenon more fully is crucial to consider not only from the researcher's point of view, but also from the reader's (Hoepfl, 2007). Qualitative research studies are known for being rich in detail and insight into participant's worldviews. The goals of this form of research are to understand some aspects of social life and the processes are to create words as data for analysis rather than numbers. Qualitative research procedures differ from quantitative research methods in that qualitative research uses various knowledge claims, inquiry methodologies and data gathering and analysis approaches (Creswell, 2007).

Qualitative research aims to gain a deeper understanding of human behavior and the factors that influence it. The design is based on social science and is more interested in understanding why individuals behave the way they do (Hossain, 2011). Qualitative research is also defined as a form of systematic empirical inquiry into meaning (Shank, 2002). Another argument is that qualitative research is interpretive and naturalistic, implying that qualitative researchers explore phenomena in their natural environments, aiming to make sense of, or interpret, occurrences in terms of the meaning's individuals assign to them (Denzin & Lincoln, 2000).

Qualitative research involves methods such as logic, ethnography, discourse analysis, case study, open-ended interview, participant observation, counselling, therapy, grounded theory, biography, comparative method, introspection, casuistry, focus group, literary criticism, meditation practice, historical research, and others (Moharaj, 2018). Interviews, diaries, journals, classroom observations and immersions; and open-ended surveys are used to gather, analyse, and interpret data from visual and textual elements, as well as oral history (Zohrabi, 2013). It is exploratory and attempts to explain "how" and "why" a specific social phenomenon, or program, operates in each context (Polkinghorne, 2005, Cited in Moharaj 2018: 2). It can also be descriptive and explanatory.

3.4 Study Area

The study was conducted at Ramavhoya village which is in the Limpopo Province of South Africa. The area is in Vhembe district which is largely rural, and the households are mostly headed by females (Insert a reference). The Vhembe District has 4 local municipalities (Musina, Makhado, Thulamela, and Collins Chabane) and Ramavhoya is in Makhado Local Municipalities (see Map below).



Figure 3.1: Map of the study area (Source:)

Because of its ongoing and active involvement with indigenous knowledge systems, which are still firmly ingrained in the community's cultural practices and daily life, Ramavhoya was purposefully chosen as the study area. Examining the conservation, use, and generational transfer of indigenous knowledge is made possible by this environment. Additionally, the existence of educational establishments like Ramaano Secondary School, which incorporates indigenous knowledge into its curriculum, offers a useful institutional context for investigating the formalization and dissemination of such information within the educational system. The study site's suitability is further reinforced by the researcher's fluency in the local tongue, which promotes efficient communication, increases participant involvement, and reduces the possibility of language obstacles during data collection. Lastly, the researcher chose the study because of language familiarity to avoid language barriers in the data collection process.

3.5 Population

Creswell and Creswell (2018) describe population as a group of interest to the researcher and suitable for data collection. As for Neuman (2011), the population refers to the abstract idea of a large group of many cases from which a researcher draws a sample and to which results from the sample are generalised. In other words, population is the totality of people, organisations, objects, or occurrences from which a sample is drawn (Gray, 2009).

In this study, the population comprised learners, teachers, and the elderly indigenous knowledge systems custodians from Ha-Ramavhoya village. The learners were included in this study because they are the recipients of the indigenous knowledge system education, therefore, their inclusion in this study was significant as they are the recipients of the education. The first criterion was a teacher, learner, or elderly indigenous knowledge custodian. The second criterion was to live in Ha-Ramavhoya. The last criterion was being knowledgeable about the indigenous knowledge systems. The teachers were also selected to take part in the study as they are critical in the transfer of knowledge within the school setup. In the case of this study, the teachers are responsible for delivering teaching and learning using indigenous knowledge. Teaching of indigenous knowledge systems cannot occur without the teachers; therefore, the teachers were included to gain in-depth knowledge about the methods of teaching the indigenous knowledge systems that are currently being used and to articulate ways to improve the use of indigenous knowledge in the classroom. Lastly, the elderly indigenous knowledge custodians were included in this study because of their expertise in indigenous knowledge systems. The inclusion criteria provided a comprehensive overview of the role players in the process of teaching and learning.

3.6 Sampling

According to Bless et al., (2006) sampling refers to the technique by which the sample is drawn from the population. Denzin and Lincoln (2000) indicate that sampling involves selecting units of analysis (e.g., people, groups, artifacts, settings) in a manner that maximises the researcher's ability to answer research questions outlined in a study. In other words, sampling refers to the process of selecting a sample to represent the whole population. When conducting a scientific study, two sampling forms can be utilised namely probability and non-probability sampling techniques, which are informed by the selected research strategy (Creswell & Creswell, 2018). Probability sampling according to Sharma (2017) highlights that all the people within the research population have a relatively fair chance of being selected to take part in the research study.

There are several sub-types of probability sampling namely random sampling, stratified random sampling and systematic sampling. On the other hand, non-probability sampling entails selecting a research sample based on a specific criterion thus, the people have an unequal chance of being selected. There are several non-probability sampling techniques that researchers can employ when conducting a study namely purposive sampling, quota sampling, convenience sampling and snowball sampling (Creswell & Creswell, 2018). For this study, the

researcher adopted non-probability sampling utilising a purposive sampling method to select research participants.

3.6.1. Purposive Sampling and Justification

Purposive is also known as judgmental sampling which involves selecting individuals who satisfy a particular criterion (Sharma, 2017; Rubin & Babbie, 2007). Similarly, Bless et al., (2006), define purposive sampling as a method based on the judgement of the researcher regarding the characteristics of the representative sample. Furthermore, Creswell and Creswell (2018) define purposive sampling as a technique based entirely on the judgment of the researcher regarding the participant's knowledge of a research phenomenon based on specific characteristics. The use of purposive sampling to select research participants was deliberately conducted to draw participants who are generally experts about the various ways of incorporating indigenous knowledge in the teaching and learning of secondary school learners. The purposive sampling method also helped the researcher to select relevant individuals in line with the research design. The relevant participants in the context of this study included the secondary school learners, teachers, and indigenous knowledge holders within Ha-Ramavhoya village and more specifically within Patrick Ramaano Secondary School.

Adding on, the researcher purposively sampled participants based on the judgement that they were knowledgeable about the teaching and learning of indigenous knowledge. In addition, Robert (2010) further explains that purposive sampling is often used by qualitative researchers because of its advantages such as being time convenient and cheap. The same applied in the study, the researcher used purposive sampling because it was cheap and allowed the researcher to sample participants within a short period whilst collecting in-depth data relevant to answering the research questions.

The sample for the study comprised 20 participants made up of 8 elderly indigenous knowledge holders, 6 teachers, and 6 learners from Patrick Ramaano Secondary School living in Ha-Ramavhoya village. The sample is justifiable when conducting a qualitative methodology in line with Creswell and Creswell (2018) as the main reason is to reach data saturation. Utilising 20 participants, the researcher achieved data saturation since the participants were very fundamental in comprehensively answering the research questions hence meeting the overall aim of the study.

3.7 Data Collection Methods

The data collection method refers to a process of gathering, measuring, and evaluating precise research ideas using established and validated methods (Wisconsin & Claire, 2016). Buchanan (2016) states that the choice of data collection methods is determined by the research design that the researchers chose to guide their study. This study was qualitative, therefore, the researcher adopted qualitative data collection methods. Semi-structured interviews and focus group discussions were the data collection methods adopted in this study which are explained in the following subsections.

3.7.1 Semi-structured Interviews: Face-to-Face

A semi-structured interview is a method for gathering qualitative data in which the researcher poses a sequence of pre-planned but open-ended questions to participants (Edwards & Holland, 2013). A semi-structured interview is a technique for gathering data in which the researcher interacts face-to-face with the participants while asking questions about the study's subject (Denzin & Lincoln, 2011). Denzin and Lincoln (2011) further highlighted that although a researcher may choose not to follow the order, questions are planned and written for the data-gathering procedure.

The researcher used semi-structured interviews because of their several advantages or strengths. The researcher firstly found the semi-structured interviews profound because of their ability to allow researchers to gather an in-depth understanding of the phenomena being studied which in this study was teaching and learning indigenous knowledge. Secondly, the researcher used semi-structured interviews because of their ability to allow follow-up questions. During data collection, follow-up questions allowed the researcher to ask questions that were not clear and needed further explanations.

The method used for the semi-structured interviews was face-to-face. Therefore, all participants were interviewed face to face. The researcher used this technique to allow the participants to feel comfortable in responding to the questions when they were alone. In addition, the study was conducted in an indigenous community, therefore, two interview guides were used. The first interview guide was in English (Appendix B) and the second was in Tshivenda (Appendix C). The researcher adopted two interview guides to accommodate all participants by allowing them to choose the language they want to communicate with. Furthermore, prior to each interview, the researcher requested permission of the participants to

record the interviews hence respecting ethical considerations guiding the behavior of the researcher during the research.

3.7.2 Focus Group Discussions

This study adopted focus group discussions (FGDs) as the second data collection method. FGDs are a qualitative data collection method which involves asking a group of individuals about their perceptions, opinions, beliefs, and attitudes toward a product, service, concept, advertisement, or idea through interviews (Thomas, 2013; Harding, 2013). Hammersley (2013) adds that in FGDs the questions are posed in an interactive group setting where participants can converse with one another. In this study, FGDs involved discussion between the researcher and research and the participants. Kumar (2005) points out that the number of participants in FGDs can range from 6 to 12. The researcher used the interview guide to lead the FGDs. In other words, the questions used in semi-structured interviews were also used in the FGDs.

The researcher used the FGDs to have a discussion on the research problem being studied. The use of FGDs allowed the participants to share diverse opinions on the questions asked as compared to the semi-structured interviews. The researcher conducted two FGDs. The first FGD was conducted with teachers. Gender participation in the first FGD with teachers involved 3 females and 3 males. The second FGD was conducted with learners which were 3 males and 3 females.

3.8 Data Analysis

Data analysis involves the process of systematically applying statistical and logical techniques to describe, illustrate, condense, recap, and evaluate data (Hogstel & Sayner, 2014). The collected data was analysed using thematic content analysis. Hogstel and Sayner (2014) further mention that data analysis is performed to review the data collected in answering the study research questions. For this study, the researcher adopted thematic analysis which is explained below.

3.8.1 Thematic Analysis

Thematic analysis is a method of data analysis in qualitative research that focuses on detecting, analysing, and recording forms or themes found in the data (Hammersley, 2015). Guest (2012) mentions that thematic analysis is an approach in which themes are closely tied to information because they are derived from it. The data collected in this study was analysed using thematic analysis guided by the six-step method developed by Braun and Clark (2006). The steps

included data familiarisation, producing initial codes, organising the data into very meaningful sets, searching for potential themes, reviewing and reviewing the themes and finally a write-up.

In the first stage of data analysis, the researcher familiarised himself with the data that was collected from the interviews and focus group discussions. The recordings that were done during the data collection process were transcribed as the major step to have all data on paper. The researcher read the transcribed data to be well familiar with the information essential in the data collected. This was followed by coding in which the researcher used the transcribed data to search and identify meaningful themes. The researcher constantly revisited the research questions to ensure that the data collected was answering the research questions.

This was followed by the identification of the themes. The themes and subthemes concerning ways to utilise indigenous knowledge in the school curriculum through teaching and learning were identified. Some themes that the researcher perceived as insignificant to address the aim of the research were eliminated. In the fourth stage, the researcher then reviewed the themes. The researcher then reviewed themes and named them. At the final stage, a write-up was generated producing a comprehensive report that provided compelling evidence on ways of teaching and learning indigenous knowledge in the classroom. Chapter 4 provides a synopsis of the findings of the study.

3.9 Ethical Considerations

Ethics is a set of moral principles which govern or guide the researcher's behaviour towards the research participants. According to Babbie (2020), social research is usually conducted within social contexts and therefore, the researcher has a moral responsibility to protect the participants of the study. De Vos et al (2011) argues that ethical principles are the basis from which researchers evaluate their conduct. This study adheres to informed consent, voluntary participation, confidentiality and anonymity, deception, avoidance of harm, and privacy which are explained below.

3.9.1 Informed Consent

The first ethical principle the study adhered to was informed consent. Informed consent refers to the fact that the research participants must be fully informed about the procedures and risks involved in the research and must give their consent to participate (Haahr & Hall, 2014). To adhere to the informed consent, the researcher informed all participants about the study's background, what it entailed, and what was required of them. This was achieved in written

consent and verbally. In written consent, the researcher provided all the participants with the informed consent to read and sign (Appendix A). In addition, the researcher thoroughly and verbally explained to all participants about the study prior to their participation. The verbal consent was done using the indigenous language of the participants to ensure that they agree to participate in the study after being fully informed.

3.9.2 Voluntary Participation

The voluntary principle states that people should never participate in research unless they explicitly agree to participate (LoBiondo-Wood & Haber, 2014). This means that the participants should willingly agree to participate in the study without being forced to and intimidated by the researcher or any other person. To adhere to voluntary participation, the researcher ensured that all participants were not forced to take part in the study. To do this the researcher reminded the participants that they were free to withdraw from the data collection process should they decide to take part in the study. In other words, the researcher did not use deception to entice the participants to take part in the study. Therefore, all participants who took part in the study participated voluntarily without bribing or forced to take part.

3.9.3 Confidentiality and Anonymity

Haahr et al. (2014) succinctly define confidentiality as the protection of personal information. To adhere to confidentiality, the researcher assured all participants that the information deemed as life-threatening or which may disturb or taint their social and psychological well-being, will be safeguarded. To achieve this, the researcher resorted to anonymity which refers to the state of remaining nameless (Dianto et al., 2013). Dianto et al. (2013) further describe anonymity as protecting participants' identities so that they remain unknown. Therefore, the researcher concealed the identities of all participants. This was done to ensure that all participants' true identities were not revealed to anybody for potential victimisation protection. In other words, the data presented did not have any link with the personal information of the participants and pseudonyms were used to protect the anonymity of the participants.

3.9.4 Avoidance of Harm

Dianto et al. (2013) state that avoidance of harm means that researchers must avoid inflicting any harm on the participants. Harm may broadly be defined as extreme physical pain (Santander, 2017). It also involves factors such as psychological stress, personal embarrassment or humiliation, or a myriad of influences that may adversely affect the participants significantly (Santander, 2017). To adhere to avoidance of harm, the researcher

conducted the interviews and FGDs in a space where it was safe for all the participants and the researcher. Although the nature of the study was not sensitive, the researcher constantly reminded the participants not to answer any question that made them feel uncomfortable. In addition, during the FGDs, all participants were reminded that there is no wrong or right answer. This was done to ensure that all participants did not feel left out or humiliated by others.

3.9.5 Privacy

Privacy refers to people and their interest in controlling the access of others to themselves and no participant should ever be forced to reveal information to the researcher that the participant does not wish to reveal (Sieber, 2001). To adhere to privacy, the researcher requested a comfortable and private space to interview the participants where they felt safe and alone. In addition, the researcher encrypted the transcripts with a password and stored them in the USB, which will be deleted after 5 years.

3.9.6 Permission to Conduct the Study

When one conducts research that deals with human beings, it is imperative to first obtain permission from relevant parties. Before the data collection process, the researcher sought permission from the University of Venda (UNIVEN). The researcher first presented the research proposal to the Faculty of Humanities, Social Science and Education. After the faculty presentation, the researcher applied for ethical clearance from the University Higher Degree Committee (UHDC) for the approval. Ethical clearance was granted to the researcher to protect the researcher and the participants from any harm during data collection (Appendix D).

Furthermore, the researcher also sought permission to conduct the study from the Limpopo Provincial Basic Education Department and the principal of Patrick Ramaano Secondary School before data collection commenced. Permission was sought because the study was conducted at the school.

3.10 Measures to Ensure Trustworthiness

The study's trustworthiness refers to the demonstration that the evidence for the reported findings is sound, and hence the argument made based on the results is strong (Hogstel & Sayner, 2014). The measures to ensure trustworthiness include credibility, confirmability, dependability, and transferability which are explained below.

3.10.1 Credibility

Credibility involves establishing that qualitative research's results are believable from the respondents' perspective. In this regard, the purpose of qualitative research is to describe or understand the phenomenon of interest from the participants' perceptions (Hogstel & Sayner, 2014). Thus, the respondents are the only ones who can legitimately judge the results' credibility which Hogstel and Sayner (2014) calls member-check. In addition, for credibility reasons, the researcher adopted well-recognised research methods, debriefed the participants, and described the phenomenon under study. The researcher used field notes and audio recordings when collecting data which ensured that any information was not misplaced.

3.10.2 Confirmability

Confirmability is the quality of the results produced by research in terms of how well they are supported by people who were involved in the study and the events which are independent of the researcher (Hogstel & Sayner, 2014). Marshall and Rossman (2016) explained confirmability as the degree to which the results could be confirmed by others. To enhance confirmability, the researcher engaged in documentation of all procedures for checking and confirming the data throughout the study. The researcher also described the methods used and the way data was collected to allow for comparison with other studies. Lastly, the researcher mentioned the numbers of those who participated in the study and the researchers involved. The researcher lastly conducted a data audit which examined data collection and analyse procedures and made judgments about the potential for bias or distortion.

3.10.3 Dependability

Polit and Beck (2014) defined dependability as the data's reliability over similar conditions. This was achieved using audio recordings and notes, and the supervisor's assistance concurred with the decision at each stage of the research process. Additionally, the researcher provided detailed information about the research methods used to achieve the study results. Lastly, researchers allowed the study participants to verify the verbatim used in the data presentation. This was done to ensure that the data presented is the true reflection of the data generated by the participants.

3.10.4 Transferability

Transferability refers to the degree to which the qualitative research's results can be generalised or transferred to other contexts or settings (Lincoln & Guba, 1985). From the qualitative research's perspective, transferability is primarily the responsibility of the one doing the

generalising. Transferability in qualitative research is synonymous with generalisability, or external validity in quantitative research (Lincoln & Guba, 1985). Transferability is established by providing readers with evidence that the research study's findings could apply to other contexts, situations, times, and populations. It is important to note that the researcher cannot prove that the research study's findings will be applicable. Instead, the researcher's duty is to provide evidence that it could be applicable (Lincoln & Guba, 1985). To ensure transferability, the researcher used a thick description in which research procedures and context were thoroughly described to allow the study results to be applicable in other contexts.

3.11 Conclusion

This chapter outlined the research methodology that guided the study data collection process and the nature of data analysis. The chapter began with the outlining and the justification of the interpretivism paradigm as it guided the study. The chapter outlined qualitative as a research design that was used to guide the study. The chapter further outlined the study setting, population of the study, research instruments, data collection procedure, data analysis, measures to ensure trustworthiness and ethical considerations applied in this study. The next chapter focuses on presenting and analysing data.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

4.1 Introduction

The previous chapter presented the research design and methodology applied in this study. Additionally, in giving a detailed account of the data generating methods used, it also justified the choices made regarding the research design. This chapter presents data and the findings that emerged from the interviews and focus group discussions that were conducted during the data collection stage.

The secondary data that was collected is also presented in this chapter. The analysis of the data for this study was guided by the objectives of the research which sought to explore the potential benefits that may result from the integration of indigenous knowledge into the formal school curriculum, explore the challenges faced in the integration of indigenous knowledge in the Basic Education curriculum and lastly to explore possible adaptive methods of teaching and learning Indigenous knowledge in the classroom.

The study was qualitative, and the analysis of the data findings was conducted using thematic analysis. This implies that the major themes that emerged from the data are presented in this chapter. The researcher upheld the confidentiality and anonymity of the participants. This means that the names of the participants were not included when reporting the findings. The participants were selected purposively based on their knowledge of indigenous knowledge within the classrooms. The findings are presented simultaneously from all sources used to find answers to the research questions. The chapter begins with a description of the participants.

4.2. Demographic information of the Participants

Table 4.1. Demographic Information of the Participants

Category	Pseudonym	Age	Gender	Educational level
Learners	Learner 1-6	13-17	3 Females and 3 Males	Grade 8-12
Teachers	Teacher 1-6	27-55	3 Females and 3 Males	Degree-Honours

Indigenous Knowledge Holders	IKH 1-8	72-99	5 Females and 3 Males	No School-Grade 12
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4.3 Data Presentation

The presentation of data is done in this section. The analysis is presented following the research objectives.

4.3.1 Understanding of the Concept of Indigenous Knowledge

The indigenous knowledge holders were asked to articulate their understanding on the concept of indigenous knowledge. This was very significant as it helped the researcher to have participants who were well versed on the notion, hence making it much easier for them to answer the questions that followed comprehensively. One of the indigenous knowledge holders (IKH) said that.

“Indigenous knowledge is often expressed through oral traditions, storytelling, rituals, and ceremonies. These are not just cultural practices but are essential vehicles for passing down knowledge, preserving our histories, and instilling a sense of identity and belonging in future generations.” IKH 3.

Additionally, another indigenous knowledge holder supported the same view and further articulated that.

“Indigenous knowledge is an interconnected system of information that has been passed down through generations within our communities. It includes but is not limited to wisdom, cultural practices and perceptions that have shaped and sustained our cultures for centuries.” IKH 7

The above assertions point out that there is a consensus amongst the participants on what constitutes indigenous knowledge. This is because they highlighted that tradition that is passed from generation to the other through various ways such as telling stories. The focus group discussions that were conducted with the teachers also shed more light on the concept of indigenous knowledge. The same question was posed, and the participants alluded that.

“IK is the knowledge that people in each community have developed over time and continue to develop. It is based on experience; repeatedly tested over centuries of use; adapted to local culture and environment and is dynamic and changing” Teacher 2

Another teacher who was part of the focus group discussion also added that.

“Indigenous knowledge is unique to a certain culture and society. IK forms the basis for local decision-making in issues such as agriculture, health, natural resource management and other activities. IK is rooted in community practices, institutions, relationships, and rituals” Teacher 6.

The above implies that the participants’ views on the understanding of Indigenous Knowledge differs however, there was a point of connection which provided a common conceptual understanding of IK which is knowledge passed from one person to the other and its unique to culture. This is substantiated by the reviewed literature indicating IK is knowledge given by indigenous people from generation to generation verbally and visually through narrating stories and performing cultural practices (Shizha, 2013; Shava, 2016; Ujuju et al., 2016;). Furthermore, based on the findings of the study, the participants also perceived IK to be both oral and written special knowledge that is connected to the cultural values of a group of people native to a particular society.

4.3.1.1 Ways Indigenous Knowledge is Rooted

Analysis of the data was generated through focus group discussions wherein the identification of three themes was also made. These themes were indigenous knowledge as local knowledge unique to cultures as a way of knowing as being embedded in a local language and as experiential knowledge.

4.3.1.1.1 Indigenous Knowledge as Local Knowledge Unique to a Culture

All the participants expressed their understanding of indigenous knowledge as unique local knowledge that is linked to culture or a group of people that has been derived from the learner’s interaction with the environment as shown in the previous section. Most participants described IK as community wisdom that comprises values, norms and principles that guide the way of life of a particular group inherent to a specific geographic area as also supported by Odora-Hoppers (2004). Equally, most participants expressed their understanding of IK as knowledge derived from a native learner’s background, environment, experiences, games, language and passion and it is conveyed from one generation to the other. Shava (2016) refers to this oral and trans-generational transmission through narratives, stories, songs, folklore, and poetry, visually through arts, cultural rituals, and dances, and practically through doing and the artifacts associated with the practice. Collectively the results suggest that respondents seemed to have

a common view and understanding that IK is the unique knowledge that defines survival and way of life of a group of people related by a common culture and locality.

Participants referred to IK as oral or written special knowledge linked to cultures and generated by indigenous people native to a particular geographic area. The participants in this study believe that IK forms the foundation of other learning in that indigenous knowledge is linked to stories, science, geography, and cultural studies. These findings correspond with Odora-Hoppers (2004) understanding of IK as the totality of all knowledge, practices, and skills which a group of people in a particular geographic area have and which allows them to get the most out of their interaction with the environment. It appears evident that the participants' perceptions are that indigenous knowledge is place-based and relates to the culture of a group of people. Cultures have a unique way of making meaning of the world and have different ways of addressing context-specific problems using indigenous forms of knowledge (Owour, 2007).

The participants' understanding of the concept reflects the understanding of IK as a dynamic way in which people living in a shared area have come to understand themselves in relationship to their natural environment and how they organise traditional knowledge, including vegetation and wildlife, cultural beliefs, and history to improve their lives.

4.3.1.1.2 Indigenous Knowledge as a Way of Knowing

Many participants also expressed their understanding of IK as a way of knowing that influences one's understanding of the world and interpretation of its realities. These IKH participants argued that IK creates ways and wisdom in which community members learn moral values and responsibility and search for various life skills and leadership. They further shared their view that these local ways of knowing are linked to a society's values, and culture and simplify people's meaning making. This finding is sustained by Hewson (2015) who describes the African way of knowing as a cultured way of seeing and interpreting the world and explaining the changes in human lives that include language, naming and classification systems, practices for using resources, ritual, spirituality, and world view.

4.3.1.1.3 Indigenous Knowledge as Embedded in Local Language

In as much as participants recognised the value of local languages in the transmission of IK, most of them strongly argued that IK is rooted in local languages. This position was best illustrated by the reaction to a statement that was posed by some of the teachers as

“When we talk about indigenous African knowledge, I realise that this knowledge is hidden in indigenous literature and folklore which is told using the Tshivenda language”. Teacher 5

IKH also articulated the same view highlighting that,

“We cannot talk of indigenous knowledge without speaking of our mother tongue language, which is Tshivenda, because that is where IK is rooted” IKH7.

These statements show the important step in the integration of IK in the school curriculum is the introduction of local languages as a language of instruction in early childhood education and as a subject in the curriculum, with some participants suggesting that the native languages be integrated into the compulsory subjects. Most of the participants also argued to a consensus that learners should be taught to appreciate their cultures and African languages and to be proud of who they are. These participants’ promotion of local language recognition agrees with Matos (2000), who laments on African education and research that attempts to thoroughly dismiss the fundamental value of African culture, language, customs, and practices from the curriculum.

4.3.1.1.4 Indigenous Knowledge as Experiential Knowledge

Most participants outlined IK as lived experiences resulting from the interaction between the people of a place and the environment. For most of the participants, the environment from which IK is derived during interaction comprises politics, culture and religion that was used to instill societal norms and values as shared by IKH8 who said that,

“IK has been there, you cannot separate it from politics, culture and religion”.

This implies that IK can be understood as knowledge gained through experience from human interaction with culture, politics, and religion as well as an environment that governs social and economic life of society members as alleged by Potokri (2016) in the literature. It can also be alluded that the indigenous experiential knowledge concepts are slowly learnt in the community, and they cut across many academic disciplines they pointed out that it is impossible to ignore the impact of IK on the school curriculum content and that it is vital to reconnect education process with community developmental skills and values through curriculum integration of IK to restore and sustain communities. These findings are consistent with the concept of place-based education derived by Sobel (2014), who understands place-based education as the process of using the local community and environment as a basis to teach concepts in several subjects through the curriculum such as language, arts, mathematics, social studies, science amongst others.

4.3.1.2 Various ways in which Indigenous Knowledge can be Integrated into the School Curriculum

Indigenous knowledge, according to the findings of the study can be integrated and realised through various categories namely the use of native languages, history, and culture; agricultural, environmental issues, herbal medicines, healing, and scientific and technological skills.

4.3.1.2.1 The Use of Indigenous Languages

According to the findings of this research, the local language is an important form of IK in communities, this argument was held much more strongly amongst the participants. To support this view, IKH 5 said that:

“We use Tshivenda to pass the knowledge we have to the other” IKH 5

Another teacher supports the same sentiment and alludes that,

“It is also important that we teach our learners using Tshivenda in other subjects such as history so that they can comprehensively comprehend the concepts that we convey rather than using a second language as a medium of instruction since this is a secondary school setup” Teacher 6

This shows that local languages are important for spreading IK from one generation to the other. Curriculum respondents called for the teaching of local languages in school as part of the curriculum subjects, integrating local language in other subjects such as history and also using local language as a language of instruction in lower grades of schooling was emphasised more by participants who claimed that both the knowledge content contained in the Eurocentric school curriculum and that the languages spoken and used as a medium of instruction in the school curriculum are not learner-friendly. They further suggested the use of indigenous language as a medium of instruction in higher grades since it can be argued as important in improving academic development as well as encouraging critical thinking using mother tongue.

It is said that using a second language within the classroom hinders the learners from understanding and participating in the creation of knowledge and needs to be probed (Sesanti, 2016). The participants called for a liberating educational curriculum that distinguishes and incorporates indigenous African knowledge systems and epistemologies that can be selected and integrated into the school curriculum to contextualise learning. This finding suggests that participants are not satisfied with the current curriculum with respect to integration of

indigenous language and knowledge and they think that it does not serve the needs of learners successfully. This call is supported by King and Schielmann (2004), who noted that uniting the best of one's own traditions with the best of Western knowledge provides for quality in its true sense, thus validating the findings of this study and its importance in the IK discourse.

4.3.1.2.2 History and Culture

The study participants agreed that these forms of IK improve cultural preservation and integration and give the community an identity and heritage if well appropriated in the school curriculum. This view echoes the ideas of Thaman (2009), who stresses that for schools and curricula to respond to the need to make teaching and learning more culturally inclusive, there is a need for a paradigm shift from the current Western curriculum and school systems used in African countries. Most participants strongly promoted African cultural structures and practices, beliefs, religion, norms and taboos as important, hence the need to be included in the school curriculum. One participant's response helps define this stance when saying,

"I think it is important that the positive cultural practices that regulated the life of Africans be included in the curriculum". Teacher 3

There was consensus that African people are spiritual, and this is displayed in the way they perform rituals, organise family and conduct succession. Most participants seemed to value the cultural ways in which behavior was traditionally regulated, discipline was approached, and the way values of collective living and coherence were instilled. Many of the participants were also concerned that most of the African history in the curriculum is not written by Africans and not represented well hence not owned by Africans (Gumbo, 2016). The participants felt that most of the content in primary history contains only a little distorted African history with very few African heroes included. These participants called for the facilitation of important subject content through integration of more indigenous knowledge to make subject matter understandable for the learners (Abah, Mashebe & Denuga, 2015). The remarks from participants lead to the deduction that history and culture are rooted in local languages and are valued community assets.

4.3.1.2.3 Agricultural and Environmental IK

Participants presented various related agricultural skills and environmental-related subjects they valued for curriculum integration. Nonetheless, indigenous ways of crop farming, such as the use of manure to improve soil fertility, growing traditional vegetables that participants

claimed to be healthier, and food and grain preservation appeared to be IK items common to both cases which are often referred to in literature (Gumbo, 2016). The findings of the study presented by the participants show the making of local flour by grinding maize, and local brewing of porridge and beer. This was explained by some participants who stated that.

“We used to keep crops like maize and... grind the maize on our own using grinding stones, and brew drinking porridge and traditional beer from the maize we harvested”. IKH 1

This suggests that indigenous agricultural practices assisted indigenous people in living an economic life. The participant's favorites and preferences of IK are also recognised by other scholars. Emeagwali (2003) discovered that there were indigenous technologies in existence that involve fermentation of cereals such as sorghum and maize into alcoholic drinks and homemade vegetable soup. Other agricultural and technological forms of IK valued by participants include the use of bulls for ploughing in the mountainous ground, planting drought resistant seeds, traditional pests' control, traditional livestock breeding and nurturing as well as appreciation of local geographical topographies and historical sites in the environment. These practices are significant as they facilitate in improving the health of humans embedded in organic farming which was practiced by indigenous people. Integrating these practices into the curriculum will be very significant to also promote and preserve the health of the local people when the learners implement what they will be taught in schools.

4.3.2 Benefits Resulting from Integrating Indigenous Knowledge into the Formal School Curriculum

The participants were asked to provide their insights on the benefits of integrating IK into the formal school curriculum, and the following sub-sections provide the findings from the interviews and focus group discussions conducted. The findings showed that integrating IK into conventional school curricula can provide various benefits including a more inclusive and holistic learning experience.

4.3.2.1 Improved Academic Performance

The findings of the study based on thematic analysis indicated that integrating IK into the school curriculum enhances the academic performance of the learners. One of the teacher participants during the focus group discussion alluded to that,

“One of the key advantages is the promotion of critical thinking skills. Indigenous knowledge often encompasses holistic perspectives on various subjects, encouraging students to think

beyond isolated facts and consider the interconnectedness of different aspects of life. This approach enriches their ability to analyse complex issues and develop well-rounded perspectives. Teacher 4.

Upon further probing on this aspect, another teacher said that,

“I have observed that incorporating indigenous knowledge into the curriculum also enhances students' engagement and motivation. When they see their own cultures represented and valued in the educational content, it sparks a genuine interest in learning. This positive engagement can lead to improved academic performance and a more positive attitude towards education in general”. Teacher 2.

In the same perspective, learners also support the same view that integrating IK into the formal school curriculum aids in promoting improved academic performance as well as motivation for education. This is evidenced by learner 3 who said that,

“I think it's great that we get to learn about indigenous cultures in school. It makes our education more interesting and improves our performance” Learner 3

This, therefore, shows that learners generally perform better academically when their cultural backgrounds are recognised and included in the learning process. This is especially important for indigenous children, who may be more engaged and motivated in a curriculum that reflects their cultural environment. Furthermore, it is quite evident that IK takes a holistic approach to learning which helps learners to effectively develop critical thinking abilities and gain a more comprehensive understanding of issues that are regarded as difficult to comprehend as well as complex issues.

Furthermore, integrating IK into the school curriculum addresses historical imbalances and contributes to a more inclusive and just educational system which goes an extra mile in improving academic success. Indigenous knowledge's cultural relevance, holistic learning, and preservation of cultural identity make education more inclusive, successful, and powerful. Students who are exposed to indigenous knowledge systems learn to examine subjects from multiple perspectives, which promotes critical thinking and a deeper comprehension of complex ideas (Dreyer, 2018; Escrigas, 2016; Barnhardt, 2014) hence further supporting the study's findings. This comprehensive learning approach encourages problem-solving abilities necessary for promoting academic achievement.

4.3.2.2 Preserving Traditional Wisdom

The inclusion of indigenous knowledge in education can play a crucial role in preserving traditional wisdom according to the findings of the study. Formal education preserves and transmits traditional wisdom to future generations, preventing knowledge loss when incorporated into the curriculum. This can help preserve indigenous knowledge through indigenous languages, cultural practices, and oral traditions. The findings suggested that,

“The incorporation of indigenous knowledge provides a platform for community involvement. It allows us, as educators, to tap into the wealth of knowledge that exists within these communities, enriching our own teaching practices and creating a more interconnected educational experience.” Teacher 5

Considering the above quotation from the teachers, one of the learners also substantiated the same view asserting that,

“It is important for everyone to know about indigenous knowledge because it makes us more aware of the history and traditions of the people who were here long before us.” Learner 1

Learner 5 added that integrating IK in the school curriculum “teach us important lessons about respect, nature, and community.” Learner 5.

According to the findings of this study, integrating indigenous knowledge into formal education, therefore, helps document traditional wisdom which is mainly shared using the oral methods. By recognising and validating this knowledge within educational systems, it gains institutional acknowledgment and protection, which is very vital in ensuring the preservation of IK. Adding on, this engagement provides opportunities for community members, including the elders and traditional knowledge holders, to actively participate in the educational process. Their involvement further contributes to the preservation of traditional wisdom.

Including indigenous knowledge in education ensures that these oral traditions are respected, maintained, and passed on to younger members of the community. Which is essential in ensuring sustainability of indigenous wisdom and cultural resilience within the indigenous communities. As such, future generations will continue to benefit from their rich cultural wisdom, practices and traditions for their daily lives as also highlighted by a study conducted by Liao et al. (2020) in China.

4.3.2.3 Stewardship of the Environment

IK systems often prioritise sustainability and a strong connection to the environment. Incorporating IK concepts and teachings into the curriculum can facilitate the increase of environmental awareness and responsibility for preserving the environment for future generations. This is validated by one teacher who alluded that,

“Many indigenous teachings emphasise environmental stewardship and sustainable practices. By exposing students to these principles, we empower them to become more conscious of their impact on the environment and instill a sense of responsibility for the planet’s wellbeing.” Teacher 5.

The holders of IK also stressed the same view saying that,

“Indigenous knowledge provides a valuable lens through which to understand and address contemporary environmental challenges. It offers alternative perspectives and solutions that often align with sustainable practices” IKH 1

This shows the importance of IK in both education and its significance within the environment. IKH 4 highlighted the same view and added that,

“Students exposed to IK teachings learn the importance of protecting the environment through practices such as agriculture, ethical hunting and fishing, and using traditional medicines derived from plants.” IKH4

By embracing IK in line with the findings of the study, schools can foster collaboration with local Indigenous knowledge holders, which can result in more inclusive and community-focused educational experiences unique to the environmental needs of the broader Nzhelele Indigenous community. By integrating these teachings into the school curriculum, it provides a better perspective towards addressing modern environmental challenges with a more holistic and long-term approach. It encourages the learners to think beyond immediate gains and consider the broader impact of our actions as also substantiated by the reviewed literature (Boven & Morohashi, 2002). Focus group discussions conducted with the learners also echo the importance of IK towards preserving the environment. One of the learners during the discussions said that,

“Indigenous agricultural practices for example are sustainable and friendly to the ecosystem. It's not just about maximising yields; it's about respecting the land.” Learner 3.

Incorporating this knowledge into the school environment not only results in students who are aware of the environmental issues but also recognises the value of different perspectives in solving environmental issues. This, therefore, shows the importance of incorporating IK into the curriculum towards preserving the environment.

4.3.2.4 Global Awareness and Nurturing Diversity

- Exposure to IK broadens learners' views and fosters tolerance and respect for cultural diversity across the globe in line with the study findings.

“Beyond academic benefits, incorporating indigenous knowledge contributes to the development of responsible global citizens.” Teacher 3

“It brings a sense of cultural relevance to the classroom. Students, regardless of their background, can gain a deeper understanding and appreciation for the diversity of cultures around them. This not only enhances their overall education but also fosters a more inclusive and respectful learning environment.” Teacher 6.

This implies that including IK into the curriculum helps towards developing and nurturing global citizens who are more receptive to diverse traditions, cultures, and ways of life. This also exposes students to various ideologies, cultural practices, and traditional knowledge of various indigenous communities, especially in South Africa, where there are several different cultures. Indigenous knowledge helps to shape global citizens who are informed, sympathetic, and actively involved in addressing global issues. It fosters a sense of responsibility for the earth and its various people. Incorporating indigenous knowledge into education likewise broadens students' viewpoints, raises cultural awareness, and helps to create a more globally conscious and integrated society, as echoed by the multi-cultural theory. This benefit, according to the views of the participants, can be achieved when curriculum development is done in an effective manner including all the relevant stakeholders within education and the IKH.

4.3.2.5 Nurturing Cultural Respect

The integration of IK allows students or learners from indigenous communities to have their history and cultures acknowledged and represented in the curriculum, which fosters a sense of identity and pride. The findings of the study presented that exposure to indigenous knowledge fosters cultural awareness in all learners therefore increasing their respect, appreciation and understanding of other traditions, perspectives, and customs. According to the insights

presented by the IKH on how to integrate IK into the curriculum fosters respect for culture, IKH7 said that,

“It allows non-indigenous students to gain a deeper understanding of our traditions, values, and ways of life, promoting respect for indigenous cultures.” IKH 7

Indigenous knowledge holders emphasise that putting their knowledge into the curriculum is an important step towards cultural respect. The implication of the findings shows that including IK in the curriculum enhances indigenous understanding, leading to respectful interactions between indigenous and non-indigenous people. The findings align with the views of Hewson (2015) who articulated that IK brings together different cultures in harmonious ways.

“Integrating indigenous knowledge into the curriculum is a crucial step towards fostering cultural respect among students. It provides them with an opportunity to learn about the rich histories, traditions, and values of indigenous cultures, cultivating a sense of appreciation for diversity.” Teacher 6.

The learners thus supported the same view and added that,

“Including indigenous knowledge in our curriculum helps us understand our culture in detail and respect different cultures, including those that are not regarded as important” learner 6.

Another learner during the focus group discussions also alluded to the same perspective and further said that,

“We become more aware of the diversity that exists in our own country and the world. This awareness builds cultural respect naturally.” Learner 3

The implication of the findings highlights that including indigenous knowledge into the curriculum contributes to ensuring cultural respect thus helping students to acquire cultural competency, which is essential for efficient communication in many kinds of situations. Also, this benefit plays an important role in combating cultural stereotypes and biases. By incorporating IK into the curriculum, the learners receive accurate information about different cultures, which helps to challenge stereotypes and fosters a more open-minded perspective. Understanding and valuing different cultures fosters a sense of interconnectedness and common humanity as also supported by a study conducted by Lumumba (2016) as well as the principles of multicultural theory. This therefore validates the findings of the study and provides its significance in the IK discourse.

4.3.3 Challenges Faced in Integrating Indigenous Knowledge in the Basic Education Curriculum

Incorporating indigenous knowledge into the basic education curriculum can be a challenging and complex task that presents several challenges. This section presents the findings of the study on these challenges in the case area. The findings were derived from the interviews conducted with IKH and focus group discussions conducted with the teachers and the learners.

4.3.3.1 Lack of Indigenous Knowledge Understanding from the Teachers

Lack of indigenous knowledge understanding from the teachers was identified as a critical challenge by the researcher towards effectively integrating IK into the school curriculum and the teaching and learning process. One of the teachers said that,

“Language plays a crucial role in preserving indigenous knowledge, and language barriers can hinder effective integration. Some of the teachers are not native Tshivenda speakers hence making it difficult to integrate IK into the curriculum fully.” Teacher 1

The implication of the above shows that curriculum developers as well as the teachers may lack a thorough understanding of Indigenous knowledge systems hence making it difficult to incorporate IK into the curriculum. Indigenous knowledge is deeply rooted in specific languages, the teachers might not be native speakers of that native language which in this case is Tshivenda making it difficult to teach a foreign culture. If the curriculum is not available in the community's native languages, there may be a considerable loss of meaning and comprehension when being translated to English for instance. This can lead to the omission of important cultural wisdom, beliefs, and practices from the curriculum. The researcher probed for further explanation of the statement and the IKH said that,

“As the custodians of the IK we still feel that the teachers are not well aware of our culture for example beadwork and pottery making therefore teaching the learners when they are not knowledgeable enough will be a serious challenge” IKH8.

This therefore shows that the lack of adequate knowledge from the teachers acts as an obstacle to the effective implementation of IK within Nzhelele local community. Some indigenous practices even when they are included into the curriculum but the lack of teacher understanding results in IK loss. This is clear evidence that a lack of understanding of IK is a serious challenge. A study by Flessa and Ring (2015) supports the findings further alluding that many teachers thus feel unprepared to teach indigenous knowledge because they lack an in-depth

understanding of indigenous perspectives hence teachers are unable to effectively teach Indigenous knowledge in the classroom.

4.3.3.2 Lack of Sufficient Material Resources

Another challenge that the study identified as an issue in the integration of IK into the curriculum is the lack of sufficient material resources to teach the students about indigenous knowledge effectively and robustly. To cement this assertion, Teacher 4 highlighted that,

“A practical challenge is the scarcity of resources required for the successful integration of IK into the curriculum. For example, in Tshivenda language instead of saying January we say Phando because the trees grow during that time. Then we have the time of Vhuria which is June, and which is when young men would go for initiation. So, for us months of the year are not just January, and February but specific times of the year with meaning which is not adequately available in our current curriculum” Teacher 4

Teacher 6 also emphasised the same view and further added that,

"Textbooks and learning aids specifically tailored to incorporate indigenous knowledge are essential for effective teaching. Unfortunately, the scarcity of such resources limits our ability to engage students with diverse perspectives, cultural practices, and traditional wisdom." Teacher 2

A study by Head and Peacock (2011) substantiates these findings further articulating that many textbooks and educational materials do not accurately represent indigenous cultures and knowledge systems. This lack of accurate and culturally appropriate curricular materials makes it difficult for teachers to effectively teach indigenous knowledge to their students. Without adequate resources, teachers struggle to obtain as well as share unique and accurate study materials that reflect in-depth understanding of IK as highlighted by literature reviewed (Deme et al., 2019; Macharia & Mbewa, 2019; Mbilinyi & Tiwari, 2018). This constraint may result in a shallow grasp of indigenous cultures and traditions. A lack of resources, therefore, reduce the efforts to include indigenous knowledge into the curriculum. Creating adequate instructional materials and training instructors is essential towards attaining the desired results. Another learner also showed great concern about the lack of adequate materials.

"I love hearing stories, but most of the stories we read in school are not about us or our community. It would be nice to have more stories that reflect our traditions and history which is missing in our present curriculum. Learner 6.

The challenge disregards the ethos of multicultural theory as presented in the study. The curriculum is in favor of other cultures depriving them their right as enshrined in the constitution of the Republic of South Africa (1996). The researcher witnessed a challenge in the school of lack of material resources presently which will still spell a disaster again for the school to access sufficient resources to facilitate effective learning when IK is integrated into the curriculum robustly.

4.3.3.3 Inadequate Training of the Teachers

According to the findings, inadequate teacher training is a fundamental challenge to effectively integrating indigenous knowledge into the educational curriculum. The interviews conducted with IKH showed this view with IKH 3 substantiating that,

"Educators may lack the necessary training to effectively teach our indigenous knowledge the way we do as the holders of IK ourselves." IKH 3

In line with the above quotation, inadequately qualified teachers may have limited awareness of the different concepts of IK and ways of knowing what characterises IK. Lacking these understandings may contribute to the teacher's failure to communicate the broader community-oriented aspects of IK to students which in this case failure to articulate the knowledge to Patrick Ramaano Secondary School learners. These findings are against the two-eyed theory as it provides the Western school of thought with an advantage over the indigenous knowledge hence domination of the Western ideology is very evident. The learners will fail to have a rich appreciation of their heritage and indigenous knowledge due to inadequate teacher training and development of IK. Another teacher also expressed great concern on the same aspect highlighting that,

"I want to teach my students about their rich cultural heritage in Nzhelele, but I'm not confident in my knowledge hence need more information about the specific IK unique to Nzhelele and further narrow it down to Ha-Ramavhoya Village" Teacher 4.

Another teacher also supported this view when the discussions were being conducted and highlighted that,

"I think it is crucial to involve indigenous communities in our training. They are the holders of this knowledge, and their perspectives are invaluable which we did not receive when we were being trained." Teacher 6.

This means that teachers who have not received proper training may be unfamiliar with the local indigenous history and languages of the communities they serve. This lack of contextual understanding may also impede the appropriate representation of IK in the curriculum. Without a thorough understanding of the local IK context within Ha-Ramavhoya Village, the teachers struggle to engage in meaningful IK discussions even in the classrooms and fail to facilitate activities that align with their students' experiences, resulting in a disconnection between the indigenous experiences of the students and the curriculum. Validating these findings, Flessa and Ring (2015) in their study discovered that many teachers are unprepared to impart IK and have limited awareness of indigenous views. Teachers who do not have adequate training and professional development may struggle to properly teach Indigenous knowledge in their classrooms.

4.3.3.4 Failure to Balance Cultural Respect

The findings of the study showed that the failure to balance cultural respect acts as a critical challenge in integrating IK into the school curriculum. There are several factors that stem from this challenge as presented by the participants in the research. One of the IKH highlighted that,

"The school curriculum often falls short in representing the diversity within our indigenous knowledge. Each community has its unique practices and wisdom, and it's challenging when the curriculum tends to generalise or overlook specific aspects that are integral to our heritage."
IKH 2.

Integrating indigenous knowledge into the curriculum requires striking an equal balance between cultures and preserving the knowledge equally. These findings support the findings presented by Battiste (2013) who articulated that for a school curriculum to be inclusive, the curriculum must include the indigenous knowledge holders and the community in the decision-making process which is essential in including IK into the curriculum. Educational institutions frequently face the issue of ensuring that indigenous knowledge is culturally appropriate and appropriately reflects the depth and complexity of varied traditions. There is a risk of simplifying indigenous knowledge ignoring the complexities of cultural activities and failing to convey their actual significance.

In line with this view, one of the learners at Patrick Ramaano Secondary School said that,

"I speak my native language at home, but in school, everything is in a different language. It makes it hard to understand and appreciate the stories and lessons about our culture. If we could learn in our language, it would be much easier." Learner 5.

Balancing the inclusion of indigenous knowledge while maintaining cultural sensitivity and respect for other perspectives can be difficult as supported by the theory. Misrepresentation or exploitation of indigenous knowledge may therefore cause cultural insensitivity. Also, some IK will not be included in the curriculum, especially the Tshivenda culture due to it being from a minority group thus widening the gap and making it difficult to effectively incorporate IK into the formal school curriculum.

4.3.3.5 Influence of the apartheid legacy on the curriculum

The influence of the apartheid legacy on the curriculum is also a challenge that implements IK into the basic school curriculum a challenge. One of the teacher participants indicated this with grave concern when she said:

"The historical legacy of colonialism still influences educational systems and overcoming this influence can be challenging this is why English and Afrikaans are the 2 most acceptable languages in schools." Teacher 5

This means that the apartheid system of education influenced language use within schools according to the findings of the study. The use of English and Afrikaans as a medium of instruction disconnected learners from their native languages which is a cornerstone of our culture thus implementing IK into the curriculum a challenge. This further makes the transfer of IK practices, customs, wisdom, and culture impossible to include in the school curriculum.

One of the interviewed IKH accentuated the same view and further highlighted that.

"The Western educational system sometimes clashes with our traditional ways of learning and transmitting knowledge. Our knowledge is often passed down through oral traditions, and this is challenge in the school setting where written documents are prioritised." IKH 8

The impact of apartheid on the curriculum presents a major challenge to the effective integration of IK in the country particularly in Ha-Ramavhoya Village at Patrick Ramaano Secondary School. The apartheid curriculum mostly reflected the history and cultural values of the white minority. As a result, IK customs, and histories from non-white societies were mainly excluded or marginalised. The legacy of this exclusion remains in the present-day

curriculum, hence finding it difficult to integrate IK effectively. This segregation maintained unequal access to decent education, maintaining power disparities and restricting opportunities for the indigenous communities.

“Some schools have better things than others, and it reminds us of the unfairness from a long time ago. It is hard to learn when not everyone has the same books, computers, or even good classrooms. We wish things were more equal for everyone.” Learner 3

Apartheid had an ongoing effect on academic infrastructure and resources. The historically disadvantaged schools, most especially in rural areas like the case study are still faced with underfunding, inadequate infrastructure, and a scarcity of key educational resources making the inclusion of IK in the community a challenge. Inequalities in the quality of education persist, impeding efforts to offer an equitable platform for incorporating IK into the curriculum.

4.3.3.6 Political Influence

Political influence in the South African curriculum development was pointed out by majority of participants as a factor that may dictate how much IK can be integrated into the national curriculum. One participant said,

Integration is a matter of political authority; anything that needs to happen can happen here. There is no barrier if it is a political will, but it is important to include as the custodians of the IK”. IKH1

Another response from another participant focused on the principle of suitable development, democracy consideration, knowledge promotion, social equity, and peace as well as conservation of knowledge. Accepting that there are efforts towards integration of IK in school content although partly, some participants observed that in the national curriculum statement, IK is theoretically provided for, but ways of execution are not clear.

The participant said: “I was reading through IK, there is the national curriculum statement and the current one, the CAPS. “I mean everywhere it states that the indigenous knowledge system is supported in all the principles, but you don’t see the instructions, you know? Part of it. It is not clear there how the teacher must integrate this indigenous knowledge system” Teacher 1

Political decisions sometimes undermine the community’s autonomy in shaping its educational content. The findings show that it is important that decisions are made in consultation with our communities to ensure that the curriculum aligns well with our values and accurately represents

our knowledge, holding all political views constant. The political atmosphere can influence curriculum development to comply with distinct national narratives or political goals, sometimes overlooking the rich cultural traditions buried in indigenous knowledge as supported by research conducted by Msila (2016) in Kenya. This also indicates that political involvement may hinder indigenous communities' ability to develop their educational material. Political decisions may fail to consider these populations' specific needs, values, and goals, preventing true integration of their knowledge into the curriculum.

4.3.4 Adaptive Methods of Teaching and Learning Indigenous Knowledge in the Classroom

Integrating adaptive methods of teaching and learning indigenous knowledge in the classroom is crucial for creating inclusive and culturally responsive educational environments. Indigenous knowledge encompasses the traditional wisdom, practices, and perspectives of indigenous communities. Several adaptive methods for incorporating indigenous knowledge into the teaching and learning process have been identified and are discussed in the following sections.

4.3.4.1 Oral Tradition

According to research findings as well as reviewed literature, it is quite evident that IK heavily relies on storytelling to significantly share IK from one generation to the other. One of the teacher participants who took part in the focus group discussion highlighted that,

“It is important to engage these indigenous knowledge holders and even have them come to the classrooms to share their knowledge with the students as a strategy to incorporate indigenous knowledge into the curriculum effectively” Teacher 6

This is very significant as one of the critical adaptive methods of teaching and learning indigenous knowledge within the classroom. Another participant also alluded to the same sentiment and further said that,

“Yes, it is important to have the indigenous knowledge holders share their knowledge as firsthand information for the learners to have a comprehensive understanding of our culture and identity within Nzhelele community and Tshivenda culture” Teacher 1

According to the study findings, integrating the IKH into the curriculum is significant for creating and nurturing a culturally inclusive responsive educational environment. This is

ideally because IK involves the sharing of traditional wisdom, various perspectives, and even traditional practices. One of the IKH interviewed also shared the same view as he alluded that, The curriculum must be open and inclusive to allow us to come to the classrooms to share our knowledge with the students this therefore helps in preserving the knowledge” IKH 5

This, therefore, implies that utilising oral tradition as an adaptive method is essential since oral tradition provides a comprehensive and interconnected grasp of this knowledge since it is passed down from one person to the next through indigenous narratives. This encourages interactive teaching and learning as well as participatory learning, thus allowing active engagement between the students and the educators, which is an effective way to transmit this indigenous knowledge. Furthermore, the engagement of the IKH in the classroom also facilitates fostering a sense of respect by the students towards the elders within the community, further creating a collaborative learning environment integrating the Tshivenda language, thus preserving linguistic diversity. This was also highlighted by Makgato and Mokwena (2017) indicating the significance of integrating IK into the curriculum to encourage the students to appreciate IK and the various ways of knowing IK. Likewise, oral traditions usually require the audiences to interpret and reflect on the meaning of the indigenous stories and lessons. This therefore promotes critical thinking abilities along with allowing the students to have a better understanding of IK by engaging with the material content on a deeper level.

2.3.4.2 Arts and Performing Arts

According to study findings, Arts was another theme that emerged from the data collected as one of the essential adaptive methods to teaching and learning indigenous knowledge within the classrooms. This can be achieved through storytelling using visual arts such as painting, sculptures and drawings to visualise indigenous stories and myths that have existed among the indigenous people for time immemorial. The students who were part of the focus group discussion conducted by the researcher said that,

“There are various ways we can use to learn IK in the classrooms such as using visual arts to capture indigenous practices and knowledge which gives IK evidence rather than relying on storytelling alone.” Learner 1

Another teacher highlighted that,

“Through arts, we learn new skills on how to look after issues such as natural resources. The grass to make thatched roofing cannot be harvested before it dries. It needs to be protected so

that people can start harvesting it when it's dry, and it would also then leave seeds that would grow into grass for future use. Grass was an important natural resource in most parts of Venda, not only that it was the main source of food for animals, but it was also used as building materials more especially in the thatching of houses”.

An IKH also supported these findings alluding that,

“The use of drawings like on Tombo-la-ndou will also be prominent in delivering IK within classrooms, with this the learners can learn the traditional ways of dances and hunting that were done by our ancestors to at the same time preserving the wildlife” IKH 8

This implies that the use of art is important as an adaptive method for teaching and learning of indigenous knowledge in the classrooms. This is also important as it documents as well as capture indigenous practices and lifestyles that were done thus contributing to the preservation of indigenous knowledge, culture, and heritage of Ha-Ramavhoya village as the indigenous community. This is in line with the multicultural theory that informed this study which highlights the significance of various types of knowledge and values held by the members of the community. In the same perspective, another subtheme that was identified from the findings was the expression of culture through performing arts that manifest in the form of music, dances and even theater. One of the teachers supported this view and articulated the importance of performing arts to enhance the teaching and learning of indigenous knowledge within the classroom. The teacher was quoted saying that;

“We can incorporate IK into the classroom through traditional dances and dances. This will help in nurturing our Tshivenda tradition hence ensure culture sustainability when the learners are actively engaged at the same time learning” Teacher 4

This means that performing arts can also be utilised within the classrooms to convey indigenous practices, values, and historical events. This provides the learners with hands-on activities ensuring participation of the students with the IK thus making the education experience more meaningful and memorable which is essential to enhance the educational performance of the students. From the above, it can also be alluded that through combining many kinds of artistic expression to teaching and learning IK provides educators with an opportunity to create an immersive and engaging atmosphere that respects the diversity of indigenous cultures. Therefore, this adaptive and inclusive educational technique values the diversity of IK to foster comprehensive learning of complex socio-cultural meaning within the classrooms as also supported by the findings presented by Omolewa (2017) and Umoren and Omolewa (2018).

4.3.4.3 Experimental Learning

One important component of experiential learning is its capacity to engage the learners in practical, real-world situations. IK, as highlighted earlier, is based on a strong connection to the land, and experiential learning activities that take students outside, such as traditional farming practices. These experiences enable students to engage with the land in ways that go beyond theoretical understanding, building a comprehensive awareness of the connections between culture, knowledge, and culture. The IKH highlighted that,

“Most people in rural areas are farmers. They are involved in farming activities and the way they are doing these activities; they are doing them in traditional ways such as farming with animals, grazing and all the skills are applied for survival.”

Participants mentioned several indigenous traditional agricultural practices that they think should be well looked after through inclusion in school curriculum content. Likewise, food preservation was seen to be important, specifically how grains and seeds were preserved traditionally, of maize is ground to make flour and beer and porridge brewing were seen to be important.

The IKH further perpetuated that,

“When we were growing up, we never used to buy seeds from the shop. We used to produce our seeds from harvest time and preserve them until the ploughing season arrived again. But I know that does not happen these days. We used to keep crops like maize, and we never used to buy samp or beans from the shops because we used to grind the maize on our own using grinding stones, and brew drinking porridge and traditional beer from the maize we harvested. So, I discovered that in the school syllabus for agriculture, that kind of indigenous knowledge is not included, and no reference is even made to it. But this was an important kind of knowledge”.

This implies that the use of experimental learning is significant in also preserving the IK which can be conducted in classrooms through engaging the students with practical learning experience. Students learn not just practical skills from these physical activity encounters, but also about the cultural meaning and symbolism buried in these traditional practices. The act of producing something with your own hands promotes a sense of connectedness to cultural history, resulting in a more integrated, physical, and memorable learning experience. The food they produce will also be indigenous to the community such as millet and sorghum which is

indigenous to the Tshivenda culture. A study by Okoli et al. (2017) validates the findings of the study since the use of experiential learning through local community involvement was also identified as a strategy to enhance the teaching and learning of IK within the classrooms.

4.4 Conclusion

This chapter presented the qualitative data obtained from individual interviews with IKH and focus group discussions with the students and teachers at Patrick Ramaano Secondary. The results are presented as themes under the topics derived from the research objectives of the study. The themes that emerged from the data after inductive thematic analysis were presented per case and topic and differences in themes.

CHAPTER FIVE

DISCUSSION AND RECOMMENDATIONS

5.1 Introduction

The main findings of the study are presented in this chapter. The conclusion and recommendations were also highlighted. The major objective of this study was to explore various ways of teaching and learning IK in the classroom using Patrick Ramaano Secondary School as the case study. The school is in Ha-Ramavhoya village in Thulamela, Limpopo province in South Africa. Three major objectives were addressed which were sought to,

- Explore the potential benefits that may result from the integration of indigenous knowledge into the formal school curriculum,
- Explore the challenges faced in integrating indigenous knowledge in the Basic Education curriculum.
- Explore possible adaptive methods of teaching and learning Indigenous knowledge in the classroom.

The study was qualitative in nature and the data was collected using focus group discussions with the students and teachers at Patrick Ramaano secondary school and IKH within Ha-Ramavhoya village. Thematic analysis was used to analyse the findings of the research and the themes and subthemes that emerged from the findings were used to answer the research questions as posed in section 1.4.2.

5.2 Summary of the Findings of the Study

To ensure a comprehensive discussion of the findings, the summary of the research findings was presented using the objectives of the study as a guiding framework.

5.2.1 Benefits that may result from the integration of indigenous knowledge into the formal school curriculum

Before understanding the benefits of including IK in the school curriculum, there was need for an analysis as to whether the participants had a comprehensive understanding of the concept of IK itself. According to the findings presented in chapter 4, it is quite evident that the participants understood this concept. The participants had a consensus that IK is oral knowledge that can be passed from one generation to the other through word of mouth which is

ideally unique to the local community. The study also showed that there are various ways within which IK can be rooted within the communities. These findings showed that IK is unique to culture, indigenous knowledge as a way of knowing is experimental knowledge conducted through practicing and embedded in the local Tshivenda language. The findings also showed various ways IK can be integrated into the curriculum namely using Tshivenda (mother tongue), history and culture and agricultural as well as environmental issues. The above provided a conceptual understanding of the concept of IK and how it can be included in the school curriculum.

The benefits of integrating IK into the school curriculum were also articulated to answer the research question which focused on exploring and analysing these benefits. The themes that emerged from the findings showed that integrating IK into conventional school curricula can provide various benefits including a more inclusive and holistic learning experience, cultural respect, and improved academic performance.

The findings further suggest that incorporating IK within the school setup is also beneficial towards preserving traditional knowledge, which will be documented rather than solely relying on oral tradition to pass the knowledge. Also, IK emphasises sustainability of the environment and as such, including IK in the curriculum is essential in ensuring the stewardship of the environment beyond immediate gains for generations to come. The findings also suggested that utilising IK in the curriculum will facilitate enhancing global awareness and nurturing diversity. This means that IK will help in grooming culture sensitive population who are receptive to various cultures and traditions as a form of identity.

5.2.2. Challenges faced in the integration of indigenous knowledge in the Basic Education curriculum

Regardless of the benefits noted above as indicated in the study findings, it is worth noting that there are still several challenges that are also confronting the robust implementation of IK into the school curriculum. As such, the anticipated benefits fail to be realised equitably to guarantee IK sustainability from generation to the other. The findings showed that incorporating IK into the school curriculum is a complex process that requires proper planning, implementation, and evaluation as to whether the plans are being realised. Lack of comprehensive IK understanding from the teachers was identified as a crippling factor to the realisation of equitable implementation of IK into the curriculum. When the teachers are not

adequately informed of IK it becomes very challenging for them to even pass the knowledge on to the students themselves.

Furthermore, the lack of sufficient material resources was also yet another challenge that negatively affected the effective and efficient implementation of IK into the school curriculum. The findings from the teachers and learners most specifically showed great concern as at present the textbooks are not adequate. Further including IK into the curriculum means that more resources are needed yet the school is not capable enough to smoothly transition to an IK centered curriculum.

Inadequate teacher training and the failure to balance cultural respect also emerged from the themes as the major issues confronting the inclusion of IK into the curriculum the influence of colonisation though the apartheid was also identified as a challenge, the legacy is still persistent in the education system today as English and Afrikaans are the two languages of instruction within schools and acceptable languages depriving the local languages yet IK is embedded in the local language. Finally, a lack of politics will negatively influence the curriculum as well. This hinders the autonomy of indigenous communities to influence their learning experience at the same time overlooking the cultural traditions of the Ha-Ramavhoya local community.

5.2.3 Adaptive methods of teaching and learning Indigenous knowledge in the classroom

Education remains a major challenge in many African countries, more especially in the light of the educational system of colonialism in African systems that may not suit the aspirations and philosophies of African people. In response, there seems to be a paradigm shift in curriculum reform towards readjustment and integration of IK into national curriculum. As the findings suggest that presently, the implementation of IK within the curriculum is highly limited within Patrick Ramaano secondary school, the study thus explored adaptive methods of teaching and learning of IK within the classrooms.

The findings suggested the use of oral tradition as a strategy to implement IK since it is deeply rooted in storytelling. This method is critical as it will facilitate the realisation of the culturally inclusive educational environment. Also, another method that helps incorporate IK into the curriculum is through arts and performing arts in the classrooms. This helps the students to effectively remember what they were taught, subsequently aiding the performance of the learners. Likewise, the findings of the study also showed the use of experimental learning as another strategy that can be adopted to enhance the use of IK in the teaching and learning process.

5.3 Recommendations of the study

All the recommendations that the researcher suggested are presented in this section.

5.3.1 Teacher training and development

Based on the findings of this study, the researcher believes that it is now the appropriate time for education to be linked to African experiences through the inclusion of IK within the curriculum. Indigenous knowledge is an essential body of knowledge that can be integrated into the school curriculum to make teaching and learning contextual and meet the dynamic needs of society. To achieve this, the teachers must be adequately trained to be able to effectively teach utilising IK. This is ideal because, previously, the teachers were not adequately trained in this regard. Continuous development is also essential to ensure that the teachers are always up to date with new knowledge that is essential for enhancing the incorporation of IK into the curriculum, hence enhancing the teaching and learning process.

5.3.2 Community Engagement

Community engagement fosters collaboration between the local communities and the schools to create and nurture a sense of shared responsibility as much as education is concerned thus also creating a sense of shared ownership. This will enable IKH, for instance, to constantly spare time to share their knowledge within the schools, hence providing their expertise which is essential in the successful integration of IK into the curriculum to foster the teaching and learning process.

5.3.3 Development of Inclusive Policies

The researcher also recommends the development of inclusive policies that essentially ensure the effective implementation of IK, hence narrowing the policy inadequacy that is currently being experienced. The policies must recognise and emphasise the significance of IK within the education system. Developing these policies is not enough; it is also important that the policies are implemented robustly, thus reflecting policy commitment to cultural inclusion and equity for all, regardless of various ethnic groups.

Curriculum development policies are influenced by a combination of theoretical concepts, research findings, and social and political factors. Researchers like Darling-Hammond, Schiro, Apple, Tyler, and Freire have greatly added to our comprehension of these policies and their consequences. Success in creating a curriculum necessitates a cautious equilibrium between policy mandates and the actual conditions of educational settings. Future studies should further

investigate how to create and execute policies that cater to the varied requirements of students and advance fairness in education.

5.3.4 Encourage Continuous Research and Documentation

Continuous research and documentation are significant for including IK in the school curriculum to enhance the teaching and learning experiences within the local communities. The availability of adequate research encourages initiatives that support the adoption of IK and, at the same time also provide documentation of IK that has been passed mainly through oral tradition. This will, therefore, ensure the sustainability of the knowledge for generations to come.

5.4 Areas of Future Research

Exploring the incorporation of IK into school curricula to improve teaching and learning is an evolving and growing field with intriguing possibilities for further research. As educators and politicians recognise the importance of bringing indigenous viewpoints into mainstream education, several significant areas of research arise to help guide and strengthen this transformative process.

A study can be conducted at a micro level assessing the implementation of IK within schools in rural areas. Also, the lessons that can be drawn will be significant by narrowing the contextual research gap to conduct a comparative analysis of the rural and urban schools. Furthermore, research could be conducted to express the connection between the adoption of IK and how it impacts cultural diversity and student engagement within the classroom. Understanding this will help in the identification of ways within which the students can connect with their culture and heritage to enhance academic performance.

5.5 Chapter Summary

This chapter provided an overview of the entire research, including answers to all research questions presented in Chapter 1. The chapter also highlighted the study's summary in line with its research objectives where the major findings against each objective were highlighted. The chapter also discussed the recommendations that the researcher identified as significant to enhance the implementation of IK into the curriculum to improve the teaching and learning process. The chapter concluded with an analysis of areas for future research.

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APPENDIX A: INFORMED CONSENT

RESEARCH ETHICS COMMITTEE

UNIVEN Informed Consent

LETTER OF INFORMATION

Title of the Research Study: An exploration of ways of teaching and learning indigenous knowledge in the classroom: A case study of Patrick Ramaano secondary school in Ha-Ramavhoya village, Limpopo Province.

Principal Investigator/s/ researcher : Nthangeni Thakhani

Co-Investigator/s/supervisor/s : Adv.Prof P.E Matshidze, & Doctor N.E Ramavhunga,

Brief Introduction and Purpose of the Study: There have been calls for the integration of indigenous knowledge into the modern education system. Indigenous knowledge has also been recognised for the significant role that it could play in the curriculum if integrated. This study is aimed at exploring the ways of teaching and learning of indigenous knowledge at Patrick Ramaano secondary school.

Outline of the Procedures: Participants will be sampled through a purposive sampling technique; Focus Group discussion and semi-structured interviews will be used in the data collection process.

Risks or Discomforts to the Participant: There are no known/anticipated risks to the participants.

Benefits: The teachers will gain insight into some of the ways they can use to teach indigenous knowledge. They will also be able to reflect on how the learners could learn the knowledge, and if the ways to be used will be effective. The study is more likely to provide information to curriculum advisors which is more likely to improve teaching. This will enhance and improve policies since the ones that are present are not adequate. Moreover, the findings of this study are highly likely to provide a chance to document some of the indigenous knowledge and add to the body of knowledge that already exists. Lastly, the findings will assist the Department of Basic Education as well as the teachers on possible methods of teaching and learning indigenous knowledge in the classroom.

Reason/s why the Participant May Be Withdrawn from the Study

Remuneration : Participants will not receive any form of remuneration for their participation in the study.

Costs of the Study : The study's participants will not be expected to cover any costs.

Confidentiality : The researcher will ensure confidentiality, the data generated in this study will only be shared with the research supervision team.

Research-related Injury : The research team does not foresee any research related injuries.

Persons to Contact in the Event of Any Problems or Queries:

(Supervisor and details) Please contact the researcher (Contact no: 071 152 7339; nthangenitkay@gmail.com), my supervisor (contact no: 072 206 3366; Ndidzu.Esther@gmail.com) or the University Research Ethics Committee Secretariat on 015 962 9058. Complaints can be reported to the Director: Research and Innovation, Prof GE Ekosse on 015 962 8313 or Georges Ivo.Ekosse@univen.ac.za

General:

Potential knowledge holders must be assured that participation is voluntary and the approximate number of knowledge holders to be included should be disclosed. A copy of the information letter should be issued to knowledge holders. The information letter and consent form must be translated and provided in the primary spoken language of the research population.

CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher,
(.....), about the nature, conduct, benefits and risks of this
study - Research Ethics Clearance Number: __,

- I have also received, read, and understood the above written information (Participant Letter of
 - Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during this research which may relate to my participation will be made available to me.

Full Name of Participant

Date

Time

Signature

.....

.....

.....

.....

(*Name of researcher*) herewith confirm that the above participant has been fully.

Informed about the nature, conduct and risks of the above study.

Full Name of Researcher

.....

Date.....

Signature.....

Full Name of Witness (If applicable)

.....

Date

Signature.....

Full Name of Legal Guardian (If applicable)

.....

Date.....

Signature.....

Please note the following:

Research details must be provided in a clear, simple and culturally appropriate manner and prospective knowledge holders should be helped to arrive at an informed decision by use of appropriate language (grade 10 level- use Flesch Reading Ease Scores on Microsoft Word), selecting of a non-threatening environment for interaction and the availability of peer counseling (Department of Health, 2004)

If the potential participant is unable to read/illiterate, then a right thumb print is required and an impartial witness, who is literate and knows the participant e.g. parent, sibling, friend, pastor, etc. should verify in writing, duly signed that informed verbal consent was obtained (Department of Health, 2004).

If anyone makes a mistake completing this document e.g. a wrong date or spelling mistake, a new document has to be completed. The incomplete original document has to be kept in the participant's file and not thrown away, and copies thereof must be issued to the participant.

APPENDIX B: ENGLISH AND TSHIVENDA SEMI-STRUCTURED INTERVIEW GUIDE WITH INDIGENOUS HOLDERS

Semi structured interview guide with indigenous knowledge holders

Section A: Understanding of the concept of indigenous knowledge (IK) system

1. What is your understanding of IK?
 - *Vha pfesesa hani ndivho ya sialala?*
2. From your perspective as IKH, in what ways can IK be included into the formal school curriculum?
 - *Uya nga vhone sa munwe wa vhathu vha rena ndivho ya sialala ndi ndila ifhio ine ranga dzhenisa ndivho ya sialala tshikoloni?*
3. What role do you play as the indigenous knowledge holders in shaping the curriculum?
 - *Ndi tshipida tshifhio tshine vha tshi tamba kha u vhumbiwa ha ngudo tshikoloni?*
4. What are the various ways do you think are important in the teaching and learning of IK within the schools?
 - *Ndi ndila dzi fhio dzo fhambanaho dzine vha vhona dzidza ndeme kha u funziwa na u gudiwa ha ndivho ya sialala zwikoloni?*

Section B: Benefits of the integration of indigenous knowledge into the formal school curriculum.

5. What benefits may be achieved because of integrating IK into the school curriculum?

- *Ndi mbuelo ifhio ine ya ngavha hone ngau dzhenisiwa ha ndivho ya sialala kha ngudo tshikoloni?*
- 6. What is your role in ensuring that these benefits are realised?
- *Ndi tshipida tshifhio tshine vhone vha nga tshitamba uitela uri vhana na vhadededzi vha kone u vhone mbuelo hedzi?*
- 7. How do you believe the incorporation of indigenous knowledge into the school curriculum contributes to the preservation of indigenous culture?
- *Ndi ndila ifhio ine vhone vha tenda uri u pangiwa ha ndivho ya sialala kha ngudo dza vhana zwinga vhulunga ndivho ya sialala?*

Section C: Challenges faced in the integration of indigenous knowledge in the Basic Education curriculum.

8. In your view, what are the main barriers in integrating IK into the school curriculum?
- *Uya nga ha vhone, ndi mini tshine tsha khou thivhela u pangiwa ha ndivho ya sialala kha ngudo zwickoloni?*
9. What challenges have you witnessed as affecting the teaching and preservation of IK?
- *Ndi dzi fhio khaedu dzine vhono dzi vhona dzine dza khou kwama u funziwa na u vhulungiwa ha ndivho ya sialala?*
10. How can these challenges be addressed?
- *Khaedu edzi dzinga thivhelwa hani kana dzinga lwiwa hani nadzo?*

Section D: Adaptive methods of teaching and learning Indigenous knowledge in the classroom.

11. Can you share examples of teaching methods that you have used and are effective in sharing indigenous knowledge?

- *Vhanga kona u kovhelana na nne ndila ya u funza ine vhono i shumisa u kovhela ndivho ya sialala ine vha vhona iya khwine kana itshi shuma?*

12. In your view, what indigenous teaching and learning approaches have you seen to be effective in passing indigenous knowledge which the schools can also use?

- *Uya nga ha vhone ndi ndila ifhio ine vhono I vhona I khou shuma zwavhudi kha u pfukisela ndivho ya sialala ine zwickolo zwanga I shumisa?*

13. What other aspects would you want to bring to the attention of the researcher?

- *Ndi mini zwinwe zwine vhanga tama u mbudza kana ndi tshi zwidivha zwi tshielana na zwe ra vha ri khou amba ngazwo/ u pangiwa ha ndivho ya sialala zwickoloni?.*

Thank you for participating.

APPENDIX C: ENGLISH AND TSHIVENDA FOCUS GROUP DISCUSSION QUESTIONS WITH LEARNERS

Focus Group discussion guide with the learners at Patrick Ramaano Secondary school.

Section A: Understanding of the concept of indigenous knowledge (IK) system

1. What are your initial thoughts on the concept of IK?
 - *Nitshi tou pfa nga ndivho ya sialala ni humbula huda mini muhumbuloni?*
2. How do you feel about incorporating indigenous knowledge into your formal school curriculum?
 - *Nidipfa hani ngau pangwa ha ndivho ya sialala kha ngudo dza vheuwe?*
3. In what ways can IK be included into the curriculum?
 - *Uya ngaha vheuwe ndivho ya sialala inga pangwa hani kha ngudo dza vheuwe?*

Section B: Benefits of the integration of indigenous knowledge into the formal school curriculum.

4. Based on the discussion, what benefits does integrating IK into the school curriculum benefit you as the learners at Patrick Ramaano Secondary school?
 - *Uya nga nyambedzano heyi ndi vhona unga u pangwa ha ndivho ya sialala kha ngudo dza vheuwe zwinga thusa hani vheuwe sav ha gudi vha tshikolo tsha Patrick Ramaano?*
5. How can you as learners contribute to the attainment of the benefits of the integration of IK in the school?
 - *Vheuwe sa vha gudi ninga dzhenelela hani kana ninga thusa hani uri huvhe na mbuelo yau pangwa ha ndivho ya sialala tshikoloni?*

6. What other changes do you expect to see as the learners because of this integration that would benefit Patrick Ramaano Secondary school?

- *Ndi dzi fhio dzinwe tshanduko dzine nadzi lavhelela udzi vhona sa vha gudi nga malugana ha u pangiwa ha ndivho dzine dzanga vha na mbuelo kha tshikolo tsha Patrick Ramaano?*

Section C: Challenges faced in the integration of indigenous knowledge in the Basic Education curriculum.

7. What challenges do you see as obstacles to the integration of IK into the curriculum at this school?

- *Ni vhona hu khaedu dzi fhio dzine dzanga thivhela u pangiwa ha ndivho ya sialala kha ngudo dza vheuwe kha hetshi tshikolo?*

8. In what ways can these challenges affect your learning experience?

- *Nivho unga edzi khaedu dzinga kwama hani u guda ha vheuwe?*

9. In what ways can we mitigate the impact of these challenges towards facilitating effective learning process?

- *Ndi ndila ifhio ine ranga imedzana na khaedu hedzi u itela uri ngudo dza vheuwe dzi tshimbile zwavhudi?*

Section D: Adaptive methods of teaching and learning Indigenous knowledge in the classroom.

10. What methods of teaching and learning will help you to have an in-depth understanding of IK within the school curriculum?

- *Ndi ndila dzifhio dzau funziwa nau guda dzine dza ngani thusa uri ni swike vhudzivhani hau pfesesa ndivho ya sialala kha kharikhulamu ya tshikolo?*

11. In your views, what methods of teaching and learning will help preserve IK within the classrooms?

- *Uya ngaha vheiwe ndi ndila dzi fhio dzine dzanga shumisiwa kha u funza na u guda dzine dzanga u thusa u vhulunga ndivho ya sialala nga ngomu kilasini?*

12. What other views would you want to bring to the attention of the researcher?

- *Zwinwe zwine na tama u ndivhadza zwi tshielana nga zwe ravha ri khou amba ngazwo?*

Thank you for participating in the FGD.

APPENDIX D: ENGLISH FOCUS GROUP DISCUSSION QUESTIONS WITH TEACHERS

1. What is your understanding of Indigenous Knowledge?
2. Why do you think IKS has been included in the Curriculum?
3. What is the value of integrating IKS into the curriculum?
4. How can we IKS integrate into the curriculum?
5. Which challenges do you encounter when integrating IKS in the subject you're teaching?
6. Which teaching strategies can be used as a means of integrating IKS into the curriculum?
7. What does the policy say about IKS?
8. Which support are you receiving from the Department of Basic Education as far integration of Indigenous knowledge is concerned?
9. What are the benefits of integration indigenous knowledge into the curriculum?
10. Which topics related to IKS have you taught?
11. . What materials and resources do you use when teaching IKS?
12. What activities are you using to teach IKS?
13. Comments: you may add more information regarding integration of IKS into the curriculum that was not covered during the interview and think they may add value to the study.

Thank you for your participation.

APPENDIX E: ETHICAL CLEARANCE

ETHICS APPROVAL CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:

Mr T Nthangeni

STUDENT NO:

16003797

PROJECT TITE: An exploration of ways of teaching and learning indigenous knowledge in the classroom: A case study of Patrick Ramaano secondary school in Ha-Ramavhoya village, Limpopo Province.

ETHICAL CLEARANCE NO: FHSSE/23/IKS/04/2010

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Dr NE Ramavhunga	UNIVEN, IKS and Heritage Studies	Supervisor
Dr PE Matshidze	UNIVEN, IKS and Heritage Studies	Co-Supervisor
Mr T Nthangeni	UNIVEN, IKS and Heritage Studies	Investigator – Student

Type: Masters Research

Risk: Minimal risk to humans, animals, or environment (Category 2)

Approval Period: October 2023 – October 2024

The Research Ethics Social Sciences Committee (RESSC) hereby approves your project as indicated above.

General Conditions

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following.

- The project leader (principal investigator) must report in the prescribed format to the REC:
 - Annually (or as otherwise requested) on the progress of the project, and upon completion of the project.
 - Within 48hrs in case of any adverse event (or any matter that interrupts sound ethical principles) during the course of the project.
 - Annually a number of projects may be randomly selected for an external audit.
- The approval applies strictly to the protocol as stipulated in the application form. Would any changes to the protocol be deemed necessary during the course of the project, the project leader must apply for approval of these changes at the REC. Would there be deviated from the project protocol without the necessary approval of such changes, the ethics approval is immediately and automatically forfeited.
- The date of approval indicates the first date that the project may be started. Would the project have to continue after the expiry date; a new application must be made to the REC and new approval received before or on the expiry date.
- In the interest of ethical responsibility, the REC retains the right to:
 - Request access to any information or data at any time during the course or after completion of the project,
 - To ask further questions; Seek additional information; Require further modification or monitor the conduct of your research or the informed consent process.
 - withdraw or postpone approval if:
 - Any unethical principles or practices of the project are revealed or suspected.
 - It becomes apparent that any relevant information was withheld from the REC or that information has been false or misrepresented.
 - The required annual report and reporting of adverse events was not done timely and accurately,
 - New institutional rules, national legislation or international conventions A It necessary

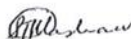
ISSUED BY:

UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: September 2023

Name of the RESSC Chairperson of the Committee: Prof TS Mashau

Signature




University of Venda
PRIVATE BAG X5050, THOHoyANDOU 0950, LIMPOPO PROVINCE, SOUTH AFRICA
TELEPHONE (015) 962 8504/8313 FAX (015) 962 9060
"A quality driven financially sustainable, rural-based Comprehensive University"



APPENDIX F: REQUEST LETTER TO THE DEPARTMENT OF EDUCATION

REQUEST LETTER TO THE CIRCUIT MANAGER

P O Box 307
Tshavhalovhedzi
Nzhelele
0993
23 January 2024
Nthangeni Thakhani
Cell: +27 71 1527 339
Email: nthangenitkay@gmail.com

RE: PERMISSION TO CONDUCT A RESEARCH STUDY AT PATRICK RAMAANO SECONDARY SCHOOL, LIMPOPO PROVINCE

I, Thakhani Nthangeni, ID no **9607156017082** am a registered master's student from the Department of Indigenous Knowledge Systems and Heritage Studies at the University of Venda. I am writing to request permission to conduct a study titled **"An exploration of ways of teaching and learning indigenous knowledge in the classroom: A case study of Patrick Ramaano secondary school in Ha-Ramavhoya village, Limpopo Province."** My study is be supervised by Adv/Prof P.E Matshidze and Dr N.E Ramavhunga.

The aim of this study is to gain insight into the methods and approaches that can be used in teaching and learning indigenous knowledge in the classroom, and how it is received by both learners and teachers. I assure you that this research process will not disrupt the school program, as I will work closely with the school administration to schedule interviews at convenient times that do not interfere with daily activities. Participation in the study will be voluntary, and no remuneration or bribes will be offered to the participants.

I kindly request your consideration and approval for this research endeavour. Your support in allowing me to conduct this study at Patrick Ramaano Secondary School would be highly appreciated.

Yours sincerely,

Nthangeni T.

Nthangeni, T

APPENDIX G: PERMISSION LETTER FROM THE DEPARTMENT OF EDUCATION



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION
NZHELELE WEST CIRCUIT

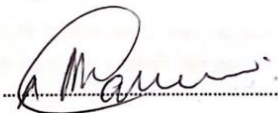
Ref No:
Enq: Dr Muthala A.M
Tel : 0722 555 071

ATTENTION : THE SGB AND SCHOOL PRINCIPAL

PATRICK RAMAANO SEC. SCHOOL.

PERMISSION TO CONDUCT A RESEARCH AT YOUR SCHOOL.

1. The above matter refers.
2. Nthangeni T of I.D No 9607156017082 has been granted permission to conduct a research at your school
3. We request the school to give him a consideration and a support to conduct the research as requested.
4. Attached is the letter from the researcher and from the institution.
5. Hoping that you will find this in order.


CIRCUIT MANAGER

23/01/24
DATE

DEPARTMENT OF EDUCATION NZHELELE WEST CIRCUIT VHEMBE WEST DISTRICT RECORDS MANAGEMENT - RECEIVED 23 JAN 2024 PRIVATE BAG X 001 DZANANI 0944 TEL : 015 970 4637 LIMPOPO PROVINCE
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NZHELELE WEST CIRCUIT MAKHADO EMPC ADMINISTRATION BUILDINGS Private Bag X1001, Dzanani,
0955, Telefax: 015 970 4537 *The Heartland of South Africa – Development is about people! Batho Pele, People
First, Vukufunda!*

Page 1

APPENDIX H: REQUEST LETTER TO THE CHIEF OF RAMAVHOYA VILLAGE

VHURIFHI HA KHUMBELO

P O Box 307
Tshavhalovhedzi
Nzhelele
0993
23 January 2024
Nthangeni Thakhani
Cell: +27 71 1527 339
Email: nthangenitkay@gmail.com

RE: KHUMBELO YA U ITA THODULUSO KHA TSHI TSHAVHA TSHA HA RAMAVHOYA.

Nne, Thakhani Nthangeni, ID no **9607156017082** ndi mugudiswa wa University ya Venda a khou itaho masters kha Department of Indigenous Knowledge Systems and Heritage Studies. Ndi nwala lunwalo ulu ndi khou humbela thendelo ya u ita thoduluso shangoni lavho la Ramavhoya. Thoho ine nda khou todulusa yone ndi heyi **"An exploration of ways of teaching and learning indigenous knowledge in the classroom: A case study of Patrick Ramaano secondary school in Ha-Ramavhoya village, Limpopo Province."** Vha pfumbudzi vhanga ndi Adv/Prof P.E Matshidze navho Dr N.E Ramavhunga.

Heyi toduluso I khou toda vha aluwa vha rena ndivho ya kale/vhufa kana sialala vhano dzula ha Ramavhoya. Ndia khwathisedza uri vha aluwa havha a vha nga do badeliwa u vha tshipida tsha heyi thoduluso. U vha tshipida tsha heyi thoduluso muthu uto nanga asa kombetshedziwi.

Ndi humbela u tendeliwa uri mushumo wanga u tshimbile zwavhudi. Thikhedzo yavho I dovha yan deme nga maanda.

Wavho a Fulufhedzeaho.

Nthangeni, T.

Nthangeni, T

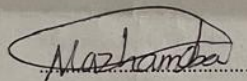
APPENDIX I: PERMISSION LETTER FROM THE CHIEF OF RAMAVHOYA VILLAGE

VHURIFHI HA THENDELO YAU ITA THODULUSO

Enq: Mr Mazhamba

Tel: 076 667 9596

Mutshudeni, Thakhani Nthangeni, ID no **9607156017082**, anobva UNIVEN oda ra muvhona a talutshedza khumbelo yawe ya uri aite thoduluso dzawe kha tshi tshavha tsha Ramavhoya dzine dza do muthusa kha pfunzo dzawe. Ndo mutendela uri aite thoduluso dzawe kha tshi tshavha tsha Ramavhoya. Ndia kholwa vhado thusana nae zwa tshimbila zwavhudi.



Vha Musanda

26 January 2024.

Datumu

APPENDIX J: LANGAUGE EDITING LETTER

mawokomayi@gmail.com
0725948848

Date: 24/06/2024

RE: TO WHOM IT MAY CONCERN

This letter serves to confirm that I edited and proofread a dissertation titled:

**AN EXPLORATION OF WAYS OF TEACHING AND LEARNING INDIGENOUS
KNOWLEDGE IN THE CLASSROOM: A CASE STUDY OF PATRICK RAMAANO
SECONDARY SCHOOL IN HA-RAMAVHOYA VILLAGE, LIMPOPO PROVINCE**

BY

Nthangeni Thakhani

16003797

Please do not hesitate to contact me for any queries.

Yours sincerely,

Professional
EDITORS
30+ Guild
Est. 1993
promoting excellence in editing

Retina Mthethi
Associate Member
Membership number: 16003797
Membership year: March 2024 to February 2025
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www.editors.org.za

*Ph.D, Communication, Master of Social Science, Communication, (University of Fort Hare)
B.A. Honours, Literature & Media Studies (University of Venda), B.A. Media Studies (University of Venda).*