INDIGENOUS KNOWLEDGE IN THE SCHOOL CURRICULUM:

TEACHER EDUCATOR PERCEPTIONS OF PLACE AND POSITION

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by

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DECLARATION

The research for this dissertation was carried out by Janet Chepchirchir Ronoh (s216878063) under the supervision of Professor Paul Webb of Nelson Mandela University-South Africa, Professor Bernd Siebenhuner of Oldenburg University-Germany and Professor Julius Tanui of Moi University-Kenya. This study represents original work done by the researcher and where the work of others has been used acknowledgement was made by referencing using American Psychological Association referencing style (APA, 2010 6th edition). I declare that this dissertation has not been submitted for any qualification at any other university.

Signed………………………….

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DEDICATION

I dedicate this dissertation to my husband Stephen Misoi and children Tracy Chepkosgei and Enock Kiptoo whose love, prayers and encouragement always gave me hope and determination.

ABSTRACT

Post-colonial school curricula in Africa, which are mostly dominated by western values, knowledge and pedagogies at the expense of indigenous knowledge (IK) and epistemologies, remain a major area of concern in education. After decades of debate on the relevance of IK and its suitability for integration in school curricula, there appears to be a shift in paradigm towards recognising indigenous ways of knowing and transforming curricula towards using inclusive, contextual and practical content and pedagogies that reflect the changing needs of African society. Despite specific provisions in the South African and Kenyan constitutions and education policy documents, the development and implementation of IK integrated curricula remains a major concern. Teacher educators are important stakeholders in terms of the integration of IK and, as such, this qualitative study, which is framed within an interpretivist philosophical view and draws on a case study methodology, explores teacher educators' perceptions of value, place and position of IK in the school curriculum. The samples, which were drawn from two African universities, one in South Africa and one in Kenya, comprised ten purposively selected teacher educators from local indigenous communities in each university. Data were generated via a semi-structured questionnaire, a modified focus group discussion (Imbizo/Baraza) process, and individual semi-structured interviews. The data generated were analysed thematically and revealed that the participating teacher educators have shared conceptual understandings of indigenous knowledge and advocate for more inclusive appropriation and integration of indigenous languages, agriculture, herbal medicine, technological and scientific indigenous knowledge items that they feel are still marginalised in the school curriculum of their respective countries. An inclusive education approach was proposed in which both modern knowledge and IK are intertwined in the curriculum in order to serve the current needs of indigenous cultures and society in general.

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LIST OF ABBREVIATIONS AND ACRONYMS USED

CAPS: Curriculum and Assessment Policy

IK: Indigenous Knowledge

IKS: Indigenous knowledge systems

UNESCO: United Nations Educational, Scientific and Cultural Organisations

DBE: Department of Basic Education

FET: Further Education and Training

KICD: Kenya Institute of Curriculum Development

NCS: National Curriculum Statement

PBE: Place Based Education

LSK: Life skills

LO: Life Orientation

CRE: Christian Religious Education

CHAPTER ONE

INTRODUCTION AND OVERVIEW

1.   INTRODUCTION

There have been robust debates on the integration of indigenous knowledge (IK) into national curricula (O'Hern & Nozaki, 2014; Breidlid, 2013, 2012) and initial attempts to include indigenous knowledge in the curriculum have sometimes met with resistance from different people who have varied views about the specific knowledge items which should be included (Hodson, 2009). Nevertheless, many developing and developed countries have recently considered the inclusion of IK and indigenous languages in the teaching of science in an attempt to sustain IK and heritage, as well as to create a foundational base in science teaching (Mc Kinley, 2005). While IK has been used, amongst others, to create a foundation base in science teaching (Herbert, 2006; Klos, 2006; McKinley, 2005), it has been argued that it has a place in the academy in its own right, an argument which is framed in terms of the politics of recognition (Hodson, 2009) and social justice for the marginalized (Dei, 2000).

Higgs (2016, p.1) affirm that "African education systems mirror colonial education paradigms inherited from former colonial education systems and, as a result, the voices of African indigenous populations are negated". He also asserts that "colonial education was hegemonic and disruptive to African cultural practices, indigenous epistemologies and ways of knowing". Higgs argues that consequently, there is an existential and humane need today to decolonise the curriculum in Africa by means of post-colonial education system that reclaim indigenous African voices through curriculum reforms and the transformation of

education discourse in which Msila (2016) refers to as restructuring of African education curriculum to make it relevant to African challenges through consideration of IKS in education. Higgs recommends that curriculum planners and developers should consider infusing the curriculum content with the wealth of IK from the local communities and also appropriating such knowledge towards human-centred development. These arguments have led to the current paradigm shift towards valuing and inclusion of indigenous knowledge in the formal education curriculum.

Msila, (2016 p. 57) aver that, "Schools will never be truly Africanised unless teacher education curriculum is embedded in an IKS–biased institutional culture and faculty become open to new ways and new philosophies". As far back as the late 1960s, Julius Nyerere strongly stated that an effective educational curriculum should not divorce its participants from the society in which they live (Nyerere, 1968) and Shizha, (2006) emphasized by stating that voices of the stakeholders interested in the education of their children are projected through IK. Perumal (2015) reminds that one should not ignore the role that place/context plays in how teaching and learning is interpreted, implemented and experienced that articulating to a critical pedagogy of place is therefore a possible response to educational reform policies and practices.

As stakeholders' perceptions and attitudes towards IK curriculum content will either support or hinder its inclusion and implementation, their views need to be taken into account during any curriculum development which attempts to integrate IK in the school curriculum. University academics in teacher education are one group of important stakeholders in the development of curricula and teacher attitudes. While it may be assumed that such stakeholders are (i) aware of indigenous knowledge (IK) in particular communities, (ii) have perceptions of the importance of indigenous knowledge items, and (iii) are able to make

reasoned judgments as to whether such knowledge should or should not be included in the curriculum, there is little evidence as to whether the above assumption is actually the case (Webb, 2013). It is for this reason that this study aimed at investigating teacher educators' perceptions of place and position of indigenous knowledge in the school curriculum in two African countries, namely Kenya and South Africa; both of which have struggled to fully embrace and implement an all-inclusive curriculum that incorporates indigenous knowledge.

2.   BACKGROUND

Constructivism is a learning theory that argues that learners construct knowledge out of their prior experiences and develop their thinking abilities by interacting with other children, adults and the physical world. Many researchers and practitioners concur that effective teaching involves use of learners' prior knowledge and that it is paramount to take into account the background and the culture of the learner throughout the learning process (Sherman & Sherman, 2004; Holiday, 2000; Hewson & Hewson, 1982). However, indigenous knowledge items as prior knowledge vary between and within groups and need to be examined so that knowledge that is considered useful and valuable is integrated in the curriculum at the appropriate place and position (Hodson, 2009).

2.1   Indigenous knowledge

According to Semali & Kincheloe (1999) 'indigenous' indicates a level of locality, a pattern of fixed whereabouts of a certain people comprising a community, distinguishable by their sharing of cultural attributes. Emeagwali (2014) defines indigenous knowledge as cumulative strategies, techniques, practices, intellectual resources, tools, explanations, cultural beliefs and values of a group of people accumulated over time in a particular locality with less interference and impositions from external forces. In a cultural perspective, Odora Hoppers (2004) and Masoga (2007) regard IK as the totality of all knowledge and practice

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explicit or implicit, used in the management of socio-economic, spiritual and ecological facets of life. Senanayake (2006) and Hoppers (2004) agree that globally there is an increasing interest in revisiting indigenous knowledge where traditional western knowledge has failed to solve problems such as hunger, poverty, sustainable development and certain illnesses.

IK is currently taking a centre stage and there is a significant paradigm shift underway in which IK and its ways of knowing are recognized as constituting complex knowledge systems with an adoptive integrity of their own (Barnhardt & Kawagley, 2004). Although there have been many calls for the inclusion of indigenous knowledge in the school curriculum, many stakeholders feel that the curriculum is still wanting in terms of what content of IK need to be integrated. Webb (2016) suggests that one should be clear as to what knowledge a majority group consider to be their traditional knowledge, and explore their views on the appropriateness for inclusion of such knowledge in the school curriculum.

Calls for inclusion of IK in the school curriculum has necessitated the need to review IK content included in the general school curriculum, what it is taught, at what level or grade it should be taught, in which environmental context and how it is taught in order to bring developments in the livelihoods of those who practice it (Awour 2007). She also points out that the central questions that need to be explored when integrating indigenous knowledge in curriculum reforms are: what aspects of IK need to be incorporated in the integration process, what other ways of knowing and methods of learning are common across the diverse indigenous cultures, and which ones are unique to particular ethnic groups? Despite current acculturation of and development of cosmopolitan communities, and the fact that individual member's perceptions may differ significantly on specific ways of doing things, there are common values and practices valued by the community (Semali & Kincheloe, 1999).

Ankiewicz (2013) explains that the philosophical framework of the nature of IK includes aspects such as the ontology, the epistemology, the methodology and the volition the 'will to' linked to values beliefs and attitudes of indigenous knowledge. He argues that educators' understanding and knowledge of these intertwined philosophical underpinnings can assist them with the choice of teaching strategies as well as the procedural and conceptual knowledge to teach.

2.2   Curriculum development

Shava (2016) is concerned that formal education curricula in Africa are still characterised by dominance of western knowledge systems and the unwillingness to represent and apply local knowledge within formal education and socioeconomic contexts. He believes that this situation stems from a colonisation history and globalising trends that continue to entrench the western ideals as the only possible pathway for socioeconomic development in post-colonial and neo-colonial Africa.

In South Africa the most recently implemented Curriculum and Assessment Policy Statement (CAPS) prepared by the Department of Basic Education (2012) specifically states that indigenous knowledge must be incorporated into the curriculum (Cronje, Beer & Ankiewicz, 2015). During the 2014 United Nations Educational, Scientific and Cultural Organisations (UNESCO, 2014) world conference on education for sustainable development, South Africa was praised as being one of the countries that have made much progress in the area of education for sustainable development (ESD) in the past decades. This progress was attributed to the reaffirmation and attention given to the role of indigenous knowledge (IK) and practices regarding sustainable living, sustainable development and caring for the well-being of future eco-systems. However, research has shown that for decades, teachers have been provided with little to no support in terms of implementing the desire by the Department

of Basic Education that IK be included in the school curriculum (Mothwa, 2011; Rogan, 2000).

Similarly, the Ominde report of 1964 (Owuor, 2007) noted that after independence the government of Kenya struggled to reconstruct the country's formal curricula in order to incorporate the multiple indigenous ways of knowing into the formal school system to help students develop a sense of self-worth grounded in their authentic cultural systems of knowledge construction. However, the diverse nature of Kenyan's ethnic communities and centuries of dominance of the country's education systems by western epistemologies are some of the reasons challenging the integration of IK in the Kenyan formal education today (Owour, 2007).

The Kenyan government's efforts to incorporate IK into the formal education curriculum in a post-colonial era has taken place in a school environment that already privileges western epistemologies against indigenous epistemologies; a condition that continues to create hegemony in Kenya school knowledge construction. As such, attempts to indigenise curricula in Kenya have met with little success and have been implemented superficially (Owuor, 2007). Revitalizing the value of IK through curriculum reforms are vital if communities are to engage in sustainable economic development that is oriented to their local needs (Dei, 2002; Shiva, 2002; Mudimbe, 1988) otherwise, as Owuor (2007) points out, there will be a gap between what is intended by the curriculum reforms and what is actually implemented in the classroom leading to incongruence between students' experiential knowledge and formal school knowledge.

3.   STATEMENT OF THE PROBLEM

Higgs (2016, p. 7) points out that questions such as; 'what should be learnt?' and 'how knowledge should be organised for teaching?', as well as 'what and how much of the

content of indigenous African knowledge systems should be included in the curriculum?', and 'how shall this incorporation take place?' are key questions to be considered in any discussion on the reconstruction of the curriculum in an African context. It is reasonable to expect that examining the perceptions of discrete groups of university academics in teacher education of the place and position of IK in the school curriculum should provide information which could assist curriculum developers make informed judgments on a curriculum which is of practical value and which is helpful in terms of understanding and solving contextual, place and culture-based issues. This research thus seeks to explore a sample of African academics in teacher education perceptions of indigenous knowledge in the school curriculum in Kenya and South Africa.

3.1   Objectives of the study

The objectives of the study are therefore to:

(i)   Investigate the understandings of IK within homogenous groups (those representing the local cultural majority) of university academics in teacher education in South Africa and Kenya.

(ii)   Establish what IK the university academics in teacher education value for incorporation into the school curriculum.

(iii)   Investigate the age, grades and subject areas techer educators believe are appropriate for the integration of IK in the school curriculum.

(iv)   Explore the principles university academics in teacher education believe might be used to introduce indigenous knowledge into the school curriculum.

3.2   Research questions

This research study attempted to answer the following main question:

What are the perceptions of two homogenous samples of university academics

in teacher education of the value, position and place of indigenous knowledge

in the school curriculum in Kenya and South Africa?

The subsidiary questions that needed to be answered in order to answer the primary question were:

(i)   What are the general perceptions of university academics in teacher education in terms of indigenous knowledge?

(ii)   What IK do they value as worthy of inclusion in the school curriculum?

(iii)   Which subjects and school levels do they believe is appropriate for integration of valued IK items in the curriculum?

(iv)   What are the principles university academics in teacher education believe should be used to appropriately introduce indigenous knowledge into the school curriculum?

4.   RESEARCH DESIGN AND METHODOLOGY

The research design and the methodological aspects of the sampling strategy procedure, data generation tools and process, data analysis and related ethical issues are presented below.

4.1   Research design

The study is located in a constructivist paradigm which, according to (Taylor & Medina, 2013), is underpinned by the view that dialogic interaction process of participants allows the refining of intersubjective knowledge and informed consensus construction. The study employed a descriptive case study research design. This design was considered to be a logical choice of research approach in this study since the research questions seeks to probe

deeper understanding of the views and opinions of participants on IK when presented with African stories given in order to stimulate further thought on IK curriculum issues. Discussions on such issues are qualitative in nature and allow stakeholders' to freely respond with reflective insights into their identification with IK and its value in relation to the school curriculum.

Two short local historical stories written in English and translated to local languages were chosen as stimulus material for a semi-structured questionnaire and a modified focus group discussion. The stories were translated into the local languages, isiXhosa and Nandi respectively, to make the stories authentic, contextual and to capture the exact cultural meaning that might be lost when presented in English (Z. K. Papu, personal communication, May 13, 2016). Finally, after analysis of modified focus group discussion (Imbizo/Baraza) data, semi-structured interviews were held with respondents purposively chosen from the Imbizo/Baraza participants who appeared to hold views which warranted deeper investigation.

4.2 Methods

The data gathering strategies for the study were a custom written story, questionnaire, Imbizo/ Baraza focus group interviews followed by individual interviews of a sample of the Imbizo/Baraza participants. The sampling technique used was purposive with the aim of working with a sample size of 5-10 participants in each of the two universities. The research employed a descriptive case study research design and relied largely on qualitative data that were analysed thematically according to Tesch's method of open coding (Creswell, 2005).

Sample and setting

The study sites were; one university in the Eastern Cape South Africa and one University in Uasin-Gishu county Kenya. This study targeted homogenous cultural groups of university academics in teacher education, who are among crucial stakeholders in curriculum implementation. The investigation was done with 5-10 academics in two faculties of education representing both genders and a range of ages. The participants were all mother-tongue speakers of IsiXhosa (South Africa) and Nandi (Kenya). The two universities provided cases of study that have similar institutional structure and situated in areas of each country that has a distinct ethnic majority.

Data generating process and tools

As noted above, data were generated via discussion around a custom written story (the stimulus), a questionnaire, a modified focus group discussion namely; the Imbizo and Baraza in South Africa and Kenya respectively, and individual interviews of a number of purposively selected participants per case.

The stimulus

In this study the items chosen were the historical/political issues of the cattle killing of 1856 by the AmaXhosa in the Eastern Cape of South Africa (for SA respondents) and the Nandi Resistance led by the Nandi warrior Koitalel Arap Samoei by the British in 1905 (for the Kenyan respondents). These stories were chosen as they are believed to have deep resonance within Xhosa and Nandi communities.

Questionnaire

After reading the appropriate stories and questions posed, the participants were required to complete a semi-structured questionnaire. The questionnaires (Appendices E & F) were used to investigate the participants' perceptions, place and position of IK in the school curriculum as well as the principles that can guide its integration into curriculum.

The Imbizo/Baraza

Thereafter, depending on the country, a senior member of staff called an Imbizo or a Baraza on the topic. An Imbizo is a Xhosa term often understood by the Xhosa people to refer to a meeting held at the chief or traditional leader's homestead when there is an issue to be discussed openly by the community members (Z. K. Papu, personal communication, May 13, 2016). The equivalent of an Imbizo in Kenya is called a 'Baraza'. In this study, the Baraza and the Imbizo were used as data gathering instruments in form of a modified focus group discussion to generate broader topic data based on the results obtained from the questionnaire responses. The audio recorded discussion was guided by an open-ended protocol (Appendices K & L) provided at the beginning. The 'Imbizo/Baraza' approach was used as an attempt to 'Africanise' the research methods.

Individual interviews

Individual recorded open-ended interviews with purposively selected participants from the sampled Imbizo/Baraza participants having views which warrant deeper investigation were conducted a few days after the Imbizo/Baraza discussions. Generally, the findings afforded insight into the stakeholder's thoughts, understandings and views regarding IK and IKS in their communities and in the school curriculum.

Data analysis

The study is generally qualitative and the data generated from the three methods; namely the questionnaire, Imbizo/Baraza and the individual interviews were categorised, coded and thematically analysed using the Tesch Method (Guest, MacQueen, & Namey 2012; Creswell, 2005). Biographic, close-ended or Likert scale questions provided some descriptive statistics.

Referencing style

The referencing style adopted by this study is the American Psychology Association, Sixth (APA .6th) edition (APA, 2010).

5.   THEORETICAL AND CONCEPTUAL FRAMEWORKS

This study seeks to explore a specific group of university academics in teacher education's perceptions of position and value, place and position of indigenous knowledge in the curriculum. For the purpose of this study a 'theoretical framework' is a guiding framework based on the previous work of others in the field which provide a lens or tool to make judgements about one's own findings. As such, the findings of researchers who have given much thought to the issue and who have provided a coherent approach to the issue are elaborated in Chapter 2. Similarly, the growing conceptual interest in how to design and implement culturally responsive pedagogy via Place-Based-Education will be considered (Gray, 2000).

6.   ETHICAL ISSUES

In as far as research is concerned, ethics and trustworthiness is an important consideration in research process for the following reasons; the need for democracy, respect for truth and persons, the need to protect participants' rights, and the need to protect

participants' space from invasion. The ethics clearance reference number **H16-EDU-ERE-012** (Appendix G) was obtained by the researcher from Education Research, Technology and Innovation Committee (ERTIC) before the investigation. Respect for participants and anonymity was ensured, accurate and detailed information on the general nature of the research were highlighted to respondents in advance in order to allow them make independent decisions on whether to participate in the study or not. Respondents were informed that participation is voluntary and signed a consent form (Appendix H) before participation.

7. OUTLINE OF THE STUDY

The research study report consists of five chapters. Chapter 1 provides an introduction and a broad overview of the study. It includes the general introduction, background, problem statement and questions, research design and methods, ethical issues and the outline of the study. Chapter 2 consists of a literature review on current debates on valuation and integration of indigenous knowledge in the school curriculum. The concept of place based education and pedagogy is also explained as a theoretical framework underpinning the study.

Chapter 3 foregrounds the study's philosophical orientation and also elaborates on the research design and methodology applied by focusing on sampling procedure, data collection methods, data analysis, trustworthiness of the research, and ethics. Chapter 4 comprises of the results and field findings of the investigation while in Chapter 5 the results presented in chapter four are discussed in relation to the literature provided in Chapter 2. This chapter also draws conclusions and recommendations based on the findings and literature reviewed.

CHAPTER TWO

LITERATURE REVIEW

1. INTRODUCTION

This research study pursues an understanding of the perceptions of teacher educators on indigenous knowledge in the school curriculum, its place and position in the recognised subject areas and grades, as well as the principles that could be used to govern integration of IK in formal education curriculum. In this chapter various definitions of IK have been considered with the aim of coming up with a study definition of IK in the context of a body of knowledge that can be learnt in school.

The nature of indigenous knowledge, indigenous knowledge systems and their importance in relation to the school curriculum has been discussed and its contribution to education highlighted. This chapter also explores the extent to which IK has been embraced by African educational institutions as an important body of knowledge for integration as compared to western education systems. It also attempts to look into the extent to which efforts have been put to successfully integrate IK in the school curriculum, and points out some of the challenges that deter successful implementation. The chapter also highlights the concept of place-based education and pedagogy to consider how indigenous knowledge within diverse cultures might be integrated into the formal education curriculum.

2. NATURE OF INDIGENOUS KNOWLEDGE

Indigenous knowledge is a growing field of inquiry, both nationally and internationally, particularly for those interested in educational innovation (Battiste, 2002). The term IK has diverse meanings because of the difference in academic disciplines, ranging

from social anthropology to sustainable development studies (Shizha, 2013). Although the term IK and IKS are often used synonymously, (Vhurumuku & Mokeleche, 2009) define IK as referring to elements of knowledge or knowing that are part of IKS (Khupe, 2014; Vhurumuku & Mokeleche, 2009). Shava (2016) defines indigenous knowledge as what indigenous communities know and do. He says IK is trans-generational, transmitted by indigenous peoples from generation to generation orally through narratives, stories, folklore, songs and poetry, visually through arts, cultural rituals and dance, and practically through doing and the artefacts associated with practice.

Indigenous knowledge, according to Boven and Morohashi (2002), is a complete body of knowledge, know- how and practices maintained and developed by people, generally in rural areas, who have extended histories of interaction with the natural environment. Indigenous knowledge is the complex set of activities values, beliefs and practices that has evolved cumulatively over time and is active among communities and groups who are its practitioners (Owour, 2007). In the international labour organisation's definition, IK is described as knowledge held and used by people who identify themselves as indigenous of a place based on a combination of cultural distinctiveness and prior territorial occupancy relative to a more recently arrived population, with its own distinct and subsequently dominant culture (International labour organisation, 1989: Article 1). IK has been used to refer to knowledge possessed and used by people in non- western, non- industrialised and traditional setting, and denotes knowledge that has evolved in a particular societal context and which is used by lay people in that context to conduct their lives (Semali & Kincheloe, 1999).

Barnhardt (2014) believes that IK reinforces positive parenting and child-rearing practices across a community in all aspects of teaching and engaging in extended experiences

that involve the development of observation and listening skills. The notion of IK is defined as the totality of all knowledge, practices and skills which people in a particular geographic area possesses, and which enables them to get the most out the environment (Odora hoppers, 2002).

Indigenous knowledge is a product of culture and cognition of people that operate independently of western ideas (Hewson, 2015) and Hoppers (2001) sees indigenous knowledge as referring to the root of things: as something that is natural and inborn to a specific context or culture. Similarly, Semali and Kincheloe (1999, p.3) note that:

> "Indigenous knowledge reflects the dynamic way in which individuals who live in a given locality have come to understand themselves in relationship to their natural environment and how they organize that folk knowledge of flora and fauna, cultural beliefs, and history to enhance their lives".

Conventional curricula and achievement tests in many countries do not support students learning based on IK (World Bank, 2005) and Hewson (2015) believes that the ways of knowing of both indigenous and western peoples need to be identified and compared. In most countries, other than what has been documented in the education policy documents, it must be admitted that not much has been done to reflect IK in the formal school curriculum (Ogunniyi, 2004).

3. NATURE OF INDIGENOUS KNOWLEDGE SYSTEMS

According to Sillitoe (1998) Indigenous Knowledge Systems (IKS) are often referred to in different ways including but not limited to local knowledge, traditional knowledge, indigenous technical knowledge, peasants' knowledge, traditional environmental knowledge and folk knowledge. Battiste (2002) defines IKS as local knowledge, unique to every culture or society, embedded in community practices, institutions, relationships and rituals and is

commonly held by communities rather than individuals. Khupe (2014); Vhurumuku & Mokeleche (2009) defined IKS as worldviews with their own ontology and epistemology. Hewson (2015) describes the African way of knowing as a sophisticated (but different) way of seeing and interpreting the world and explaining the vicissitudes of human lives. These sets of understanding interpretations and meanings are part of a cultural complex that encompasses language, naming and classification systems, practices for using resources, ritual, spirituality and world view. Bitzer and Menkveld (2004) defines IKS as a combination of knowledge systems encompassing technology, philosophy, social economic, learning/ educational, legal and government civilisation. IKS form the backbone of the social, economic, scientific and technological identity of indigenous people (Odora hoppers, 2002).

Assie-Lumumba (2016) believes that a critical assessment of their history is necessary for Africans if they are to produce and use knowledge in all its forms, at the local and global levels, to build foundations for self- sustaining social progress. Culture contains the IKS of the people and general culture is symbolic as it is based on the symbolisation of things as they are used in behavioural patterns that a group of people understands (Shizha, 2009). IKS are therefore transmitted, maintained and retained with specific cultural sites for education and sustainable development (Shizha, 2013). While, in Eurocentric thought, IKS is represented as a body of relating old and obsolete information, it can be used as a powerful tool in a learning environment to teach students (Waweu, 2011). In turn, Battiste (2015) points out that the greatest challenge in answering the question 'what is indigenous knowledge' is to find a respectful way to compare Eurocentric and indigenous ways of knowing by bringing about a blended educational context that respects and builds on both indigenous and Eurocentric knowledge systems.

4.   INDIGENOUS KNOWLEDGE AND EDUCATION

Through educational curriculum, learning institutions exert considerable influence in shaping society (Escrigas, 2016). Education is both a prerequisite to, and a tool for, enhancing the opportunities of learners to exercise their social, cultural, economic and political rights (King & Schielmann, 2004). Culturally responsive education is directed towards culturally knowledgeable students who are well grounded in the cultural heritage and traditions of their community and are able to understand and demonstrate how their local situation and knowledge relates to other knowledge systems and cultural beliefs (Barnhardt, 2014). Brock-Utne (2006) emphasizes the important role which education can play to counter-act the colonisation of the African mind by the western and European forms of knowledge and urge Africans to question knowledge included in curriculum and the languages spoken and used as medium of instruction.

Blignaut (2017) asserts that an important purpose of education is to bring about autonomous individuals who can think for themselves and are able to make ethical judgements and decisions, and such successful education programmes require 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 among others (UNESCO, 2000). The depth of IK rooted in the long inhabitation of a particular place offers lessons that can benefit everyone, from educator to scientist, as we search for a more satisfying and sustainable way to live on this planet (Barnhardt & Kawagley, 2005).

Although society is fast changing, we cannot ignore the role that IK systems play in the life of children, or the fact that knowledge is socially constructed before young children join school; they already have some knowledge acquired from home through observation of traditional practices and beliefs, stories, riddles and proverbs, games and play and daily

interactions with adults (Okoth, 2016). The dominated teacher-centred pedagogy of the present formal education system negates the constructivist theory which beliefs that children actively construct their Knowledge, rather than simply absorbing and memorizing ideas spoken to them by teachers (Lunenburg, 1998). Thus, for the African child to learn with meaningful practical applications within his/her communities, there is need to extend teaching in Africa beyond the current practice of 'transmission and indoctrination' to facilitating subject matter learning through integration of the learner's indigenous knowledge system in order to transform the subject matter knowledge into a comprehensible form that the learner can grab and apply (Abah, Mashebe & Denuga, 2015).

IKS thus constitute a critical and unavoidable component of a more realistic and comprehensive system of education (Assie-Lumumba, 2016) and classroom experiences should reflect the social and cultural contexts and should also focus on the need to meet the current societal needs (Shizha, 2013). Thaman (2009); Pene, Taufe'ulungaki & Benson (2002), have submitted that in order for schools and curricula to positively respond to the need of making teaching and learning more culturally inclusive; there will be a need for a paradigm shift from the current predominantly Euro-centric curricula and school systems of African.

Education is the transmission of values and accumulated knowledge of the society (Zulu, 2006); it is a societal instrument for the expansion of human culture. Education is not limited to accumulating knowledge and skills; it involves acquiring ways of interpreting and giving meaning to concepts, forming links and understanding ideas. Education also entails ways of knowing, perceiving and interpreting the world (Shizha, 2013). It has the potential to generate intellectual challenges, to create new societies, to uncover and unleash different

dynamics, and to open up value systems that may fundamentally question the existing social order (Assie-Lumumba, 2016).

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

Nyerere (1971) points out that ideas imparted by education should include skills that are liberating. He says nothing else can properly be called education, and that teaching which induces a slave mentality or a sense of impotence is not teaching at all. The significance of the school curriculum to the socio-cultural world view of the African student, both orientation and content, is of great concern to African academics and scholars (Shizha, 2013). Education is therefore acknowledged as being instrumental in harmonizing the different forms of knowledge bases and creating a social fabric for societies that can engender societal, economic, and political sustainability (Owour, 2007).

Assie-Lumumba (2016) states that education defines the whole human being as a member of a given society with its worldview, ethos, and social representation, in all its forms education is the primary instrument of enculturation. It is therefore believed that any change brought about by education is through the structure of the school curriculum and the success of its implementation. And that is why in Africa, post-colonial governments have grappled with developing meaningful and relevant curricula (Nhalevilo, 2013).

4.1   Indigenous knowledge and curriculum issues

Potokri (2016) defines curriculum as a course of study offered in schools, colleges and other institutions. He states that the curriculum forms links between institutions of learning, knowledge and the society. Goodlad (1994) describes the curriculum as a plan for instruction specific to a particular school or student population, while Danmole (2011) describes the curriculum as a set of learning experiences planned to influence learners to bring about the objectives of education. Curriculum is a vehicle that transports education Gumbo (2016) and changes in the curriculum changes the knowledge discourse (Dyck, 2005). The postcolonial era has heralded critique of the curriculum as a means to "cultural superiority, ideological indoctrination, power and control over others" (Kanu, 2008, p. 9), and this has resulted in a fundamental re-thinking of the curriculum which has led to a move beyond the representation of western, Eurocentric knowledge, by creating spaces for the re-emergence of indigenous knowledge in school curricula. Emeagwali (2003) supports the ideals of the kind of curriculum which fosters a socially oriented learning in support of the principle of knowledge being socially constructed and developing the mind and intellect for intellectual and community-oriented research.

Gumbo (2016) further argues that curriculum contains packaged knowledge which should embrace indigenous perspectives if it is to benefit indigenous learners and other notions spanning the cultural realities of a given community. Hoppers argue that indigenous technology is not limited to woven baskets and handicrafts for tourists, rather it expands to technologies such as looms, textiles, jewelry and mineral manufacture; and technological knowledge and practices in agriculture, fishing, forestry, resource exploitation, atmospheric management techniques, knowledge transmission systems, architecture, medicine and pharmacy (Odora-Hoppers, 1998). These indigenous ways of knowing produced knowledge

and skills that have worked over thousands of years for the survival of the human species (Hewson, 2015) and thus for Msila (2009) representation of IKS in formal education contexts provide an opportunity for inclusive approach to education.

Indigenous Knowledge (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, therefore, has to be constantly used, challenged and further adopted to evolving local contexts. For education to be liberating it should focus on relevant contexts and local African knowledge(s) that can help African society to withstand 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 jeopardized with the spread of western values, social structures, and institutionalized forms of cultural transmissions (Barnhardt, 2014). In sub-Saharan Africa, curriculum, both in content and pedagogy continues to teach students a foreign culture and worldview in a foreign language that inhibit learning experiences of students (Shazha, 2013). Shava, (2016) claims that 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 insignificant.

Odora-Hoppers (2004) notes that marginalisation and exclusion of IK takes place in westernised school context, promoted by indigenous teachers trained in western knowledge systems. In sub-Sahara Africa, the political elite who decides on what constitute valid school knowledge often takes for granted the collective knowledge on indigenous perspectives of African indigenous people (Shizha, 2013). For Odora-Hoppers, this has led to marginalization of IK integrated in the school curriculum.

Over the years the purpose of education has been defined in economic terms rather than socio-cultural advancement of the society (Nachtigal, 1997) in areas that are inherently cultural such as arts, customs, social institutions of a group of people and technology (Van Wyk, 2002). Matos (2000) argue that a major problem of education and research in Africa is the systematic attempt to dismiss the intrinsic value of African culture, language, customs and practices from the curriculum. Specific societies have unique ways of making meaning of the world and have different ways of addressing context specific problems using indigenous forms of knowledge (Owour, 2007), and that is why Dei (2000) argues that integration of IK into academies is to recognise that different knowledge can co-exist, knowledge can complement on each other and also that knowledge can conflict at the same time. King and Schielmann (2004) note that combining the best of our own traditions with the best of western knowledge is quality in a true sense.

Knowledge disseminated to the learners through the curriculum shapes and guides the practice, perceptions and value system of the learners' lifetimes long after it has been taught (Shava, 2016) and thus education stakeholders should be concerned about the kind of knowledge learners receive, its value and relevance to their contextual challenges. When teachers fail to take account of their students' diverse cultures, the students often fail to learn (Hewson, 2015). Curricula have to be contextualised in order to address problems, topics and

issues that face the dynamic society (Van Niekerk, 2004). According to Msila (2007), when learners' community and background are taken into consideration, learning is more likely to be effective and thus, Knapp (2014) points that, involving indigenous communities in an active participation in the process of elaboration and determination of curriculum teaching methods and materials is vital for the success of any educational programme.

Over the years there have been vibrant debates on the need 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 trend has been the neglect of African cultures and indigenous knowledge systems and proposes that curriculum which entails transforming teaching research and engagement is vital in African education.

Modern education systems in Africa and related institutionalised knowledge generation process have among other factors, significantly contributed to the relegation and exclusion of IK from the main stream education process (Shava, 2016). As with all kinds of change, curriculum transformation in sub-Saharan Africa has experienced some challenges. These challenges have negatively impacted the reclamation of African IK in the school curriculum. Two major challenges are the impact of colonial legacy and globalisation (Shizha, 2013) and teacher education programs 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).

The current paradigm shifts towards promoting education for sustainable development gravitates towards alternative approaches to school curriculum in sub-Saharan Africa

(Owour, 2007). Reasons for the lack of education in rural areas that go beyond access to schooling, affordability and lack of resources include the need to address and integrate indigenous knowledge into educational programmes (World Bank, 2005). However, integration of IKS in school curriculum needs to be preceded by research into ontological, epistemological, and methodological issues in order to find appropriate ways to deal with this knowledge (Nhalevilo, 2013). There is a call for an African Renaissance in educational discourse that seeks to demonstrate, how indigenous African knowledge systems can be tapped as a foundational resource for the socio- educational transformation of the African continent and also how IKS can be politically and economically liberating (Higgs & Van Wyk, 2007). If teacher education accommodates local knowledge assets as well as incorporate the global aspects, they should enhance higher education institutions' ability to serve and be relevant to local communities (Msila, 2016).

4.2   African indigenous knowledge practices and education

A growing number of African intellectuals are now acknowledging that time for recognition of African traditional knowledge in schools is long overdue (Msila, 2016). African philosophy of education is expected to empower communities to participate in their educational development by enhancing the experiences of the learners and teachers (Higgs, 2003). Shava (2016) notes that there are generalised and specific indigenous knowledge components held in African communities. He further explained that these specialised indigenous knowledge aspects are distributed asymmetrically based on gender and age and they include; traditional medical practice, making craft ware, hunting, collection, preservation and preparation of food.

Mandikonza (2006) established that among the indigenous agricultural practices of a rural community in Zambia are post-harvest pest control practices, traditional winnowing,

using traditional grain storage structures, dung coating and weevil repellent plants and traditional processing, preservation and storage of milk. In addition, Atte (1992) highlights indigenous agricultural technologies that include cultivation and harvesting of barley, millet sorghum, yam, coffee, cocoa and the use of different cropping systems as well as the domestication of cattle. IK also includes astronomical technologies of ancient people of Turkana (Van Sertima, 1991) and other parts of the world.

Shava (2008) is concerned that there exists a variety of local indigenous fruits and vegetables that can be learnt in school but in the current curriculum, agriculture syllabi on the topic of fruits, focuses mainly on exotic examples of fruits, food and nutrition on dietary importance of domesticated vegetables at the expense of indigenous ones as it also applies across most subject disciplines. Mandikonza's (2006) study outcomes for investigating the cultural significance of IK practices in science learning revealed that there is a possible application of IK practices in providing contextualized science education process as compared to decontextualized textbook–based science teaching. For this reason, Shava (2016) sees possibilities for the practical application of indigenous knowledge within the formal school curriculum and thus he calls for stakeholders to indigenise the curriculum against a background where IK has been undermined and marginalised.

4.3   Addressing issues of Africanising the curriculum

The rapid and constant changes in society necessitates a different kind of student who will respond to the current and future challenges (Msila, 2016). From the policy documents, Mauley (2001) observed that since independence, education reform has been political rather than professional in developing countries, Kenya and South Africa included. Kenyan education reforms since independence have focused on curriculum reconstruction to reflect diverse 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 predates colonialism and has evolved over time into contemporary forms (Hewson, 2015). While Elliot (2000) calls for a more responsive curriculum to the African indigenous culture, Msila (2007) argues that there is a great need to utilise the wealth of local indigenous knowledge system and incorporate them into the mainstream formal education curriculum as alternative ways to solve problems experienced by the society. Van Niekert (2004) postulates that there have been many initiatives in recent years to democratise curriculum development by involving all who have an interest in the process. However, it appears that there is no commitment to embed IKS at implementation level (Gumbo, 2016), with a distorted view being that Africans possess little or no IK of value that can be utilised in the process of educational transformation (Msila, 2009). Inclusive perspectives in knowledge production and mediation should be the aim of curriculum transformation (Shizha, 2013).

Colonial schooling has led to the loss of indigenous voices, self-identities and self-confidence (Shizha, 2013). According to Shava (2016), formal education curriculum in Africa are still characterised by the dominance of western knowledge system and an unwillingness to represent and apply local knowledge within formal education and socio-economic contexts. Lizop (1997) laments on how the formal school curriculum is devoid of IK situated practices and culture of the local community and makes no attempt to relate to them as valid knowledge sources that are relevant to learning. The formal western oriented education system inherited after independence not only cultivated among the elites a sense of denial of their indigenous heritage but also impacted negatively on individuals' sense of self confidence in expressing and appreciating their native values and cultures (Owour, 2007). Shava (2016) points out the lack of our contextual relevance of our westernised modern

education systems and the exclusion of the educational role of the local community and its knowledge.

Adesina (2006) makes an observation and states that a curriculum which honours one partial zone in the globe as the foundation of knowledge production fails not only in the task of effectively educating students: it generates 'schizophrenia' in most learners particularly those whose antecedent do not stem from Europe or those who find no significance in imperial heritage. Globalisation can also frustrate the reclamation of indigenous voices in the school curriculum; nevertheless, there are supportive global voices that are facilitating the reclamation programmes to empower indigenous students in sub-Saharan Africa and worldwide (Shizha, 2013).

According to Lizop (1997), the discourse on African higher education depicts the inappropriateness and irrelevance of current curriculum introduced during the colonial era. Colonialism and supremacy of the west have created a gap between indigenous people and their current situation, contemporary education reinforces this gap, educators must therefore find ways to negotiate this gap and reconcile the IK of their students with modern knowledge to enable learning (Hewson, 2015). Globalisation continues to dilute and destroy African IKS because Euro-American values are being spread all over the world with relative speed. However, the United Nations has made declarations that are supportive of decolonising IK and the persistent hegemonic Eurocentric epistemologies in the global indigenous communities (Shizha, 2013). This has led to various calls for Africanisation of higher education, which can be understood as the adaptation of the subject matter, and teaching methods geared to the physical and cultural realities of the African environment (Letsekha, 2013).

Scholars like Seepe (2000) argue that a radical restructuring of education in Africa which makes education relevant to African challenges can hardly be complete without a serious consideration of IKS. In South Africa, the task of a curriculum that is fit for post-1994 is to open the space for 'diverse ontological narratives', not to insist on "eraser or a neuro-ethnic monodiscourse" (Adesina, 2006, p.144). For many South Africans, education has to serve the purpose of social justice as it addresses social issues and community values, culture and other society factors should be considered in shaping the curriculum and building the knowledge base at higher education institution (Msila, 2016).

IKS provide an opportunity to bring forth an inclusive approach to education (Msila, 2016) and thus Semali & Kincheloe (1999) argue that it is important that IK be recognised and valued at the level of the school curriculum and that it be incorporated into the teaching / learning process. Various institutions in Africa are now highlighting the need to Africanise education in institutions and thus an urgency to replace the absolute western tradition in African institutions of higher learning (Msila, 2016).

In the various tribes of the world, there exists viable indigenous knowledge that can be meaningfully integrated into the western school curricula (Kaino, 2013). While Nhalevilo (2013) suggests making IKS a separate subject in the school curriculum, Keane, (2008) disagree for the reason that the breaking up of the knowledge into silos is based on western epistemology and the benefit of comparing Western Modern Science and IKS may then be lost. When prior knowledge or IK is integrated into the classrooms, students better connect to material taught and can become a major knowledge for their community's sustainable development (World Bank, 2005). Wiredu (2004) supported by Le Grange (2004) stresses the importance of combining western and African knowledge systems where possible, but with caution due to dynamicity of culture as a factor of IKS. Zulu (2006) recognises that human

cultures are diverse, but critical education discourses have evolved around curriculum as a contention between two power blocks of culture - Western culture and Indigenous culture. Traditional knowledge can vary drastically across tribes and even across regions within traditional territory and thus one should be clear as to what knowledge the group or majority therein consider to be their traditional knowledge, and to explore their views on the appropriateness for inclusion of such knowledge in the school curriculum (Webb, 2016).

Additionally, it is argued that education cannot exclude cultural knowledge, since the content of education has value underpinning it and is associated with a particular culture (Thaman, 2000). As such, Shava (2016) sees a way to decolonise our African education system through creating educational space for recovering and applying our knowledge and learning practices in formal education processes and for developing curriculum that are responsive to the local contexts. He points that educational curriculum reform in the African context should be guided by the questions: what and where is the place of our indigenous knowledge in African education systems and processes?

For Letsekha (2013) the call for Africanisation is an encouragement to learn from the west, but in a selective and constructive manner as Africans need an education system with its content, structure and organisation aligned with their worldview, social system and needs (Assie-Lumumba, 2016). This approach implies that education reforms in school or education systems must reach the community and should emanate from the community so that resistance to implementation is ameliorated (Changach & Muricho, 2013).

4.4   Integrating IK into formal education

One way of increasing the relevance of education is through an environmentally related curriculum based on community needs and conditions. According to Shava (2016), 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. He asserts that its place in educational settings is attainable if efforts are made to identify areas of its possible integration into the existing education curriculum. The strategy of integrating IK into the formal education system requires the adoption of an endogenous approach to education that involves the contextualization of the school curriculum by integrating indigenous knowledge with other relevant and useful knowledge (Owour, 2007). De Beer & 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, African renaissance is closely connected with the re-validation of indigenous knowledge (Letsekha, 2013). In whatever form the IK may exist, for Semali and Kincheloe (1999), it has the potential of impacting on the teaching learning situation in significant ways and since this knowledge arises directly out of the children's real life experiences, its incorporation into school-work can serve to motivate students as they begin to see that recognition is given to what they do and say in their communities.

Shava (2000) recommended that educational approaches should be contextual and should encourage the learners to bring in and share their experiences in the learning situation. He agrees with Ramose (1998) who states that Africanisation embraces the understanding that the African experience is not only the 'foundation' of all forms but also the 'source' for the construction of that knowledge. Africanisation is often described as a renewed focus on

Africa and entails salvaging what has been stripped from the continent i.e. a call to adopt curriculum and syllabuses to ensure that teaching and learning are adopted to African realities and conditions (Letsekha, 2013).

The task for indigenous academics has been to affirm and activate the holistic paradigm of IK to reveal the wealth and richness of indigenous languages, world views, teachings, and experiences, all of which have been systematically excluded from contemporary educational institutions and from Eurocentric knowledge systems (Basttiste, 2002). School knowledge has to express the social desires, anxieties and socio-cultural needs for socio-economic development. It should align itself with learners' experiences that are characterised by their socio-cultural worldviews. Thus, the question on defining and validating curriculum knowledge for African schools is pertinent (Shizha, 2013). According to Louw, (2009), it is clear the time has come to rethink the local content of subject areas, and by changing the curriculum in accordance with societal needs, we will change the way in which teaching and learning are constructed. Pedagogy should be approached from diverse perspectives that allow pedagogical process to be culturally sensitive, accepting cultural variations that may exist within the classroom (Shizha, 2013).

Ramose, (1998) cited by Horsthemke (2004) asserts that while the African experience is non-transferable, it is indeed communicable, but only by the African. Semali and Kincheloe (1999) emphasizes that by acknowledging students as knowers and by letting students bring to school their indigenous literacy skills which they already know, the classroom becomes an interactive environment of knowledge production which engages both the student and the teacher. Integrating African IK and ways of teaching and learning has been perceived as necessary in de-emphasising the current curriculum that has been viewed to be too abstract, not relevant, and more examination oriented (Owour, 2007).

Changach & Muricho (2013) argue that there is need to reform the education curriculum, to make it relevant and suit the needs of the Kenyan society and Suttner (2006) appeals for an inclusive South African curriculum that realizes the suppressed creativity of African people. For many South Africans, education has to serve the purpose of social justice as it addresses social issues. Botha (2010) concludes that Western science dominates the National Curriculum Statement (NCS) and that the world views of indigenous people of South Africa in education continues to be relegated to the margins and calls for a curriculum that is inclusive of and responsive to African traditions and culture where IK and western science are combined. Community values, culture and other society factors should however also be considered in shaping the curriculum and building the knowledge base at higher education institution (Msila, 2016).

Curriculum reconstruction process in Kenya, involved the inclusion of Kenyan diverse cultures, histories, geography, oral literature in high schools and innovation in teaching that would incorporate IK and methods into the curriculum (Ominde Report, 1964) as cited by (Owour, 2007). A number of studies have expressed the value of IK, and the need for educational processes to be properly contextualised within the local knowledge and language. Such a status quo would lead to linkages between the school or education system, the home, and the wider community of schools (*Letsekha, Wiebesiek-Pienaar, & Meyiwa, 2013*). Lebakeng, Manthiba & Dalindjebo (2006) also argue for the revival of IK and maintain that the reversal of academic dependency can be achieved through an inscription of indigenous African epistemology. They also agree that there is a need to place IK on the same level of parity with other epistemological systems in an effort to achieve formal and substantive equality.

4.5   Communities, cultural capital, and curriculum reform

Communities can be able to build their social and cultural capital in order to exercise their sovereignty in their own development process (Owour, 2007). The idea according to her is to set up appropriate institutional spaces for communities and educators to provide guidance to socio-economic development through multiple forms of knowledge including indigenous knowledge forms and pedagogies.

A curriculum devoted to IK encompasses not only epistemological questions related to both the production and consumption of knowledge, but also the relationship between culture and what is defined as successful learning (Semali & Kincheloe 1999). Waghid (2004) posits that African philosophy of education aims to contribute to the transformation of educational discourse in Africa, to empower communities to participate in their own educational development, since the empowerment of communities, as well as their educational development, could be achieved through the use of whatever intellectual skills they possess to eliminate the various dimensions of the African predicament.

The notion of indigenous implicit in IKS seeks to be transformative by striving to be inclusive of those views that have been historically excluded from knowledge construction. It encompasses the diversity of culture, racial, ethnic and religious practices of all people which will lead to situational understanding of the learners' social context (Gumbo, 2016). Shava (2016) believes that the formal school curriculum, with its emphasis on decontextualized knowledge content, hardly teaches the sharing of values and appreciation of indigenous cultures and identity, communal responsibility or the respect for the elderly, which the indigenous education system naturally imparts, enabling the socialisation of its youth and their preparation for roles with the community.

Potokri (2016) notes that it is inevitable that the ever changing nature of society will find resonance in the rationale of curriculum issues and that for meaningful curriculum reforms, there is need to consult teachers and other education stakeholders to give their input before making a decision that will bring about change (Changach & Muricho, 2013). Msila (2009) points out that the African continent requires encapsulating ways of thinking that uphold African values in various structures of the society, inevitability has resulted in robust debates around the quality of curriculum aimed at ensuring that the eventual curriculum is not out of tune with the needs of the society. It is argued that solutions to African problems must proceed from understanding of local capacities such as the role of IK in promoting sustainable development (Owour, 2007), and this can be achieved by integrating IK into the formal education system to address some of the knowledge deficiencies for development that is currently formulated from the western perspectives. Pedagogical practices that integrate history are also conducive to a reconstructed curriculum that incorporates reality as perceived from different cultural historical moments (Shizha, 2013).

4.6   African values and teacher education

Chepkuto and Kipsang (2013) argue that curriculum have to be harbingers of African values and that any transformation of social sciences and humanities should regard the African experience as a point of departure. However, this has not been the case because education in Africa has been undemocratic and merely a production of African values. Odora-Hoppers (2004) claims that African curriculum experts and teachers have long ignored the knowledge that learners have gained from their lived environment. Ekong and Cloete (1997) aver that institutions around the world should be responsive to the changes that are taking place in the society. As Kenya presently experiences societal changes, so must its needs and aspirations on education systems reforms in relation to the changing needs of the

society (Chang'ach & Muricho, 2013). They point that as society changes, schools need to change and act accordingly through their teachers.

Chepkuto & Kipsang (2013) note that teacher education needs to embrace local culture and traditions if it is to address local problems. With the integration of local knowledge that is more appropriate to the needs of the indigenous communities it is hoped that local problems can be addressed effectively (Owour, 2007). Therefore, quality of teachers is important for improving and sustaining the quality of teaching and education in general for successful implementation of education reforms (Chang'ach & Muricho, 2013).

The Kenyan Government recognises the importance of integrating IK into formal education curriculum because one of the emphasised objective of its education system is to respect, foster and develop the country's rich and varied cultures (Ndegwa Report, 1971; Ominde Report, 1964; Republic of Kenya, 1965; Republic of Kenya, 1970). Le Grange (2007) argue that knowledge production is deeply heterogeneous, because different viewpoints are constantly being added and reconciled, but common elements of all forms of international knowledge systems is their localness.

4.7   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 heterogeneous 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 recognized expertise in all actions related to the use and interpretation of local cultural knowledge and practises as the basis for learning about the larger world (Barnhardt, 2014).

Indigenous knowledge may be used in teaching of several school subjects (Semali & Kincheloe, 1999). In some instances, IK may be used to teach language, to explore values, to recount history and to analyse changes in attitudes over time. While Shizha (2005) emphasises that one's language is vital to understanding the cultural reality that surrounds one's life, (Shava, 2016) states that a unifying language within the community enables communication of knowledge and provides the main medium for the representation and transmission of IK. Heugh (2005); Grin (2005), opine that learning indigenous languages in school is relevant and sustainable by itself and that it is appropriate in putting subject content to context. While the language of instruction in African schools is a major challenge in learners' cognitive development and learning outcomes, research has revealed the importance of incorporating indigenous languages into science curriculum (Shizha, 2005).

Msila, (2016) argue that teacher education which embraces African philosophy will reflect hope in the future of the African child. Diversity of knowledge should be valued and need not be reduced to the 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). Mudimbe, (1988) argued that positively integrated education reforms in sub-Saharan Africa should entail a reflection in the school curriculum that includes the history, principles, and concepts of practices, tools, and technology of communities from within the country and from other African countries. Using and studying an African language grounded in a relevant philosophy of education and an African-centred curriculum will reveal forgotten or untapped resources of positive African values and cultural practices (Assie-Lumumba, 2016). In recent years there has been an increased effort in many developing countries (South Africa and

Kenya included) to include in the mainstream natural sciences curriculum some aspects of IKS (Ogunniyi, 2004).

Since independence, the Government of Kenya has continued the struggle to reconstruct its formal curricula in order to incorporate the multiple indigenous ways of knowing into the formal school system to help students develop a sense of self-worth grounded in their own authentic cultural systems of knowledge construction (Ominde Report, 1964). Although there is much common ground between cultures, not only in terms of factual knowledge but also in terms of values (Horsthemke, 2008), a rapprochement between so-called 'indigenous' and 'non-indigenous' insights are not only possible but also desirable on educational, ethical and political grounds. A redefined and transformed education system according to (Shizha, 2013) should aim at reclaiming and commemorating the African cultural histories; schools should be cultural spaces and centres that provide strategies to reclaim African cultural identities to counteract threats of cultural identity loss.

Shava (2016) notes that indigenous education approaches can augment learning processes in the formal education contexts and contribute to the transformation of our educational curricula to make them relevant to the African context. While the value of IK in education has been recognised, this recognition is yet to translate into practical curriculum processes (Letsekha, Wiebesiek-Pienaar, & Meyiwa, 2013), and because world views are dynamic due to globalisation and the translocation of knowledge requires acknowledgement of differences and diversity, indigenising sub-Saharan African school curricula should be approached pragmatically (Shizha, 2013).

Mudaly & Ismail (2013) point out that an important pedagogical implication is that teachers need to have a conceptual knowledge of indigenous knowledge which is germane to the area in which they operate in order to effectively teach. In addition, they state that

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teachers should view IK as enhancing learning and situates teaching and learning in a viable, relevant and dynamic context. Also, as indigenous knowledge is by definition 'place-bound', be considered within the notion of 'place', 'place based education (PBE) and consider issues around 'place-based pedagogy'. However, at school, teachers often de-emphasize the values of the students' home cultures, especially if they conflict with the values that the school is trying to promote (Thaman, 2009). Consequently, the learners' prior knowledge becomes detached from the idea being promoted by the school curriculum and in order to progress with the school system, most African children tend to memorize the theory but lack the application expected to differentiate the educated and non-educated citizens in a society. So, it is important that African education developers evolve strategies such as integrating the indigenous knowledge system in teaching in order to make our education culturally-inclusive and make the teaching and learning an interesting experience for both teachers and the learners.

According to (UNESCO 1999), an analysis of the current situation and identification of learners' and communities' needs is essential for developing a learner- and community-centred pedagogy, situated in the overall context of learners daily lives and wellbeing. Quality indigenous education entails developing curricula that place emphasis on and are connected to indigenous culture, knowledge and language. Such curricula are place and culture-based and are designed with the active involvement of indigenous communities (King & Schielmann, 2004).

According to Mudaly & Ismail (2013), teachers indicate that there is minimal support in terms of the actual content and pedagogic content knowledge of IKS integration in the science curriculum and thus, place-based education seeks to help communities through employing students and school staff in solving community problems. Place-based education

understands students' local community as one of the primary resources for learning. Thus, place-based education promotes learning that is rooted in what is local—the unique history, environment, culture, economy, literature, and art of a particular place. (PBE), calls for students to first have a grounding in the history, culture and ecology of their surrounding environment before moving on to broader subjects. It also encourages teachers to develop inquiry based lessons around common core standards so that students not only meet the standards, but also grow as contributing members of a sustainable community.

5.   PLACE-BASED EDUCATION AND PEDAGOGY

Since the late 1980s there has been a growing interest in how to design and implement culturally responsive pedagogy (Gray, 2000). A compelling argument for Place-Based Education (PBE) has developed around the need to bring schools and communities closer together (Mc Inerney, 2009). In more recent times, place based education has become part of a broader movement that has arisen in response to globalisation and the serious environmental issues confronting humanity (Mc Inerney, Smyth & Down, 2011). Knapp (2014) defines place-based education as a community based effort to reconnect the process of education, enculturation and human development to the well-being of community life by introducing learners to skills and dispositions needed to regenerate and sustain communities. However, for the purpose of this study, Smith & Sobels' (2014, p.7) broad definition of place based education as, "the process of using the local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science and other subjects across the curriculum" was adopted.

Giroux (2016, p. 2) articulate the notion of pedagogy as "a deeply civic, political and moral practice- that is pedagogy as a practice of freedom". Pedagogy of place shifts the emphasis from teaching learners about local culture to teaching through the culture as

students learn about the immediate places they inhabit and their connection to the larger world within which they will make a life for themselves (Barnhardt, 2014). Knapp (2014) refers to the later as extending the classroom beyond the four walls of the classroom and the two covers of a book.

According to Gruenewald (2003), the practices of place-based education movement can be connected to experiential learning, constructivism, outdoor education, environmental and ecological education, bioregional education, democratic education, multicultural education, community-based education, critical and other approaches that are concerned with context and the value of learning from and nurturing specific places, communities. The adaptation of PBE in schools have been rationalized on the ground of creating opportunities for young people to learn about and care for the ecological and social wellbeing of the communities they inhabit and the need to connect schools with communities as part of a concerted effort to improve student engagement and participation (Mc Inerney & Down, 2011). Bowers (2005) posits that education that orients learners to the values in the places they live must first lead learners to recognize the assets found in the human and natural environments closest to them, including understandings drawn from traditional cultural practices that emphasize conservation of natural resources and fostering social practices informed by mutuality. The challenge posed by place-based educators is to expand school experience to foster connection, exploration, and action in socioecological places "just beyond the classroom" (Knapp, 1996). The primary vehicle for promoting experiential, inquiry based pedagogy is the development of curriculum materials that guide teachers into the use of the local environment and cultural resources as a foundation for all learning (Barnhardt, 2014), this is achieved by drawing on local phenomena as children's learning experiences (Knapp, 2014) through integration of IK.

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In many respects, 'place' is a lens through which young people begin to make sense of themselves and their surroundings (Mc Inerney & Down, 2011). It is where they form relationships and social networks develop a sense of community and learn to live with others (Mc Inerney & Down, 2011). Place and community play a significant role in shaping human identity and subjectivity (Mc Inerney, Smyth & Down, 2011). They suggest that our perspective of seeing the world is profoundly influenced by the geographical and socio-cultural attributes of the place(s) we inhabit. PBE has captured the attention of curriculum reforms that seek to find alternative to curriculum that is particularly alienating for many learners (Mc Inerney, 2011). PBE challenges the authenticity and delivery of mandated curriculum and authorizes locally produced knowledge otherwise referred to as indigenous knowledge. The most ardent advocates have high expectations that integrating curriculum around the study of place can transform the lives of young people and their communities (Mc Inerney, 2011). If we are to promote a critical approach to place-based learning in schools it is appropriate to consider how teachers may be better prepared to develop curriculum that fosters a spirit of critical inquiry into communities and landscapes (Mc Inerney, 2011).

A critical perspective in PBE encourages young people to connect local issues to global environmental, financial and social concerns, such as climate change, water scarcity, poverty and trade. It invites teachers and students to question the established order, to view how things are from the position of the most disadvantaged, and to work for the common good rather than self-interest (Mc Inerney, 2011). Bowers (2006), claim that school programs which encourage students to play an active role in learning about, and caring for their community can be a means of revitalizing the environment- (the natural system) and the cultural patterns and traditions that are shared without cost by all members of the community. Although teachers are constrained by mandated curriculum requirements, there is still scope for place-based learning in the selection of subject content and pedagogies (Mc Inerney,

2011). Depicting contextual learning as a vehicle for creating meaningful curriculum and instruction, Knapp (2014) asserts that at its most fundamental level, place-based education must overcome the traditional isolation of schooling from community life (Knapp, 2014).

Dewey (2013) criticized a school system in which children are not able to utilize knowledge gained outside school productively in the classroom or apply what they learn at school in their daily life. He advocates for promoters of PBE to seek to break down the isolation of school from life by emphasizing 'place' as a guiding principle in the choice of curriculum content and teaching practices. Integrating IK in the curriculum should focus on connecting what students learn and experience out of school with what students learn in school. This will restore a traditional sense of place while at the same time broaden and deepen the educational experience for all learners (Barnhardt, 2014).

According to Smith (2002), PBE holds out the promise that young people can become valued members of society by engaging in worthwhile learning experiences that contribute to the betterment of their communities. This approach according to Sobel (2004) emphasizes hands-on, real-world learning experiences that increase academic achievement, help students develop stronger ties to their community, enhance students' appreciation for the natural world and create a heightened commitment to serving as active contributing citizens. In 2005, Kanu pointed out that a reconstructionist approach to curriculum design, planning and implementation should entail the incorporation of the community important values and ideologies into the school curriculum.

Higgs (2016) posits that a curriculum constructed on the basis of indigenous African epistemologies is primarily concerned with empowering educators and learners to gain confidence in their own capabilities and to acquire a sense of pride in their own ways of being in the world. Gruenewald & Smith (2014) argue that if educators are concerned about

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the well-being of diverse communities, they need to begin paying more attention to the relationship between community well-being and the process of schooling, and Higgs (2016) emphasizes that curriculum planners should, therefore, contribute to the project of epistemological redress and infuse the content of the curriculum with the wealth of knowledge that emanates from local communities and appropriate such knowledge towards human centered development.

6. CHAPTER SUMMARY

Indigenous Knowledge (IK) is a growing field of inquiry nationally and internationally, particularly in relation to the aspect of educational innovation. IK refers to a complete body of knowledge, know-how and practices that evolved in a particular societal context as a result of practitioners' interaction with the natural environment. IK is embedded in culture and literature, its effects on school learning are important, and it is a powerful tool that can be used to teach students (Shizha, 2013). As such there have been calls for curriculum planners to infuse the content of school curricula with the IK existing in local communities. Appropriation of such knowledge is seen as being of practical importance that serves the needs of society. The gist of the arguments presented in this chapter is that for an education curriculum to be inclusive both in content and pedagogy, it should be underpinned by local peoples' culture and gravitate towards classroom experiences that reflect social and cultural contexts to enable a blended educational context that respects and builds on both indigenous and other knowledge systems.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

1.   INTRODUCTION

This chapter highlights the philosophical position and research approach to this study. The research design and its relevance in terms of answering the research questions is discussed and the sampling technique, data generation strategies and instruments applied in the study are highlighted. The data analysis techniques and ethical considerations are also considered.

2.   RESEARCH PARADIGMS

Burns, (1997) describe research as a systematic investigation. It is an inquiry whereby data are collected, analysed and interpreted in some way in an effort to "understand, describe, predict or control an educational or psychological phenomenon or to empower individuals in such contexts" (Mertens, 2005, p. 2). He also notes that all researchers work within their own worldview or paradigm. A paradigm is the fundamental model or frame of reference that researchers use to organize their observations and reasoning (Babbie, 2007). It is the choice of paradigm that sets down the intent, motivation and expectations for the research (Mackenzie & Knipe, 2006). Barker (2003, p. 312) defines a paradigm as "a model or pattern containing a set of legitimated assumptions and a design for collecting and interpreting data". Rubin & Rubin (2005) postulate that a philosophical paradigm constitutes a way of looking at the world and interpreting what is studied and therefore an indication of how research ought to be conducted, by whom, and to what degrees of involvement and interpretation. In

qualitative research, each of the paradigms offers a different way of looking at human social life, makes its own assumption about the nature of social reality, and can open up new understanding (Babbie, 2007). Klenke (2008) contends that, for a rigorous research to be conducted researchers need to understand the study's philosophical underpinning. As all researchers operate within a particular paradigm and have philosophical leaning that influences the research process, researchers must outline the paradigm that underpins their study before it is conducted (Denzin & Lincoln, 2005).

There are a number of generally accepted major paradigms, namely positivism, post-positivism, interpretivist/constructivist, transformative and pragmatic paradigms. The overview of these paradigms are each briefly described below, as is the paradigm in which my study is located.

2.1   Positivist paradigm

Mertens (2005, p. 8) states that "Positivism is sometimes referred to as 'scientific method' and is based on the rationalistic, empiricist philosophy that originated with Aristotle, Francis Bacon, John Locke, August Comte, and Emmanuel Kant". This approach is used predominantly in quantitative studies and is based on the belief that there is an external reality that can be studied objectively (Fouche & Schurink, 2014). According to Taylor (2014) and Willis (2007) the positivist paradigm is characterised by the traditional way of scientifically generating knowledge i.e. discovering 'truths' through empirical evidence such as experiments and observation. Bryman (2004) states that positivism assumes the following assumptions (i) only phenomena and knowledge confirmed by the sense can be regarded as knowledge; (ii) theories are used to generate hypotheses that can be tested and allow explanation of law to be assessed; (iii) knowledge can be produced by collecting facts that provide the basis for laws; (iv) science must and can be conducted in a way that is value free

and thus objective; and (v) there is a clear distinction between scientific and normative statements. The key features of positivist research as listed by Taylor (2014) are: the use of control and treatment groups, pre-and post- tests, randomised sampling and the use of large sample size for inquiry. It is a philosophical position that holds that the goal of knowledge is simply to describe and, in some design to explain and also to predict the phenomena that we experience through a process in which the investigator often controls the investigated (Henning, 2004).

2.2   Post-positivist paradigm

Although still regarded as one of the traditional paradigms, post-positivism succeeds positivism and its proponents argue that what is true and what is regarded as knowledge is not only based on empirical evidence but also on participants' affective responses such as thoughts, feelings, actions and perceptions about particular phenomenon (De Vos, Strydom & Delpor, 2008; Taylor, 2014; Mertens, 2010). Post-positivists hold a deterministic philosophy in which causes probably determine effects and the knowledge that develops through a post-positivist lens is still based on careful observation and measurement of the objective reality that exist out there in the world (Creswell, 2009). Post-positivist view considers objectivity and generalisation but suggest that researchers modify their claims to understanding of truth based on probability, rather than certainty (Mertens, 2010).

2.3   Interpretive/constructivist paradigm

This paradigm arose in the mid-20th century when there was a shift away from positivism to studies that aimed to capture the lives of participants in order to understand and interpret meaning and present the reality of participants from their own views (Hennings, 2004). The interpretivist/constructivist researcher tends to rely upon the "participants' views of the situation being studied" (Creswell, 2003, p. 8) and recognises the impact on the

research of their own background and experiences. The social constructivists hold assumptions that individuals seek understanding of the world in which they live and work by developing multiple subjective meanings of experiences that are negotiated socially and historically (Creswell, 2009). In this paradigm, knowledge is constructed not only by observable phenomena, but also by descriptions of people's intentions, believes values and reasons, meaning making and self-understanding and thus researchers in this paradigm are extremely sensitive to the role of context (Henning, 2004). It is based on the belief that "reality is socially constructed" (Mertens, 2005, p. 12), and thus referred to as relativism where different viewpoints construct the world through different processes of observation (Henning, 2004).

Constructivists do not generally begin with a theory rather they inductively develop a theory or pattern of meanings throughout the research process (Creswell, 2009). Inquiry is undertaken in natural settings using unstructured observations, open interviewing, idiographic descriptions and qualitative data analysis as part of an interpretivist methodology (Henning, 2004), in order to generate substantial situational information.

2.4   Transformative paradigm

The transformative paradigm, sometimes regarded as advocacy and participatory worldviews (Creswell, 2009), arose during the 1980s and 1990s partially due to dissatisfaction with the existing and dominant research paradigms and practices (Mertens, 2005). Transformative researchers felt that the interpretivist/constructivist approach to research did not adequately address pertinent issues of social justice and marginalised people (Creswell, 2003). This world view holds that research inquiry needs to be intertwined with politics and political agendas. Thus, the research contains an action agenda for reform that may change the lives of the participants, the institution in which individuals work or live and

the researcher's life (Creswell, 2009). Inquirers in this world view advocate for an action plan to help marginalised people by addressing emerging issues such as empowerment, inequality, oppression, domination, suppression and alienation (Creswell, 2009). Participatory forms of inquiry according to Wilkinson (1998) are practical and collaborative, emancipatory, dialectical and focus on helping individuals free themselves from constraints in the media, language, work procedure and in relationships of power in educational settings. Transformative researchers may utilise qualitative and quantitative data collection and analysis methods in much the same way as the interpretivist/constructivists. However, a mixed methods approach provides the transformative researcher structure for the development of "more complete and full portraits of our social world through the use of multiple perspectives and lenses" (Somekh & Lewin, 2005, p. 275), allowing for an understanding of "greater diversity of values, stances and positions" (Somekh & Lewin, 2005, p. 275).

2.5   **Pragmatic paradigm**

Pragmatism arises out of actions, situations and consequences rather than antecedent conditions (Creswell, 2009). Morgan (2007) conveys the importance of pragmatism as focussing attention on the research problem and using pluralistic approaches to derive knowledge about the problem. Pragmatist researchers focus on the 'what' and 'how' of the research problem (Creswell, 2003, p. 11) and use all approaches available to understand the problem (Rossman & Wilson, 1985). Morgan, (2007); Creswell, (2009) note that pragmatism is not committed to a single system of philosophy and reality rather it opens the door to multiple methods, different world views, and various assumptions, as well as different methods of data collection and analysis. Early pragmatists "rejected the scientific notion that social inquiry was able to access the 'truth' about the real world solely by virtue of a single

scientific method" (Mertens, 2005, p. 26). While pragmatism is seen as the paradigm that provides the underlying philosophical framework for mixed-methods research (Somekh & Lewin, 2005; Tashakkori & Teddlie, 2003) some mixed-methods researchers align themselves philosophically with the transformative paradigm (Mertens, 2005). It may be said, however, that mixed methods could be used with any paradigm.

2.6.   Philosophical view of the study

As this qualitative study is about teacher educators' perceptions on the place and position of indigenous knowledge in the school curriculum, which are subjective and not situated in any single reality or truth, the notion of a social constructivist worldview is pertinent (Creswell, 2009; Lincoln & Guba, 1985; Berger & Luekmann, 1967). Constructivism is framed by the belief that there is not one objective reality to which everyone makes sense of the world based on his or her experiences (Von Glasersfeld, 2008). Reality can therefore only be socially and personally constructed by the subject being actively involved in its construction (Fouche & Schurink, 2014). As noted by Creswell (2009, p. 8). "Individuals develop subjective, varied and multiple meanings of their experiences – meanings directed towards certain objects or things".

The assumption underpinning this study is that individuals seek understanding of the world in which they live and work, and the goal of the research is to rely as much as possible on the participant's view of the situation being studied. In order to open the conversation between the participants enough to forge meaningful discussions and/or interactions with others the questions used had to be broad, general and open-ended. In this way the study aimed at enabling the participants to construct and negotiate meaning together socially and historically (Creswell, 2009). Constructivist approaches focus on the specific context in which people live and work, in order to understand the historical and cultural settings of the

participants. In this world view, knowledge gathered include people's interpretations and understandings from which a theory can be generated (Mathews & Ross, 2010) with the main focus on how people interpret the social world and social phenomena enabling different perspectives to be explored. Researchers recognize that their own backgrounds shape their interpretation, and they position themselves in the research to acknowledge how their interpretation flows from their personal, cultural and historical experiences (Creswell, 2009).

In order to answer the research questions in this study it was framed within interpretive/constructivist worldview. A constructivist world view was deemed appropriate because the perceptions of teacher educators on indigenous knowledge in the school curriculum are subjective and there is no single reality or truth. Participants attach different meanings to different cultural values and knowledge and thus this research attempts to elicit the participants' deep understanding and perception of valued indigenous knowledge in their cultural setting that can be integrated into the school curriculum. Attempts to elicit deep understandings were made by using questionnaires, individual interviews and 'Imbizo' and 'Baraza' styled focus group discussions where Xhosa and Nandi native lecturers in schools of education in two African universities; one in the Eastern Cape-South Africa, and another in Uasin-Gishu county-Kenya, were stimulated with culturally sensitive historical stories and encouraged to use their respective home languages to promote free expression of their ideas and establish their views on place and position of IK in the school curriculum.

3. RESEARCH APPROACH

This study adopted a qualitative case study approach with the cases being a purposively selected group of isiXhosa speaking teacher educators in the Faculty of Education at a university in South Africa and a purposively selected group of Nandi speaking

teacher educators in the School of Education at a university in Kenya. Each group represents a case for study.

3.1   Qualitative approach

Qualitative research is defined by Jwan & Ong'ondo (2011 p. 3) as "an approach to inquiry that emphasizes a naturalistic search for relativity in meaning, multiplicity of interpretation, particularity, detail and flexibility in studying a phenomenon or the aspect(s) of it that a researcher chooses to focus on at a given time". For Kothari (2004), qualitative approach to research is concerned with the subjective assessment of attitudes, opinions and behaviour. He emphasizes that research in such a situation is a function of researcher's insights and impressions. Qualitative approach is a holistic and 'emergent' strategy that is exploratory in nature and which is used to answer questions about the complex nature of phenomena, with the purpose of describing and understanding the phenomena from the participants' point of view (Fouche & Schurink, 2014).

Creswell (2007), states that this design is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. In this design, the process of research involves emerging questions and procedures, data typically collected in the participants' setting, data analysis inductively building from participants to general themes, with the researcher interpreting the meaning of the data (Creswell, 2009). This approach aims at establishing the alternative interpretations of the existing manifestations of the subject, pursuing the particular, detailed explanations and exploring all possible, trustworthy and ethical ways of generating a deeper understanding of the subject (Jwan & Ong'ondo, 2011).

According to Denzin and Lincoln (2005) a qualitative approach implies an emphasis on the qualities of entities and process and meanings that are not experimentally examined or

measured in terms of quantity, amount, intensity, or frequency. Jwan & Ong'ondo (2011) point that in qualitative research; the researcher is interested in diversity of perception and multiple realities within which people live. Denzin and Lincoln (2005) also agree that qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry.

Jwan & Ong'ondo (2011) views qualitative research as a flexible approach that seek to generate and analyse holistic data on an issue of interest systematically using sufficiently rigorous, trustworthy and ethical methods and techniques in a manner that pays attention to the unique circumstances of the context and participants, and acknowledges the options available to the researcher. Kothari (2004) observes that this approach applies the techniques of focus group interviews, projective techniques and in-depth interviews.

This study on teacher educators' perceptions of the position and place of indigenous knowledge in the school curriculum employed a qualitative research approach. The approach was considered appropriate to this study interest in the participants' socially constructed attitudes, perceptions and opinions on IK in the school curriculum, as stated in the objectives. As IK is socially constructed through interaction of people and the environment, investigating valued IK that participants feel is worthy to be integrated in the school curriculum in particular cultures should provide context based rich data for the study.

3.2   Case study

Yin (2003) defines a case study as an empirical inquiry that investigates a contemporary phenomenon or object within its real-life context. It is defined by its interest in individual cases and its aim to gather detailed information using a variety of data generation procedures (Stake, 2005). Descombe (1999) points that the major characteristic of a case

study approach is focusing on just one instance of the thing that is to be investigated in order to illuminate the general by looking at the particular.

Case studies involve an in-depth study of an individual unit such as a school, a student, an entire culture with an objective of obtaining an in-depth understanding of the participants, focusing on the process rather than outcome (Creswell, 2009; Gerring, 2007). Case study focuses on relationships and processes within social settings that tend to be interconnected and interrelated (Descombe, 1999). For Descombe, the case is naturally occurring phenomenon which exists before the research and hoped to exist once the research is finished.

The basic idea of a case study is that one case is studied in detail with a general aim of developing a full understanding of the case as much as possible (Silverman, 2005). Jwan & Ong'ondo (2011) emphasizes that a case study concentrates on experiential knowledge of the case and close attention is paid to the influence of its social, political and other contexts. They also highlight that in a study a researcher can have a small case embedded in a big case and thus, they advise that both cases be described in detail and their contexts well explained. Descombe (1999) notes that the advantages of a case study are that case study analysis is holistic rather than based on isolated factors; it allows the use of a variety of methods in order to capture the complex reality under scrutiny; it fosters the use of multiple sources of data and thus facilitates the validation of data through triangulation; it is suitable where the researcher has little control over the events, i.e. it is concerned with investigating phenomena as they naturally occur, and there is no pressure on the researcher to impose controls or to change circumstances. Case studies also fit the needs of small scale research through concentrating efforts on one or just a few research sites.

There are, however, disadvantages. These include negotiating access to case study settings which can be a demanding part of the research process. Research can flounder if permission is withheld or withdrawn i.e. access to documents, people and setting can generate ethical problems in terms of issues such as confidentiality. There is also a possibility that the presences of the researcher can lead to the observer effect. Those being researched might behave differently from normal owing to the knowledge that they are under observation and it is difficult to motivate the credibility of any generalizations that might be made from findings as they have to demonstrate the extent to which the case is similar to, or contrasts with, other cases of its type.

In the case of this study negotiating access to case study settings was a demanding part of the research process and there were a number of ethical issues to be negotiated (see section in this chapter on ethical issues). The topics used to stimulate discussion (Appendices A, B, C & D) were deliberately provocative and could have resulted in anger and dismay. In both cases of South Africa and Kenya, getting access to the cases was demanding, all challenges were overcome with the assistance of a participant in each case who helped with all logistical arrangements and the 'Imbizo' and Baraza' were run successfully, all participants who consented completed the questionnaires and the interviewees selected cooperated willingly and were informative during the interviews.

This study focused on using a descriptive case study design where the cases are: IsiXhosa native lecturers in the school of education at a South African university and the Nandi native lecturers in the school of education at a Kenyan university. The study's interest is in gathering detailed information on these participants' experiential indigenous knowledge in their setting and getting an in-depth understanding of their perception of IK and the school curriculum. The choice of a case study was also based on the ability to use multiple choices

of methods of collecting detailed qualitative data such as semi-structured questionnaire, modified form of a focus group discussion (Imbizo/ Baraza), and focused individual interviews to understand participants' perceptions, value, place and position of IK in relation to the school curriculum in their setting.

3.3   Purposive sampling

In an attempt to answer the research questions, a researcher needs to establish the sample of participants who will provide data in the study. In qualitative research, sampling proceeds according to the relevance of cases instead of their representativeness (Flick, 2009). Mathews & Ross (2010) defines sampling as the process that involve selection of some cases from a large group of potential cases (sampling frame).

A purposive sampling technique was applied in this study in order to select a homogenous group of university academics in teacher education who have experienced IsiXhosa/ Nandi culture in the two selected universities. Purposive sampling, which is judgemental sampling, was used in this study (Rubin & Babbie, 2005). It is a non-probability sampling technique that involves choosing a case because it illustrates some feature or process in which a researcher is interested (Silverman, 2005). This approach is generally associated with small in-depth studies with research designs that are based on the gathering of qualitative data and focused on the exploration and interpretations of the experiences and perceptions (Mathews & Ross, 2010). This includes case studies, some cross sectional studies, ethnographical and grounded theory designs.

In these approaches to sampling, there is no attempt to create a sample that is statistically representative of a population. Rather, people or cases are chosen with purpose to enable the researcher to explore the research questions or develop a theory. The cases are selected on the basis of characteristics' or expenses that are directly related to the researcher's

area of interest and her research questions, and will allow the researcher to study the research topic in-depth. The cases chosen are those that can reveal and illuminate the most about the research area (Mathews & Ross, 2010). According to Ritchie & Lewis (2003) one of the set out approaches that may be taken to create a sample is homogenous sampling where all the cases belong to the same group or have the same characteristics to enable an in-depth and detailed investigation of a particular social phenomenon. Purposive sampling approach was used in this study to investigate deep understanding of two particular cases of teacher educators' perception of the position and place of indigenous knowledge in the school curriculum in Kenya and South Africa.

3.4   Data generation tools

In this study data was generated using questionnaires, a modified focus-group workshop called an Imbizo and its Kenyan equivalent Baraza approach to further probe the issue of place and position of IK in the school curriculum, and individual interviews. The focus on an Imbizo/Baraza as a data generation tool was motivated by the need to develop and utilize research tools and methodologies that are indigenous and reflect the African experiences. Individual interviews with purposively selected participants from the study sample were also conducted in order to improve the validity of the data generated through triangulation.

Stimulus material

Stimulus material is material of a visual, verbal or auditory nature used to communicate specific ideas to enable them to be researched, or to stimulate discussion of relevant topics. It is used to encourage discussion between group members in order to ensure that they elicit the sort of data that is of interest to the project (Barbour, 2014). A range of stimulus material can be used such as text, film, and literature and newspaper stories to help

generate big questions which can start the philosophical inquiry. There is need to pilot the stimulus material in order to ensure that they give rise to the sort of discussion the researcher wants to elicit and address the issues of concern to the research.

The stimulus materials utilized in this study were the cultural stories (Appendices A, B, C and D) that were provided to the respondents to read and answer the questions in it before responding to the questionnaire. The participants were given a duration of a week to read the stories and respond to the questionnaire questions (Appendices E & F) which were based on all of the research questions (see chapter one).

Questionnaires

Questionnaires are commonly used to obtain important information and each item in the questionnaire is developed to address a specific objective, research question or hypothesis of the study (Mugenda & Mugenda, 2003). Questionnaires can vary a great deal in their level of structure; they can be structured or unstructured. Structured questionnaires are those questionnaires in which there are definite, concrete and predetermined questions that are presented with exactly the same wording and in the same order to all respondents (Kothari, 2004). Kothari (2004); Mugenda & Mugenda (2003) agree that the form of the questions may be either closed (i.e., of the response type 'yes' or 'no') or open-ended (i.e., inviting free responses) but should be stated in advance. Structured questions may also have fixed alternative questions in which responses of the informants are limited to the stated alternatives (Kothari, 2004), a highly structured questionnaire is one in which all questions and answers are specified and comments in the respondent's own words are held to the minimum.

The level of structure influences the kind of data collected, i.e. highly structured questions yield quantifiable data whereas less structured questions collect primarily

qualitative data. According to Mugenda & Mugenda (2003), closed ended questions are accompanied by a list of all possible alternatives from which respondents select the answer that best describes their situations whereas open ended questions give room to the respondent to include other alternatives not provided for by the researcher and allows the respondent to describe their situations in their best way possible.

According to Mugenda & Mugenda, (2003) the advantages of open ended questions are that they permit a greater depth of response as when a respondent is allowed to give a personal response, reasons for the response given may be directly or indirectly. The study respondent's responses may give an insight into his perceptions, feelings, background, motivation, interests and decisions and open ended questions can stimulate respondent's feelings or motives and enable him/ her to express what he considers to be most important. Open ended questions are also simpler to formulate because they do not include appropriate response categories. However, the disadvantages of open ended questions are that there is a tendency for the respondent to digress and provide information which does not answer the stipulated research questions or objectives. Also, responding to open ended questions is time consuming and may put off some respondents.

Questionnaire questions can also be semi-structured in nature, i.e. having questions whose responses are limited to the stated alternatives and other questions in which the respondents are free to express their comments, beliefs, views, feelings and attitudes in their own words. Semi-structured questions are advantageous in that they generate detailed in-depth information to inform the study and emphasize validity (Creswell, 2007), fairly flexible and sensitive. More valid information about respondents' attitudes, values and opinions can be obtained, particularly how people explain and contextualize these issues. However, it is difficult to compare responses of one participant to another, time consuming and questions

are difficult to analyse (Creswell, 1987). In this study a semi-structured questionnaire (Appendices E & F) was considered appropriate and was administered in order to gather information about respondents' understanding and perceptions of IK in the school curriculum more deeply.

Modified focus group discussions-Imbizo/Baraza

A focus group discussion is a form of group interview where a researcher or a moderator facilitates a discussion on a specific topic with a small group of people (Morgan, 1988). Focus groups are used as a means of getting better understandings of how people feel or think about an issue, product or service (Greeff, 2014). They are carefully planned discussions designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment (Krueger, 1990). It is a research technique that collects data through group interaction on a topic determined by the researcher (Morgan, 1997).

Greeff (2014) notes that participants selected for focus-group discussions usually have certain characteristics in common that relate to the topic. She states that the group is "focused" in that it involves some kind of collective activity. The informal group situation and the largely unstructured nature of questions encourage the participants to disclose behaviour and attitudes they might not disclose during individual interviews (Ferreira & Puth, 1988).

A well planned focus group encourages participants to share perceptions, point of view, experiences, wishes and concerns without giving pressure to participants to vote or rich consensus (Krueger & Casey, 2000). The content of participants guided group discussions constitutes the essential data in focus groups (Morgan & Krueger, 1998). Nyamathi & Shuler, (1990) states that focus groups allows the researcher to investigate a multitude of perceptions in a defined area of interest. The purpose of focus groups is to promote self-disclosure

amongst participants. It is to know what people really think and feel (Krueger & Casey, 2000) they are useful when multiple viewpoints or responses are needed on a specific topic and in a shorter period of time.

Focus groups are especially useful in attempting to understand diversity in a friendly and respectful manner (Greeff, 2014). Focus group participants should be selected on the basis of the relevance to the topic under study (Babbie, 2007), and should be encouraged to participate by being told that the presence of each one of them is equally important for the discussion (Stewart & Shamdasani, 1990). Focus groups have the ability to produce concentrated amounts of data on precisely the topic of interest as participants compare one another's experiences and opinions, which may give insight into complex behaviours and motivation (Morgan, 1997).

According to Greeff (2014) being in a group may provide a stimulating and secure setting for members to express ideas without fear of criticism and cover important constructs. The main advantages of group interviews are that they are low cost and rich in data, they stimulate the respondents and support them in remembering events and that they can lead beyond the answers of the single interviewee (Flick, 2009). According to Fontana & Frey (2000), the interviewer should be flexible, objective i.e. mediate the discussion between different participants, empathic, persuasive, and a good listener. However, if the group facilitator is unskilled, expression of only active participants may be voiced. Another disadvantage is the participants social posturing or desire to be polite and fit in with the norm, or else their forced compliance (Greeff, 2014). Other weaknesses of using focus group discussions is the limited number of questions that can be addressed in a session and difficulty in note making. Flick, (2009) also notes that findings cannot automatically be projected onto a population at large.

This study adopted a modified form of focused group discussion called the 'Imbizo' for the South African IsiXhosa speaking participants and its equivalent, the 'Baraza', for the Kenyan participants who are Nandi natives. Both are a form of a meeting usually called by an elder or a village chief when there are pertinent issues of concern to the members to be discussed and different experiences, views and solutions about the issues need to be expressed under the leadership of the Imbizo/ Baraza leader.

This form of focused group discussion facilitated a wide reflection and a free expression of ideas in indigenous languages to promote the authenticity of participant's attitudes and values concerning IK. The Imbizo methodology was deemed appropriate and more fitting to this study than the conventional methods used in scientific research because of its orientation towards seeking a local authentic experience of a particular historic-cultural experience.

In this study the participants were provided with the Imbizo/ Baraza protocol (Appendices K & L) to inform participants on the purpose of the study and guide them on the questions of interest to the study as well as the order of discussion. The Imbizo/ Baraza was called to order by the leader who was also the group facilitator to moderate the discussion and give it focus. The researcher's role in the discussion was to explain the study purpose, seek consent from participants, record and write important notes of the discussion and remain passive during discussion.

Individual interviews

Gillham (2000) notes that individual interviews are usually used when only there are only small numbers of participants accessible. Interviews may be open ended (unstructured), semi-structured or closed-ended (structured) (Mugenda & Mugenda, 2003). Whether open or closed, the interview usually draws on an interview schedule which comprises a short list of

issue oriented questions that direct the interview focus in order to answer the research questions. In qualitative research, semi-structured interviews allow deeper exploration of responses by participants – probing and exploring emerging dimensions – while diminishing the threat of a respondent going 'off-track' when responding to open-ended questions (Cohen, Manion, & Morrison, 2012; Richards, 2003; Nunan, 1992). Yin (2003) and Roberts (2003) state that interviews are usually preferred in qualitative research because they allow for flexibility and following interesting leads into the study focus. Jarbandhan & Schutte (2006) points that semi-structured interviews are those organized around areas of particular interest, while still allowing considerable flexibility in scope and depth.

Interviews are believed to be one of the most important and rich sources of data in qualitative research. This is because qualitative research deals with human issues of a social nature and interviews allow participants themselves to report their thoughts and experiences thereby giving important insights (Jwan & Ong'ondo, 2011). In particular, researchers use semi-structured interviews in order to gain a detailed picture of a participant's beliefs about, or perceptions or accounts of, a particular topic (Greeff, 2014). Semi-structured interviews provide the researcher and participant flexibility as the researcher develops a set of predetermined open-ended questions on an interview schedule to guide the interview session but the interviewees are free to structure their answers as they wish (Greeff, 2014). To obtain accurate information through interviews, a researcher needs to obtain maximum co-operation from the respondents, particularly when the subject is sensitive in character so that trust is involved (Mugenda & Mugenda, 2003). The dialectic nature of knowledge construction in semi-structured interview requires a good rapport between the interviewer and the participant and semi-structured interviews enable researchers to develop a relationship with the study participants within a structured environment (Fontana & Frey, 2005). This technique gives the participant an active role in the research by allowing the interviewee to communicate their

experiences and their interpretations (Gubrium, 1997). It allows the interview to proceed as a conversation rather than a formalized exchange session where the interviewer's dominance is felt (Kvale, 1996).

Semi-structured interview also allows researchers to explore deeply unobservable aspects of participants' lives, the open-ended questions facilitates the researcher's task of interpreting interviewee's experiences from their point of view (Ely, 1991). This technique also has the potential to generate rich elaborate data (Anderson & Burns, 1989).

According to Cohen, Manion & Marrison (2000), semi-structured interview is a flexible tool for data generation in that the direction of the conversation is not predetermined rather responsive to the interviewee's contribution. This makes it possible for the researcher to make and explore unexpected discoveries. Due to qualitative nature of this study and the desire to get a deeper understanding of the participants' IK experiences, semi-structured interviews were considered suitable in the investigation of the teacher educators' understanding, value and perceptions of indigenous knowledge in the school curriculum and their views with regard to integration of the valued IK in the school curriculum.

4.   RESEARCH DESIGN AND METHODS

Creswell (2009) defines research designs as plans and procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. He says the selection of a research design is based on the nature of the research problem, the researchers' personal experiences and the audiences for the study. As earlier stated, this study is underpinned by constructivism/interpretivism worldview and qualitative approach. Case study design was employed in order to investigate the teacher educators' perceptions of IK in the school curriculum. Ten participants from each of the participating

universities in South African and Kenyan were purposively sampled basing on their IsiXhosa and Nandi nativity respectively.

The aim of this study was to investigate the perceptions of university academics in teacher education of the value, position and place of IK in the school curriculum in Kenya and South Africa. Three data generation tools: Questionnaire, modified focus group discussion (Imbizo/Baraza) and individual interviews were used to gather data that would answer the main research question. After obtaining clearance by NMMU ethics committee (Appendix G), I proceeded to seek permission from the dean school of education in the selected university, to involve teacher educators in the school of education in the study investigation (Appendix I). This office also availed participants' contacts to the researcher.

I introduced myself and my study to my participants through email, telephone and face to face in their offices where they solicited their informed consent to participate in the study and I issued copies of the research tools to them. The first set of data was generated via a semi-structured questionnaire (Appendix E) by South African participants in June 2016. The respondents were asked to read the cultural story 'The conundrum of the cattle killing' both in English and IsiXhosa language (Appendices A & B) before responding to the questions in the questionnaire (Appendix E). After collecting the questionnaire responses, the participants were invited for an Imbizo (a modified focus group discussion) which was conducted after a week. During the discussion that was recorded for later analysis, three participants with in-depth information about the problem in question were purposively identified for further probing through individual interviews. The three selected interviewees were issued with interview schedule (Appendix N) and recorded semi-structured interviews were conducted a week after the Imbizo.

In the Kenyan case as well, the same procedure was replicated in October 2016 with Nandi teacher educators from the school of education as participating group. The researcher introduced herself and the purpose of the study to the participant through email and face to face to create a good rapport with the participants however, in this case two of the ten sampled participants did not consent to participate in the study and were exempted. Eight out of the ten sampled Nandi speaking participants consented to participate in the study and were issued with research questionnaires (Appendix F) and the cultural story 'The Nandi Resistance' written in English and Nandi language (Appendix C & D) after seeking the school of education dean's permission and participants' consent. Questionnaires were issued and later responses collected and the eight participants were invited for a Baraza (Modified focus group discussion). Baraza protocol (Appendix L) was issued to all members after signing the confidential clause (Appendix M) and a recorded discussion conducted led by a Baraza leader. Three participants were again identified during the discussion for a follow up individual semi-structured interviews on the issue of discussion. The interviewees were availed with the interview schedule (Appendix N) and recorded semi-structured interviews were conducted four to ten days after the Baraza.

The qualitative data obtained from the three tools were transcribed, coded and analysed thematically using the Tesch method (Creswell, 2005).

4.1   Setting and sample

The selected universities are among the public universities in South Africa and Kenya respectively that offer teacher education as one of the main curriculum courses. Both South Africa and Kenya are countries that had colonial rule influencing their education systems and attempts for continuous education reforms to meet the needs of society today are still underway.

The two universities were purposively chosen as cases of study because they are in an urban setting serving a largely rural population and, as they both have similar academic structures, are comparable. The Xhosa and the Nandi are the dominant communities around the universities and the two communities have almost similar cultural history of resisting the colonial power and protecting their territories that were lost eventually to colonial rulers. Participants were selected on the basis of homogeneity in characteristic and not representativeness. The study being qualitative, its main aim was to get an in-depth investigation on the study topic using a small number of participants, at most ten participants were sampled from each of the two universities.

For any successful education reform and implementation, the input of university academics in teacher education is important. Xhosa and Nandi cultures are considered the dominant cultures surrounding the two universities and that is why university academics in teacher education from the two ethnic groups were used as the population from which participants were purposively selected. This study being a case study involved at most ten Xhosa native university academics in teacher education from a range of ages and both genders at a South African university and also at most ten Nandi native university academics in teacher education of various age range and both genders at a Kenyan university. Ten participants were selected purposively from each group basing on their nativity as Nandi and Xhosa natives respectively for investigation. Being a case study whose main objective is to get a deep understanding of the views of a small number of participants, the target number of participants in this study was 5-10 participants.

4.2   Stimulus material

The Kenyan participants were issued with the Nandi resistance story in English and Nandi translated (Appendices C & D) and the semi-structured questionnaire (Appendix F)

after consenting to the study (Appendix H). The Xhosa version (Appendix B) was translated by an IsiXhosa native and proof read by another IsiXhosa speaker to ensure that meaning was not lost in the process of translation. The Nandi version of the Nandi resistance story (Appendix D) was translated by the researcher who is a Nandi native and has command of the Nandi language and proof read by a Nandi elder in order to ensure that meaning was preserved too during translation.

Conundrum of the cattle killing

The story: Conundrum of the Xhosa cattle killing (Appendix A) is a version of a well-known Xhosa historical event written in English by Jeff Peires, eminent historian and advisor in Xhosa cultural issues (mostly genealogy). The story is about how two strangers appeared to two girls, one named Nongqawuze in a field near the river. The strangers told the girls to go home and tell the whole Xhosa nation that their ancestors will rise from the dead and healthy, great herds of fat cattle will appear, the grains pits will be filled and white man will be driven from the Xhosa land into the sea forever, but only if all living cattle are killed and no new crops sown. When Nongqawuze went back home and told this to her uncle Mkhalaza, whose reputation as a prophet was growing, the word was believed and spread. Xhosa king Sarhile ordered the Xhosa people to kill their cattle with the expectation of the great uprising on 3rd January 1857.

On the expected uprising day, nothing happened. Thousands starved to death, survivors set off for the white towns where they signed contracts with Sir George Grey for farm labour in exchange of food. The Xhosa people finally lost their land to colonial government. This cultural story is in deep resonance with the Xhosa people and that is why it was used as a stimulus to encourage the South African participants to reflect on their indigenous experiences and focus on valued IsiXhosa IK, talk about where in the curriculum

IK should be positioned in the recognised subjects and grades, and also suggest principles that should guide its integration in the curriculum.

The Nandi resistance

The Nandi resistance is a story that is told by the Nandi elders about how the Nandi community resisted colonial rule from 1890s. This was a military conflict between the British army and the Nandi community warriors that took place between 1890 and 1906. The Nandi was a dominant community that resisted the British efforts to build the Uganda railway through their land in 1899. The Nandi community used guerrilla warfare to attack and raid the whites through the leadership of the Nandi prophet Koitalel *Arap* Samoei.

Koitalel became a powerful Nandi leader who led an eleven-year resistance movement against the railway construction. The British Colonel Richard Meinertzhagen believed that the death of Samoei will lead to the death of the Nandi resistance and, on 19th October 1905, Koitalel was asked to meet Col Richard Meinertzhagen under the guise of negotiating a truce when he was shot and assassinated in cold blood together with his 22 chief advisers.

The Nandi became disorganised after the death of their prophet, they were overpowered by the whites and relocated. It is believed that this led to the injustice eviction of the Nandi people from their original lands to the reserves and finally they lost their land to European settlement. This story was used to get participants think and reflect on valued IK experiences in the Nandi community and its place and position in the school curriculum. These two cultural stories captured the participant's attention and stimulated a passionate discussion on IK and the school curriculum during the Imbizo and Baraza.

4.3   Data generating process

The data generation process begun with purposive sampling of ten study participants who are isiXhosa speaking university academics in teacher education at a university in the Eastern cape South Africa and ten participants who are Nandi native university academics in teacher education at a university in Uasin-Gishu Kenya. After seeking their consent, the South African participants were issued with the cultural stimulant story "The Conundrum of the Xhosa Cattle Killing" book chapter by J. B. Peires in both English and isiXhosa translated version after which they completed the questionnaire, participated in the Imbizo/Baraza, and a sample of three participated in the semi-structured individual interview.

Questionnaire

The semi-structured questionnaire was used to establish the participant's perceptions on the stimulus cultural story and have them reflect on other valued IK that they deem worthy to be integrated in the school curriculum. The main purpose of the questionnaire was to provide information on the participants understanding of the IK items in their community, how they would apply IK in teaching across the age spectrum in schools. It was also used to inform the researcher about the familiarity of the stimulus material to the participants and the value they attach to it. The participants responded to the semi-structured questionnaires individually after reading the story in English and in IsiXhosa/Nandi as indicated in the questionnaire. The questionnaire responses generated data that was transcribed and analysed thematically.

Imbizo/Baraza

The questionnaire data formed a basis for a modified focused group discussion Imbizo/Baraza with the same participants in each group on the value and place of IK in the

school curriculum. The focused group discussion was modified in that it was done according to the traditional set up of a meeting called by the IsiXhosa/Nandi chief when there is an issue of concern to the stakeholders that need to be discussed. In this discussion, the researcher was passive and the discussion was called to order by the Imbizo/Baraza leader. The discussion issues were written on Imbizo/Baraza protocol and all members availed with copies before commencement. The experiences of IK in IsiXhosa and Nandi were shared in English as well as in mother tongue for clarity and authenticity in meaning during discussions and their importance in education curriculum discussed.

The venue of the Imbizo/ Baraza and the set up was done to reflect those of traditional Xhosa/ Nandi meetings. Indigenous Xhosa/Nandi food was served before the commencement of the discussion. The participants consented to the Imbizo/Baraza by reading and signing the confidential clause (Appendix M) before commencement of the discussion. Audio recording of the Imbizo/Baraza proceeding was done for the purpose of data analysis with the participants' consent.

Interviews

During the Imbizo /Baraza, three participants who appeared to have rich information about IK from each group were purposively identified; consent sought from them and audio recorded focused individual interviews with them conducted a few days later in order to enrich the data already generated through the semi-structured questionnaire and the modified focus group discussion. An interview schedule (Appendix N) was given to them on the four research questions (see chapter one) before a face to face interview was conducted. Interview data on all the research questions was generated and transcribed for analysis. This approach allowed the researcher to compare different forms of data against each other and thus enhanced the validity of the data generated for the study.

4.4   Data analysis

Data analysis in qualitative research is an on-going, emerging and iterative nonlinear process (Henning, 2004). Babbie (2007, p. 378) defines qualitative analysis as "…nonnumeric examination and interpretation of observations, for the purpose of discovering underlying meanings and patterns of relationships". Qualitative analysis transforms data into findings by reducing the volume of raw data, shifting significance from trivia, identifying significant patterns and constructing a framework for communicating the essence of what the data reveal (Schurink, Fouche & Devos, 2014).

The view of Punch (1998) is that there is no single right way to do qualitative data analysis, no single methodological framework; however, this study applied the guidelines of Bogdan & Biklen (2007) and Tesch method (Creswell, 2005) on thematic analysis. The data that was generated from the participants, the tools used to generate data and the data analysis approach used for each are as in Table 1.

Table 3.1:   Tools used to generate data and the data analysis approach used

Data	Research Tool	Data Analysis Approach
Questionnaire responses	Questionnaire	Thematic analysis
Imbizo/Baraza transcriptions	Imbizo/Baraza	Thematic analysis
Interview transcriptions	Interview	Thematic analysis

The raw data from each research tool was first transcribed before organizing, reducing and describing. Open coding which involves the process of breaking down, closely

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examining, comparing, conceptualizing and categorising data Schurink, Fouche & Devos, (2014) guided the inductive process of thematic analysis in this study.

The researcher searched through the questionnaire, Imbizo/Baraza and interview data, looking for segments relevant to the study research questions and assigned a word or a phrase that captures its meaning. Similar units of meanings were merged into categories and labelled and finally similar categories were combined to form themes that are interpreted via the lens of literature review and theoretical framework.

4.5   Trustworthiness

In all research, but particularly qualitative research, researchers and readers are increasingly finding it necessary to include details of the steps they have taken to make sure that their studies can be trusted (Jwan & Ong'ondo, 2011). Trustworthiness is ensuring that the research process is truthful, careful and rigorous enough to qualify to make the claims that it does (Lincoln & Guba, 1985) as cited by (Bassey, 1999). In qualitative research the terms: credibility, transferability, dependability and confirmability are used to demonstrate the trustworthiness of a research project (Jwan & Ong'ondo, 2011).

The use of three research methods for data generation increased the credibility of the research findings in this study in that questionnaire responses, Imbizo/Baraza transcritption was compared against interview transcriptions. Probing participants during interviews enabled the study to clarify facts and explain concepts that would rather be confusing to the researcher. The stimulus stories that were used in this study were translated to Xhosa and Nandi language by Xhosa expert and the researcher who has command of the Nandi language respectively in order to avoid loss of meaning. During the Imbizo, the researcher who is not a Xhosa speaker involved a Xhosa research assistant who would translate the proceeding when it switched from English language to IsiXhosa.

The Xhosa and Nandi languages were used to express IK experiences that would not be expressed authentically in English, which enhanced the dependability of the study findings. 'Member checks', which according to Flick (2009) is a communicative validation of data and interpretations with participants, was done by the researcher to verify data generated in this study before analysis was done. This ensured that the data generated was a true reflection of what had happened in the view of the participants.

5.   ETHICAL CONSIDERATION

Human beings were the subjects of study in this research and thus professional ethics and conduct was observed, and guidelines on ethical principles were followed. Ethical clearance by NMMU ethics committee was sought and the ethics clearance reference number **H16-EDU-ERE-012** was obtained (Appendix G). The purpose of the study was made known to the participants verbally and in written on the research tools used i.e. the introduction part of the questionnaire, the Imbizo/Baraza protocol and the interview schedule. They were also made aware that their participation in the investigation was voluntary and that they were at liberty to withdraw at any stage of the study.

Participant's informed consent was requested and was obtained in writing. However, two sampled Kenyan participants who were invited did not consent to participation and were exempted from participating in the study. All the South African participants approached to participate in the study consented to it however four questionnaire responses were not received. Participants remained anonymous throughout the study, no identification was required in any of the data generation tools. Acronyms were used to represent participants and the information gathered remained confidential throughout the study. This was done in order to give participants confidence of participation without suspicion that would cause withholding of sensitive information about the topic.

The participants were informed on the details of the investigation and signed informed consent forms before responding to the questionnaire and individual interviews and also signed confidential clause before participation in the modified focus group discussion Imbizo/Baraza. Participant consent was also sought before any recording of the Imbizo/Baraza and the interviews were done. This was done in order to guard the information discussed against disclosure by the participants and the researcher, and also to signify that no participant was forced or tricked into participation by the researcher whatsoever.

The researcher was aware at all times that she should show respect to her participants at all times, and maintain her integrity and professionalism throughout the investigation. The stimulus stories were so moving emotionally and a counsellor had been organised in case a participant was affected emotionally, but no cases were experienced where counselling appeared necessary.

After identifying her study participants, the researcher communicated to them via emails and telephone and booked appointments with them in their offices where she introduced herself and the purpose of her study days before commencement of data generation. This enabled the researcher to develop a good rapport with participants before, during and after data generation, that enabled them to relax and psychologically prepare for the investigation. Besides sending the consent forms, stimulus stories, questionnaires, interview schedules and Imbizo/Baraza protocols through participants' email address, the researcher physically visited the participants in their offices to deliver hard copies of the data generation tools.

6. CHAPTER SUMMARY

This chapter has given an overview of generally accepted paradigms and locates the study in an interpretivist philosophical view that holds that reality is subjective and socially

constructed. The study approach, which is qualitative, is also illustrated in the chapter and its characteristics of particularity, detailed and flexibility that determined its suitability in the study is highlighted. A descriptive case study research design that guided the investigation has also been described illuminating on the two cases of study namely; South Africa and Kenya participants.

Purposive sampling strategy that was applied in this study has been elaborated. Appropriateness of this approach in selecting a homogenous group of university academics in teacher education who have experienced IsiXhosa/ Nandi culture in the two selected universities as study participants to give a deeper understanding of the participants' experiences has been highlighted. The data generation tools used in this study, namely; a semi-structured questionnaire, a modified focus group discussion (group interview approach) and individual interviews, have been explained and the data generation process outlined. The Tesch method for thematic analysis is described as it is the method used to analyse the qualitative data that was generated. The trustworthiness of the data generated in this way is considered and how the complex ethical issues that arose were resolved are also described in this chapter.

CHAPTER FOUR

RESULTS

1.   INTRODUCTION

This chapter presents the results obtained from the South African and Kenyan participants. The results reported include transcribed responses from a semi-structured questionnaire, modified focus group discussions (Imbizo/Baraza), and individual interviews from purposively selected participants. These research tools were used to investigate the teacher educators' perceptions of place and position of indigenous knowledge in the school curriculum. Firstly, the results derived from South African participants from the three tools of data gathering are reported and then the data obtained from Kenyan participants are presented. The results of the two cases were presented separately as the teacher educators' perceptions of IK and school curriculum might differ as a result of differences in their countries' education curriculum and the participants' culture differences.

The raw data generated from each set of respondents were transcribed, coded through an inductive process involving breaking up and categorizing the text to form descriptions and broad themes according to Tesch's open coding by both the researcher and a re-coder (Creswell, 2005). The final themes were arrived at through a consensus decision after a discussion between the investigator and the re-coder. The results are reported collectively based on the themes that emerged from the qualitative data from each of the three methods of data generation. Where differences between the themes from the South African and Kenyan data emerged, these differences were noted and will be discussed in chapter five.

2.   SOUTH AFRICAN PARTICIPANTS

Of the ten potential respondents in the South African context two males and four females (4) responded to the semi-structured questionnaire, four males and six females (10) participated in the Imbizo, and two males and one female (3) were purposively selected to be interviewed. All of the three methods investigated the perceptions of university academics in teacher education of the value, position and place of indigenous knowledge in the school curriculum. The respondents are recorded as participants S1, S2, S3, S4, S5, S6, S7, S8, S9 and S10. The four participants who did not provide questionnaire feedbacks but participated in the Imbizo were respondents S7, S8, S9, and S10. All the three participants interviewed in South Africa participated in all the three data generation stages, namely S1, S3, and S5. These identifiers were used consistently throughout the study.

The themes that emerged after inductive coding from the South African case are reported under the following topics: Teacher educators' understanding of IK, indigenous knowledge items valued by Xhosa teacher educators, place and position of IK in school curriculum, principles that could guide integration of IK in the school curriculum and the use of the Imbizo as an African methodology.

2.1   Xhosa teacher educators' understanding of IK

Inductive analysis of the data revealed three themes that could be drawn from all three of the data generation instruments, namely the questionnaire, the modified focus group discussion and the individual interview responses. While the participants' views on their understanding of Indigenous Knowledge (IK) varied semantically, there was a point of intersection which provided a common conceptual understanding of IK. The themes that emerged were IK as *local knowledge unique to a culture*, IK as *a way of knowing* and IK as *embedded in local language*.

IK as local knowledge unique to a culture

Most participants perceived IK to be oral or written 'special' knowledge that is linked to cultural values of a group of people native to a particular place or society. Most also understood IK as local knowledge unique to a given culture or society. Highlighting what IK comprises, participant S1 coined his definition of IK as "*knowledge derived from the learners' background, environment, experiences, games, language and passion*". S5 agreed but elaborated that IK is acquired through interaction between learners and the environment and forms the basis of other learning stating that "*it can also be linked to stories, science, geography, cultural studies, medicine etc.*" S4 argued that IK is knowledge derived from the local occupants of a place saying "*this is knowledge that is generated by the indigenous people or natives of a particular place*".

IK as a way of knowing

Some respondents expressed their understanding of IK as a way of knowing that influences ones understanding of the world and interpretation of its realities. Expressing her understanding of IK, S2 said "*IK is local ways of knowing that are unique to a particular society that is native to that land. This knowledge facilitates their meaning- making and is often closely linked to their cultural values*". All of the respondents agreed that IK is a structure of knowledge that guided problem solving and behaviour of people traditionally. Participant S8 said:

"*Even though indigenous knowledge was not written, it was passed from one generation to another systematically and eeeh it constituted ways and wisdom in which society members learnt moral values and responsibility and explore on various life skills and leadership*".

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There was consensus in the group as to participant S8's perception that IK is knowledge that is learnt in stages and which enables each member of the society to be part and parcel of the community.

IK as embedded in local language

The majority of the participants believe that IK and local languages are inseparable. Affirming that IK is embedded in local languages, participant S8 said "*when we talk about indigenous African knowledge, I realise that this knowledge is hidden in indigenous Xhosa literature and folklore*". Participant S5 added saying:

> "*Perhaps there are cultural practices, experiences and IK that can only be expressed in Xhosa language, this is because they were learnt in that language this is to say that for IK to be given a place in the curriculum, then indigenous languages must be accorded the respect it deserves because in it is the background knowledge the child comes to school with*".

Participant S9 explained that IK is found in Xhosa proverbs, she said "*we even have a Xhosa proverb that says to hunt a buffalo you must ask those who have gone before you [inyathi ibuzwa kwabaphambili], this means wisdom can be learnt from the experienced*". The majority of the respondents appreciate that there are different cultures in the world but argued that learners should be acquainted with their own cultures. Respondent S10 said, "*learners should be taught to appreciate their cultures and African languages and should be proud of who they are*". All the participants agreed that recognising the importance of a local language is not enough, and that integration is necessary. Respondent S2 expressed his disappointment with the current curriculum saying:

"If local language and culture is recognised then why can't it be part of the teaching and learning in schools? As much as it's underpinned but it is not clear in terms of pedagogy, how these things we are talking about here could be integrated in the curriculum and so forth".

2.2   IK items valued by Xhosa teacher educators

There are various indigenous knowledge items that the respondents highlighted and perceived to be valuable and could be integrated in the school curriculum, among them are; *Native languages, history and culture, agricultural and environmental IK, herbal medicine and healing,* and *scientific and technological skills.*

Native languages

Indigenous language was brought out strongly as one aspect of IK that the respondents valued. It was argued by most participants that there is a great deal of positive knowledge that can be learnt from the native languages of indigenous people. In the case of South Africa, most participants reported that Xhosa and other local languages should be used as language of instruction in school at lower grades even though participants were concerned that currently no emphasis is put on its implementation. Participant S6 said:

"It is said the first three years of their learning that is grade 1-grade 3 medium of instruction must be their mother tongue/home language-that is isiXhosa. What's happening the government has provided only the National Curriculum Statement document in isiXhosa and all other supporting documents that are given to teachers are written in English".

A majority of the participants highlighted the components of local language such as folktales, riddles, proverbs, tongue-twister's songs storytelling and poems to be key concepts

that are crucial and can be integrated in different areas of the curriculum in order to guide behaviour. Affirming to that participant S7 said "*in the terms of poems, idioms and proverbs, there is a lot that is important in our culture including nature*". Citing folktales as one of the important components of language, participant S5 said "*Language-folktales...can be integrated into the curriculum as part of the language and literacy curriculum. ...It can be used for literacy development and to enhance resilience*". Emphasizing that children games as part of language may be used to teach other subjects, participant S2 said, "*long ago we used to play uphuce* [children game] *where we collected small stones and put them in the circle then you throw one stone in the air and take 8 stones and push the rest in. You know, we learnt how to minus through that game*". Participant S8 added saying, "*African indigenous knowledge is hidden in indigenous literature and folklore. Our heritage is in our language*". All the respondents agreed that culture is embedded in the language and literature of a people.

Most respondents agreed that contextual stories like 'Nongqawuze' and "*other stories like ityala lamawele [a Xhosa novel telling the story about the crime of identical twins]*" are some of the stories that should be used as examples during teaching and learning instead of always focusing on non-African stories that have no value in the African context especially "*now as we are talking about decolonisation and a humanising pedagogy*" participant S9 commented. The majority of the participants also suggested that a possible solution to reviving their understanding of indigenous knowledge is by exposing their children to Xhosa literature in school which participant S2 called "*decolonising the language itself*".

Participant S5 contributed saying that, what children learn at home should be reinforced in school. She said "*you can't divorce what we do at home and then it is not reinforced at school, so we really don't have time you know what has happened with*

globalisation and modernisation and so in ex-model C schools [Former Model C schools are some of the South African best government schools that are administrated and largely funded by a governing body of parents and alumni and fees are somewhere between private and regular government school fees] *we need to see that indigenous languages are compulsory parts of the curriculum".* Most of the respondents agreed that these ex-model C schools require rigorous intervention in order to consider IK in their teaching and learning and lamented that in these schools there is more assimilation than integration and that the learners have *"become just customers and not part of the community of that school"* (participant S7).

History and culture

Generally, a majority of the participants expressed recognition for African religion, norms, taboos and beliefs, and affirmed that Africans were spiritual and related to things that are not visible. Participant S5 said, *"As African people we are more spiritual, we relate to a number of things that are invisible and so forth. So I think what came to me was this whole notion of superstition".* Most of the respondents said that a great deal of these knowledge can be seen in how Africans perform rituals, organise family, conduct succession, structures that regulated behaviour and specific ways to approach discipline issues. All participants thought that these structures would be significant if they were integrated in the school curriculum. One participant (S10) emphasized this by saying, *"I think it is essential that the 'constructive' cultural structures/practices that regulated the 'life' of Xhosas be included in the curriculum".* In turn, all of the participants agreed that there are other Xhosa cultural practices that are negative and against human rights like girls' circumcision, and suggested that only the positive aspects of their culture should be integrated in the curriculum.

The majority of the respondents noted that there is much to be learnt from Xhosa cultural structures as such knowledge can contribute to 'rebuilding' communities. Participant

S8 pointed that knowing the cultural background of learners promote peaceful co-existence, he said *"the part about social sharing, social coherence begins there in the villages and so on"*. Amongst the cultural practices that most participants cherished are 'intonjane' [female rite of passage] that involves seven days' seclusion of girls as they are taught humanity and responsibility. Mentoring was portrayed in most of the participants' responses as a way of instilling values, positive taboos and communal living that discouraged individualism. Furthermore, participants agreed that taboos that restrict peoples' social behaviour are still important in society today. Participant S10 warned that *"neglecting them* [taboos] *in our society today has caused social misfit such as rape, incest and even family disintegration"*.

Agricultural and environmental IK

Participants mentioned a number of indigenous traditional agricultural practices that they think should be preserved through inclusion in school curriculum content. Firstly, 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. Participant S5 said:

> *"When we were growing up we never used to buy seeds from the shop. We used to produce our own seeds from the harvest time and preserve them until the ploughing season arrives 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 (amarhewu) and traditional beer from the maize we harvested. So, I discovered that in the school syllabi 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"*.

Participant S5 mentioned indigenous ways of crop farming and livestock rearing saying "*the use of animals to plough hilly…I mean, mountainous places where tractors cannot do is important even now. yaah*". Some respondents further identified traditional methods of farming such as using animals for transport, traditional grain storage and planting traditional drought resistant seeds as knowledge that can be integrated in the agriculture curriculum. Participant S2 lamented on how local geographical knowledge and environmental nature was not recognised in the school curriculum saying:

> "*Now I am thinking about geography right? When we learn about geography you'd notice that we are learning about all these beautiful countries other than our own country. Nothing about the beautiful lakes of Graaff Reinet, you know appreciating the beauty of nature*".

Herbal medicine and healing

The teacher educators expressed a great deal of trust in herbal medicine and they unanimously agreed with Participant S2 who said *"but we also used to live on herbs!"*. Participant S5 added saying "*…you see there is nothing wrong consulting the herbalist*". They all argued that the use of herbs by herbalists to treat a range of diseases is of fundamental use today and it is knowledge that should be preserved through the education curriculum. Citing evidence, they listed a number of ways in which plants were used to treat ailments and enhance healthy living. Participant S2 said "*for example aloes. The aloe treats every ailment and it's very good for the skin*". All respondents agreed that plants were used as medicine or cosmetics or sun screen and as food. Claiming that the herbalist had the knowledge of "*which herbs will heal what*", participant S8 explained that not every piece of plant was used however, African herbalists knew which plants could serve as food and which plants could serve as herbs for the sake of their health. Respondents also pointed on

traditional healing as one of the Xhosa practices that should not be discarded. Participant S2 said herbalists:

> "*are able to separate medicines and call them by name such as saying this is [umkhwenkwe, this is umhlonyane], this does this function while this one does the other function. When you use it, if you want to clean your stomach by vomiting use it this way, if you want a running tummy do it this way and that is part of my culture*".

Scientific and technological skills

Participants pointed out various indigenous technological and scientific skills as well as experiences that they think are still viable for inclusion in school curriculum today. Almost all participants attested to have been exposed to such life skills when they grew up highlighting some of them as visual design skills, traditional house construction, weaving, pottery, bead work all these linked to arts and culture. Participant S5 recommended their infusion in school system saying, "*the use of reeds and plastic to make table mats, trays, baskets locally can be taught in school curriculum*" claiming that these asset skills use to be there initially in primary and secondary art and craft subjects but the new curriculum "*scrubbed it away*".

Explaining how practical and significant these skills are in one's life participant S5 explained that:

> "*I used to knit it during needlework in school. I used to make nice trays, baskets. We used to do that. So I think in the Arts and Culture subject if our children can also be introduced to those needlework things and also be taught about their importance, you see the straw mats, straw-bowl. I mean clay and all of that 'cause they are very significant, they are part of our lives*"

2.3   Place and position of IK in school curriculum

The participants had varied views on where to place various IK items in the school curriculum. With the majority proposing IK items to be integrated across the curriculum in all of the recognized grades and subjects, a few were of the opinion that each item should be appropriated in a specific subject and grade before integration. Although some IK items were found to be cross disciplinary, the following three themes emerged from the data; *Arts subjects, language subjects* and *science subjects.*

Arts subjects

Some of the IK items were categorised by most participants to fall under the arts disciplines. Participant S6 said that cultural patterns and way of dressing is IK that can be integrated in arts, culture and mathematics. She said *"beautiful culture and even our way of dressing, there are certain patterns, there is beadwork that beadwork can be linked to arts and culture...also be used in mathematics".* Most participants showed dissatisfaction in the history content of primary school claiming that very little African history is written in history course books. Participant S9 said:

> *"coming, to history hey! You will laugh! In grade 5 the only African person in my daughters' school text book was Nelson Mandela. In history subject, there's only Nelson Mandela. So far in grade 6, I have not seen anything that is African...there is a lot that needs to be done with regards to history".*

All respondents agreed that there is a great deal of African history appropriate for learning, and that effort to lay a foundation of integration and implementation is important. Participant S7 said *"we have to move back and say, we do have a rich history. All we need to do today is to pull in and make it part of the curriculum".*

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Weaving, pottery and needle work are other IK item highlighted by majority of the respondents to be important skills for integration into arts and culture. Participant S5 said:

"I used to make nice trays, baskets. We used to do that. So I think in the Arts and Culture subject if our children can also be introduced to those needlework things and also be taught about their importance, you see the straw mats, straw-bowl".

Language subjects

The components of language such as folktales, riddles, proverbs, tongue-twister's songs, storytelling, games, drama and poems were deemed appropriate if integrated in different areas of the curriculum. However, some participants proposed integration of Xhosa cultural structures into the learning of Xhosa language in the curriculum. Participant S8 said *"our heritage is in our language. In other words, culture is embedded in the language we speak and now this is in the literature that is there in the language".*

Science and mathematics subjects

A few respondents thought that indigenous knowledge in medicine could be integrated in science and biology courses content; however, respondents did not specify the grades of integration and specific content. In agriculture subject, ways of farming and grain preservation were deemed appropriate for integration at all school levels. What was clear is that all the IK items mentioned, the participants could not appropriate each one in a specific subject or grade, rather most of them listed subjects and gave range of grades all that were varying.

2.4   Principles that could guide integration of IK into the school curriculum

When asked about the principles that could be used to introduce indigenous knowledge into the school curriculum, most of the respondents had varied views. Two

themes that emerged from the data were; *knowledge demarginalization* and *political influence.*

Knowledge demarginalization

Most participants agreed with respondent S2 who proposed the principle of demarginalization. This participant explained saying that the point of departure in integration of IK is finding the point of intersection of "*diverse world views and knowledge systems"*, a process she described as resulting in "*a contextualised curriculum*" and balancing the world views in curriculum to reflect the needs of the society. Most participants agreed with respondent S4 who thought that consideration of "*Diverse forms of knowledge and multiculturalism as experienced by the citizenry"* should also be the basis for integration of IK in the school curriculum. All respondents agreed in a discussion that everyone has a responsibility in curriculum integration process and in order to sensitize for more inclusion of IK, Participant S3 proposed that "*projects that incorporate IK can be done by us ...and scholars can comment on curriculum content"*. Other concerns that were raised by the participants in their views to be paramount in the integration of IK in curriculum are as participant S6 stated "*Authenticity/Genuineness-Respectfulness/Tolerance-Critical/Healthy Debate-Social justice*".

Political influence

Political influence in the South African curriculum development was strongly pointed out by majority of the respondents as a factor that may dictate how much IK can be integrated in the national curriculum. Participant S5 said, *"integration is a matter of political realm, anything that needs to happen can happen here...there is no barrier as long as it is a political will"*. Participant S1 responded saying that the fundamental guideline of integration should be "*problem based learning where learners are free to discuss and present their ideas*" and

their experiences in their own context, however she said that is not the case. Another response from participant S3 focused on the principle of appropriate development, democracy consideration, knowledge promotion, social equity and peace as well as conservation of the environment and knowledge.

Some participants proposed that the current curriculum should integrate IK in order to eliminate rote learning. Acknowledging that there are efforts towards integration of IK in school content although partially, participant S2 observed that in the national curriculum statement, IK is theoretically provided for but ways of implementation are not clear. She said:

"*I was reading through this indigenous knowledge, there is the national curriculum statement and the current one, the CAPS. I mean everywhere it states that the indigenous knowledge system is underpinned in all the principles but you don't see the pedagogical, you know? Part of it. It is not clear there how the teacher must integrate this indigenous knowledge systems*".

Also expressing concern, participant S4 questioned the use of abstract examples in teaching concepts saying student teachers should be encouraged to use local teaching aids that children have grown up seeing, she said:

"*And then also in terms of the materials we encourage our student teachers to use, why, let's say in Grade three they are teaching children the number 3, why can't the books show pictures of three African pots? Or show them how to count using the three legs of the African pot? Those Xhosa pots can be useful in teaching children to count because they grow up with them. The number is still three even if the tiny African pots are used as examples so that children can be able to identify the numbering*".

Participant S4 also proposed that "*maybe even the children's books need to be Africanised! And then in terms of language as well, there is this issue of languages as well…I know now our language is getting mixed up with translanguaging. It's getting lost more and more*". Participant S3 added that even though there are a lot of people arguing against isiXhosa inclusive curriculum, it is important because it gives deeper understanding by use of symbols. He illustrates that:

> "*when we teach these children we say Janyuwari, Februwari and yet in our Xhosa language it is not just January, February, we have a much deeper meaning than that. In isiXhosa instead of saying January we say eyoMqungu because the trees grow during that time. Then we have the time of isilimela, which is June and which is when young men would go for initiation. So for us months of the year are not just January, February but specific times of the year with meaning*".

2.5 Emerging theme

The results of a theme that emerged from the South African data that was not within the main focus of research questions is presented as; Imbizo as an African methodology.

Imbizo as an African methodology

During the analysis of the data a theme emerged that was outside of the outlined topics; namely the Imbizo as an African methodology. The participants in this study thought that the method of Imbizo was new, appropriate and a contextually appropriate method to gather the participants' experiences on IK and the school curriculum. Participant S1 said that Imbizo made them think and share experiences. He said:

> "*it brought back old memories… what the Imbizo did was to get us think about it again and look at it from different angles and get to hear what the other people think*

about the story because that is what is being lacking everybody else has his own ways of interpreting the story [The conundrum of the cattle killing] *"*.

Participant S3 expressed how the Imbizo allowed free sharing of ideas and perceptions of IK. He said:

"*okey starting with the Imbizo itself, Imbizo…* [silence] *as an indigenous way of meeting and gathering information and ideas was very much meaningful to me. It sets eh… a tone where people can express themselves freely and eh it allows for example for the outflow of ideas from one's mind and in the process, it affords one an opportunity to get to know how do other people that are part of Imbizo perceive what you understand as an individual. So it… it allows for some kind of sharing of ideas. Yaah"*.

A majority of the participants agreed that as one can best express experiences in the way it was learnt, and because most people learn IK and culture in indigenous language, it was good that they were able to express themselves in their mother tongue. Respondent S5 affirmed that by saying:

"*obviously it is clear that if we were talking about our African experiences* [during Imbizo], *and those experiences cannot be carried on or expressed in English language. Because what happens is… the terminology you know, and the way you remember or the way you experienced that. You know you would still need to find a way of explaining it in English which is not really what you wanted to say"*.

Most respondents seemed to have valued the Imbizo session for the study; they all agreed that it reminded them of the Imbizo that regulated the Xhosa society in the past. Participant S5 pointed that:

"Even though there is globalisation and everything…as a Xhosa, such knowledge [IK] need to be brought back…marriages, how were they handled? Many other things there was regulation in communities so that's the kind of knowledge which I think needs to be brought in, you know? Reminding the people of Imbizos, reminding the people what was there that use to regulate what was happening in societies…"

However, S6 lamented on how the Xhosa teacher educators have never taught about the importance of 'digging' their roots and culture by themselves.

3.   KENYAN PARTICIPANTS

Of the ten potential respondents in the Kenyan context five males and three females (8) responded to the semi-structured questionnaire, and participated in the Baraza. Two males and one female (3) were purposively selected to be interviewed. All of the three methods investigated perceptions of university academics in teacher education of the value, position and place of indigenous knowledge in the school curriculum. The respondents are recorded as participants K1, K2, K3, K4, K5, K6, K7 and K8. All the three participants interviewed in Kenya participated in all the three data generation stages, namely K2, K5, and K8. These synonyms were used consistently throughout the study.

In this case, like the South African case, the themes that emerged from the qualitative data after thematic analysis are discussed under the umbrella topics; Nandi Teacher educators' understanding of IK, IK items valued by the Nandi teacher educators, place and position of IK in school curriculum and principles that could guide integration of IK into school curriculum. The participants were given the identifiers K1, K2, K3, K4, K5, K6, K7 and K8.

3.1   Nandi teacher educators' understanding of IK

Under this topic, the following themes emerged from the participants' responses in the three methods of data generation; IK *as local knowledge unique to a culture* and IK *as experiential knowledge.*

IK as local knowledge unique to a culture

Four out of eight participants expressed their understanding of IK with reference to it being local and unique knowledge that is linked to culture of a group of people. Participant K7 described IK as "*local unique knowledge",* She elaborated further stating that*, "It is the local knowledge that is unique to a culture or society. It is the people's knowledge, traditional wisdom & way of life of a particular group*". Relating IK to a specific location, Participant K4 agrees and adds that IK is "*developed around specific conditions of the natives to a particular geographic area*".

The majority of the respondents agreed that IK comprises the principles that govern community life, they concurred with participant K2 who shared his comprehension of IK to be referring to "*a set of values, norms and principles that has been given a special and specific place within a community and/or society and passed on from one generation to another as it defines its survival and destiny*". All respondents concurred with participant K3 who pointed that IK has been in existence and used by our fore fathers from time immemorial and comprises life skills and traditional wisdom.

IK as experiential knowledge

In their understanding of IK, most participants described IK as experiences resulting from the interaction between the inhabitants of a place and the environment. Participant K5 said IK "*is knowledge acquired by people as they interact with their environment and is*

internally generated by the inhabitants of a region", adding to that, participant K6 noted that IK was used to govern the social and economic life of people she said, "*Indigenous knowledge is all that knowledge that was used to instil societal norms and values in members in the society and also knowledge that help members to function in society*".

All the respondents agreed that IK is knowledge that is highly valued and forms part of values and principles of a community or society and it is preserved and passed on from one generation to another in different forms. A majority of the participants concurred with participant K1 who stated that "*IK has been there, you cannot separate it from politics, culture and religion*". Adding that IK is essential knowledge that is intertwined with peoples' way of life, participant K6 however, lamented that "*this African cultures and knowledge...was earlier considered to be barbaric and backwards by the coming of Christianity and western education*". As can be seen, their understanding is similar to that held by the Xhosa teacher educators.

3.2   IK items valued by Nandi teacher educators

Analysis of data revealed the following themes under this topic; Native languages, history and culture, agricultural and environmental IK, herbal medicine and healing, and science and technological skills.

Native languages

All the participants perceived that indigenous languages are mediums to transmit indigenous knowledge at the same time indigenous knowledge by itself. Participant K5 said "*IK can be used in school both as a language and as a language of instruction in early childhood*". Emphasizing that indigenous languages can be integrated in other subjects too, participant K6 said "*you know we can learn language separately and we can integrate*

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language in other subjects such as teaching history using vernacular as a language of instruction at lower primary".

Participant K3 stated that "*Indigenous language should be taught as the basis of other IK and other concepts in other subjects*". However, most participants were concerned that the languages are getting 'swallowed' into multilingualism because "*the vernacular languages are not fluently spoken by our children today"* participant K8 lamented. Attesting that there is disintegration of the local language 'fabric', participant K2 shared her experience saying "*I think because of multilingual interaction in school and at work, my Nandi language has been interfered with a lot. I found* [in the Nandi translated stimulus piece] *certain terms expressed in Kalenjin to be new but when put in English I could be able to conceptualise better"*.

Most participants pointed that language is very crucial and early childhood education should be taught in vernacular. Claiming that IK is authentic when learnt in mother tongue, participant K8 said "*the local languages are a very key in relation with indigenous knowledge. For example, some of IK the knowledge in riddles, proverbs, songs, and stories told in mother tongue cannot be translated into English without losing meaning*". Participant K5 supported that and proposed teaching and learning of local languages in school. He said "*indigenous languages should be taught separately at early childhood level i.e. grade one two and three in order to assist the learning of other IK right from family to school*".

All respondents agreed that learning was made interesting in the past when stories were told in local languages at home and in school. Almost all the respondents agreed with Participant K1 who stated that:

"*When we were young we use to visit our grandparents to sleep there, eeeh… then we were given riddles, storytelling what else was there?...* [silence]. *Knowledge was passed in form of stories, riddles, proverbs, tongue twisters, folktales and children*

games so that we pass that knowledge to the next generation. Eeh… when you look

at that knowledge it was all about something to do with religion, politics and culture

and it needs to be integrated in curriculum".

All participants noted that stories like "*Kibet ak bobat' in TKK books*" [Nandi children story books] that were written in vernacular and had been integrated in the language curriculum at early childhood education in the past were removed. They pointed out stories of heroes that enabled learners to develop skills of responsibility, collaboration and problem solving at an early age. Participant K6 emphasized, "*story-telling, proverbs, riddles and songs. These items shape learners' behaviour and discipline by teaching guiding and warning young people*" and she added that mother tongue terminologies creates understanding and assisted children to conceptualize other knowledge if integrated in school learning. Most Participants were optimistic that the Kenyan new education curriculum system 2.6.3.3.3 might bring back the integration of mother tongue language at early childhood education. Participant K5 remembered how "*in the early 1970s those vernacular story books use to be used in schools because they believed and at that time the policy was language of instruction in vernacular at an early age now they say that way but very loosely nobody is actually implementing*".

History and culture

Most participants expressed that there is a lot of African cultural and historical knowledge that is relevant for integration into the curriculum such as *"traditional dances-historical cultural sites-cultural beliefs and taboos"*, as listed by participant K4. All respondents believe that the understanding of these cultural and historical forms of indigenous knowledge enhances cultural conservation and integration and gives a community an identity. Participant K5 shared saying "*Any society has traditions, values, norms, and*

taboos among others and to understand a culture of a people this knowledge adds value". Participant K2 noted that there were practical cultural beliefs of healing giving an example the act of *"Keeschi kokorwet* [dancing to a medicinal tree that was believed to cure mumps] *and people could really heal that was religious beliefs".*

The stimulus story 'The Nandi Resistance' is one of historical knowledge that most respondents seemed to value, claiming that it builds in learners a virtue of patriotism and thus needs to be preserved as history. Participant K6 said *"to me this* [stimulus story] *is indigenous knowledge because, it forms part of the history of the Nandi people which was mainly passed from generation to generation".* Participant K3 supported saying:

> *"This knowledge is essential for it - it informs generations now and in future of where we came from, where we are now and also anticipating the society's destination. I believe that history is used to make decisions to judge the present and to anticipate the future".*

Most respondents perceived that very little of the essential and relevant African cultural and historical knowledge has been brought into the curriculum as compared to western knowledge. Attributing this to poor documentation of cultural knowledge, participant K3 said *"When you read characteristics of indigenous knowledge, it tells you that it is orally stored, so it is poorly documented and it is the local knowledge of the people, yaah".* All participants agreed that IK is an important source of knowledge from which various fields such as medicine, agriculture and industry can tap talents and new knowledge. Participant K2 recommended that with the world being a global village *"learners should learn about one another's culture in its totality. That means knowledge on aspects of a people's social, economic, political and cultural dimensions of communities needs to be known to learners".*

Participant K2 added that "*there is a lot left out that if incorporated will improve attitude and interest of learners*".

Agricultural and environmental IK

The participants shared a number of common agricultural practices and environmental knowledge that they valued. Participant K8 said, "*Other forms of IK include… indigenous ways of agriculture e.g. use of natural manure, prediction of weather and food preservation should be included in the school curriculum because they form practical knowledge in the society today*". Expounding on food preservation, a majority of the respondents agreed saying that the Nandi people "*would predict drought and prepare for it by slaughtering animals and eeeeh…kosirigen ak ko-yam koek telik* [traditionally drying the meat as a way of preserving for future use]*"*. Supporting the issue of traditional weather forecast, participant K1 stated that "*environmental indigenous knowledge e.g. studying weather patterns by use of trees/sun/wind and even animals and bird's migration*" guided the cultivation calendar of the Nandi people. Participant K3 also noted that animals' behaviour was one of the indigenous ways of predicting weather; he explained "*Sign of frogs croaking as a sign of rain was also believed in culturally and it is knowledge that can be used to date*". Shielding from the enemy and adapting to the environment was also agreed by most respondents to be an environmental skill that was indigenous and valuable to be learnt today. Majority of the participants mentioned traditional cultivation of indigenous crops using natural farm manure such as traditional vegetables stating that it produced healthier food than the modern methods. Participant K3 said "*IK related to security, food preservation such as building granary stores for eeeeeh the grains to avoid use of chemicals, indigenous vegetables also existed and it was a way of preventing diseases*". They agreed that the method of building

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traditional granary structures for storing grains were better than the current methods of applying chemicals that causes cancer and other health problems.

Herbal medicine and healing

The participants shared various experiences with herbal medicine all agreeing that it is an important field that education should integrate into the school curriculum so that learners can develop alternative skills of first aid and even treatment of common ailments. Participant K2 highlighted herbal medicine saying:

> "*In the area of medicine, we are going back to consult indigenous medicines. There are actually herbalists for cancer, asthma and other diseases. Some are using labotiet naa age naa bisalia [yellow sodom apple] as anti-tetanus and for eeehh…simaba korotik missing eng moet neyatat kora [also to stop bleeding from an open wound]*".

Participant K6 shared her experience of how she used a common herb to treat a patient at home she narrated that:

> "*So I had to go, the other day actually to look for it [irokwet] a common herb plant, do you know after using it the person is now okay? She is okay for real. You just heat it; press it on your laps as you massage it on the body*".

All respondents agreed and participant K6 commented saying *"So the use of 'irokwet' is one of the knowledge items that should be integrated in the school curriculum"*. Participant K2 also affirmed by stating that the same herb can also be used in other ways. He said, *"Irokwet' is doing so many other things for example the leaves are a cure for flu when chewed and is also used as a tissue paper* [all laugh]*"*. Majority of the participants also called for the inclusion of traditional medicinal plants in the curriculum as a way of conservation. Most respondents concurred with the opinion of participant K5 who thought that the whole

idea of herbs should be integrated in the medical training curriculum to provide learners with an alternative way of treating common health problems.

Scientific and technological skills

All the respondents agreed that there were various skills portrayed by the Nandi traditionally that is still of value today. Participant K7 said they include; "*the skill of making ropes using sisal, traditional costumes, eeh…weaving, and even cloth decorations that were done using batic*". She adds that "*the making of decoration i.e. bead work all that is valuable IK that needs to be integrated in the technical school curriculum*". All participants agreed that there were expert Nandi ironsmiths who could explore and identify where there were minerals on earth. Participant K8 said:

> "*when you talk of iron ore, i use to ask myself when i was young, ngap iit a place ne mitei inn… kilenee ooh aramaik anan?* [sometimes you find metal ores, the remains, the chippings from iron ore in a place] *and when you ask Nandis* [Nandi tribe members] *you are told 'kimibiik chekikigure kotongiik'* [there were people called iron smith]. *These were typical specialists and expert Nandi ironsmiths and they are there now*".

Almost all the participants concurred with participant K6 who raised concern that "*whatever innovative skills like the making of a bow, an arrow… or a shield indigenous Nandi people had, and nobody has even ventured into that skill but it is still closed in our society*".

3.3   Place and position of IK in the school curriculum

Under this topic, the place and position of various IK items which were valued by the participants were analysed and presented under the three themes that emerged: *language subjects, arts subjects* and *science subjects.*

Language subjects

Participant K1 proposed the integration of native languages like Nandi into the learning of English in the school curriculum, in agreement with participant K1, respondent K6 added by proposing the inclusion of language elements such as "*Proverbs, riddles and songs*". She said that *"These items shape learners behaviour and discipline by teaching guiding and warning young people".* Proposing early childhood education as the best grade for integration respondent K6 said "*right from ECD in social activities, language activities and primary school through to secondary school*". All the respondents agreed that stories of heroes can be told to children at an early age in history subject as well as languages so as to enable children develop leadership skills and mentorship.

Arts subjects

Among the knowledge that all respondents categorised as falling under an art discipline is the stimulus story, 'The Nandi Resistance'. All respondents agreed, with participant K1 who said "*yes, it is part of the history that liberated the community and the Kenyan nation… It is history knowledge to be learnt in schools- in the curriculum*". Participant K1 also proposed the integration of ironsmith skills into history curriculum, herbal medicine into Christian religious education (CRE) and plan, war and defence into social education in the school curriculum. Participant K2 highlighted some of the valuable IK concepts that he thinks should be included in the curriculum saying:

> "*Learners should learn about one another's culture in its totality. That means knowledge on aspects of a people's social, economic, political and cultural dimensions of communities need to be known to learners. To fit well into society one needs to understand very well about its dynamics. I would prefer it to be integrated with social education and ethics as well as history and government*".

Participant K4 thought that historical sites can be integrated appropriately in history subjects and cultural beliefs and taboos in religion.

Science subjects

Various IK items were categorized into science, among them participant K3 stated as "*Medicine indigenous knowledge, environmental indigenous knowledge e.g. studying weather patterns by use of trees/sun/wind, shielding from enemy etc.*". He said this knowledge can be integrated in "*social studies (history), geography, religion, sciences and maths respectively*".

Participant K4 thought that traditional dances can be integrated appropriately in social sciences and traditional medicine in natural science and biology.

3.4   Principles that could guide integration of IK into school curriculum

The respondents proposed different fundamental principles that they thought could assist in the process of integrating IK into the school curriculum and these were analysed thematically to include the following themes; *knowledge relevance, knowledge demarginalization* and *developmental appropriateness.*

Knowledge relevance

Majority of the respondents were in agreement with participant K7 who was concerned on what and how IK can be identified for inclusion in the curriculum and she noted that *"there should be clear guidelines as to which indigenous knowledge to include and how it should be included into the curriculum"*. A majority of the respondents noted that there is already IK that has been integrated into the curriculum however some have not. Participant K4 pointed saying *"There has been a lot of IK that has not found its way into the curriculum although it is important and practical knowledge to the society"*. He explained that this is because *"the current curriculum and subject syllabus are mostly examination oriented and thus teaches a lot of theory"*. Participants agreed that rote learning as pointed by participant K4, *"makes learners graduate from school 'half baked' these are learners who cannot survive well in the society where there is little or no resources"*.

Most participants thought that the relevance of each IK items should be considered before it is infused into the curriculum. Participant K8 said *"in the face of multiculturalism and internationalization of knowledge, the relevance of IK to the majority should be considered before its' integration to the curriculum"*. Participant K3 agrees with participant K8 adding that:

"What is global now begun from local and as knowledge integration is done, it spreads to other people and becomes international and so local indigenous knowledge that is of value should be appreciated and integrated in the curriculum to benefit others. Tourism is local but it is international in that people travel from far to come and see local sites or culture".

Knowledge demaginalization

Most respondents considered integration of IK in the school curriculum as a process of knowledge demarginalization. They however pointed that IK should not be isolated as a parallel form of knowledge rather it should be strategically positioned to improve the quality of teaching and learning of other knowledge. Participant K5 said "*IK items should not be integrated as a separate knowledge first of all but integrated with the other knowledge to enhance teaching and learning*". A majority of the respondents agreed that for successful integration of IK, the content selection process should be inclusive. Participant K4 said "*what IK should be integrated into the curriculum is preferably what will benefit across all the other communities as well and it should be IK that has a positive impact on the lives of human beings*". Participant K1 believes that indigenous languages for a long time have been marginalized in school curriculum and thinks that it is fundamental to the integration of IK in curriculum. He said:

"To me I see the issue of vernacular language being a critical issue and something needs to be done. Even counties can set up a vernacular school as vocational studies for children so that children can understand their mother tongue language first… Resourceful people should be involved from the communities…to find out from the stakeholders what valuable IK needs to be integrated…These IK should come from or cut across all the cultures".

Participant K1 proposed that participation by all the stakeholders in the education sector in the country should guide inclusion of IK in the curriculum especially now that the 8.4.4 system of education is changing to 2.6.3.3.3 in Kenya.

Developmental appropriateness

Most Kenyan participants proposed the principle of building knowledge and knowledge delivery from known to unknown basing on the learner developmental stages, participant K2 highlighted that "*a focus on the approach, level/grade of learner and relevance should be considered in curriculum delivery. Knowledge should be built from known to unknown*". He elaborates that each IK item can be introduced basing on the level of difficulty of the concept. Participant K6 opined that "*All indigenous knowledge should be integrated in the subjects that will be compulsory…and "disseminated at all levels of learning by ensuring that is developmentally appropriate*".

Most respondents opined that IK and western knowledge can be realigned before it is integrated. Participant K6 said, "*… am just saying the I.K and western knowledge need realignment and merging after looking at I.K from all perspectives*". She expounded saying "*some knowledge is already implemented like even the Nandi resistance is implemented anyway maybe what we can say is…that we need to realign*". Participant K1 added saying it is essentially important and worthy knowing IK including 'The Nandi resistance' story because it promotes social heritage and expose political injustices. However participant K7 said that "*the shift to technology has ignored the indigenous way of learning hence need to be corrected*".

Participant K3 also adds that Kenya Institute of curriculum Development (KICD) "*should incorporate IK during their curriculum development process*", and clearly indicate

the pedagogical issues involved during the integration to make implementation of IK inclusive and successful.

3.5   Emerging themes

The results of other themes that emerged from the data in the Kenyan case are presented as follows; Poor documentation of IK, and Baraza as an African methodology. Their results are presented as follows:

Poor documentation of IK

All participants were concerned that despite its relevance in problem solving, IK is in the midst of its extinction if it is not infused into the school curriculum. Participant K8 said this is because of "*profiling and documentation that is missing or the language, but they exist*". Attributing this to its oral form of transmission, participant K3 said "*... this indigenous knowledge was basically orally transmitted and when modernity came in, we discarded that, and ours was? This is the best! Just like participant K4 said and that is why this indigenous knowledge is disappearing because we didn't document*".

Most respondents think that the dormancy of IK today is partly attributed to non-documentation just as participant K1 said "*IK is a very wide body of knowledge that adequate documentation is missing*" and partly as a result of urbanization and modernization which has resulted to reduced social interaction with indigenous people. Participant K4 added saying some of the reasons are; "*Old folks no longer tell these stories to children. Not much has been written clearly about such stories of the Nandi community. What is available is in a few books available to scholars only. No forum for internalizing those kind of knowledge*". Participant K1attested to his experience of Nandi riddles as an example of IK, he said:

"Knowledge is life because it has got to do with everything that you do and the way you do it. I remember our parents telling us tongoch? cho!! [an introduction of a Nandi riddle] *and sometimes I would like to remember some of those Nandi riddles but there is no document that you can reference such important knowledge in school".*

Baraza as an African methodology

All the three participants interviewed in the Kenyan case commented on the use of Baraza as a method. Participant K8 said it was a suitable method to access participants' attitude, experiences and perceptions of IK in the school curriculum. She said, "*I think we were able to discuss better our cultural experiences and indigenous knowledge that eeh that we went through while we were young on the same level*". Participant K5 also added saying the use of Nandi language was most appropriate particularly in expressing some traditional cultural terms and experiences that would not be authentic when expressed in English. Supporting that the use of Nandi language was appropriate for discussion, respondent K2 said:

"I remember asking my colleague the English name for 'teliat' [traditionally dried meat] *and 'irokwet'* [a medicinal herb] *and he said that you can't find an exact substitute word in English. Language was not a barrier to our discussion and so so for me I think the Nandi part of the discussion helped us to share our understanding of eh… okey…Nandi values yaah and cultural knowledge deeply.*

Participant K5 said that such forums can be used to come up with knowledge that can be proposed to the Kenya Institute of Curriculum Development (KICD) for integration. "*Actually...eeeh Baraza like the one we had can be used by the senior faculty members to propose to KICD the common IK content and knowledge that can be integrated in the curriculum…eh syllabus, otherwise the coming generation will have lost that knowledge as*

you can see. You can see even some lecturers are finding a problem with indigenous eeeh language".

4.   CHAPTER SUMMARY

This chapter presents the collective qualitative data obtained from three methods of data generation that include; a semi-structured questionnaire, an Imbizo/Baraza and individual interviews which were all used to investigate Xhosa and Nandi teacher educators' perceptions of value, place and position of indigenous knowledge in the school curriculum in South Africa and Kenya respectively. The South African case results were presented first as followed by the Kenyan case results. The results are presented as themes under the four topics derived from the four research questions of the study namely; Xhosa/Nandi Teacher educators' understanding of IK, IK items valued by the Xhosa/Nandi teacher educators, place and position of IK in school curriculum, and principles that could guide integration of IK into school curriculum.

Themes that emerged from the data after inductive thematic analysis were presented per case and per topic and difference(s) in themes between the two cases were noted. Interrogation of data from both cases revealed that generally participants understood IK as local knowledge unique to a culture, a way of knowing, experiential knowledge and 'special' knowledge embedded in local languages, which were considered to be themes of the first topic. Secondly the participants' experiences of valued IK include local languages, history and culture, agricultural and environmental skills, herbal medicine and science and technological skills.

The results of place and position of IK in the school curriculum were also presented thirdly under the themes; arts subjects, language subjects, and science subjects. Suggested principles that could guide integration of IK into school curriculum are also presented. These

principles include; political influence, knowledge demarginalisation, knowledge relevance and developmental appropriateness. Lastly, other themes such as the Imbizo/Baraza as African methodologies and poor documentation of IK that emerged outside the identified topics are presented. Generally, there is a call by the respondents in both cases for inclusion and appropriation of various IK items in the school curriculum content.

CHAPTER FIVE

DISCUSSION AND RECOMMENDATIONS

1.   INTRODUCTION

Education remains a major challenge in many African countries, especially in the light of the inherited educational system of colonialism in African systems that may not suit the aspirations and philosophies of the peoples of the continent (Potokri, 2016). In response there appears to be a paradigm shift in curriculum reform towards revaluation and integration of IK into national curricula. Higgs (2016) considers this paradigm shift to be a positive move to tap indigenous African epistemologies as a foundational resource for cultural, political, economic and socio-educational transformation in Africa. Shava (2016) calls for an inclusive curriculum which considers IK and western knowledge to be equally important and which needs to be intertwined in order to attain a practical and relevant curriculum. However, there has been debate as what knowledge and whose knowledge should be included and validated in the curriculum, and at what level and how this should be done (Webb, 2016). As such, there is an urgent need to understand educational stakeholders' perceptions of curriculum content, approaches to, and principles of, integrating Indigenous Knowledge into the school curriculum. It is this need that provided the rationale of this study which, because of the important role they play in teacher development, investigated the perceptions of teacher educators in two African Universities of the value, place and position of IK in the school curriculum, as well as the principles that should underpin such a process.

The discussion of the results presented in Chapter 4 in this chapter is framed within the literature presented in Chapter 2 of this manuscript.

2. TEACHER EDUCATORS' UNDERSTANDINGS OF INDIGENOUS KNOWLEDGE

Analysis of the data generated via the questionnaire, Imbizo/Baraza and individual semi-structured interviews were the identification of three themes. These were Indigenous Knowledge as local knowledge unique to a culture; as a way of knowing; as being embedded in a local language; and as experiential knowledge.

Indigenous Knowledge as local knowledge unique to a culture

Both South African and Kenyan participants expressed their understanding of Indigenous Knowledge (IK) as unique local knowledge that is linked to culture or a group of people that has been derived from the learners' interaction with the environment. The majority of Kenyan respondents described IK as community wisdom that comprises values, norms and principles that guides the way of life of a particular group native to a specific geographic area, a position noted by (Odora-Hoppers, 2004; Karin & Jun, 2002). Similarly, most South African respondents expressed their understanding of IK as knowledge derived from native learners' background, environment, experiences, games, language and passion and is transmitted 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 artefacts associated with practice.

Collectively, the results suggest that both study cases 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 Battiste (2002) and, as shared by a

participant, that IK is "*generated by the indigenous people or natives of a particular place*".

Participants referred to IK as oral or written 'special' knowledge linked to a culture and generated by indigenous people native to a particular geographic place. The respondents in this study believe that IK forms the basis of other learning in that indigenous knowledge is linked to stories, science, geography and cultural studies. These findings are in agreement with 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 enables 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 relate to the culture of a group of people. Specific societies have unique ways of making meaning of the world and have different ways of addressing context specific problems using indigenous forms of knowledge (Owour, 2007) and the participants' understanding of IK reflects Semali and Kincheloes' (1999) understanding of IK as dynamic way in which people living in a common locality have come to understand themselves in relationship to their natural environment, and how they organize that folk knowledge, including flora and fauna, cultural beliefs, and history to enhance their lives.

Indigenous Knowledge as a way of knowing

South African respondents expressed their understanding of IK as a way of knowing that influences ones understanding of the world and interpretation of its realities. These respondents argued that IK constitute ways and wisdom in which society members learn moral values and responsibility and explore on various life skills and leadership. These participants further shared their view that these local ways of knowing are related to society values and culture and facilitates peoples' meaning-making. This finding is supported by Hewson (2015) who describes the African way of knowing as a sophisticated (but different)

way of seeing and interpreting the world and explaining the vicissitudes of human lives that encompasses language, naming and classification systems, practices for using resources, ritual, spirituality and world view.

Indigenous Knowledge as embedded in local language

In as much as a few Kenyan respondents recognised the value of local languages in transmission of IK, most South African participants strongly argued that IK is embedded in local languages. This position was best illustrated by the reaction to a statement that was posed by participant S8 as "*when we talk about indigenous African knowledge, I realise that this knowledge is hidden in indigenous Xhosa literature and folklore*". This statement was enthusiastically agreed by the majority. These participants argued that the fundamental step in integration of IK in school curriculum is the introduction of local languages as a language of instruction at early childhood education and as a subject in the South African curriculum, with some participants suggesting that the Xhosa language be integrated in the compulsory subjects. The majority of the South African respondents 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 for local language recognition concurs with Matos' (2000) laments on African education and research that attempts to systematically dismiss the intrinsic value of African culture, language, customs and practices from the curriculum.

The South African participants noted that, even though the National Curriculum Statement (NCS) partially provides for the use of mother tongue language for instruction in South Africa from grades 1-3, the NCS does not provide relevant supporting documents to teachers nor make it clear how it should be implemented. This challenge pointed by participants is congruent to Shizhas' (2005) conclusion that language of instruction in African

schools is still the major obstacles in learners' cognitive development and learning outcomes. It is notably that the issue of local languages did not arise to any great extent in the data generated in the Kenyan case.

Indigenous Knowledge as experiential knowledge

Most of the Kenyan participants outlined IK as lived experiences resulting from the interaction between the inhabitants of a place and the environment. For most of the participants, the environment from which IK is derived during interaction comprises of politics, culture and religion that was used to instil societal norms and values as shared by participant K1 who said "*IK has been there, you cannot separate it from politics, culture and religion"*. It was evident that most Kenyan participants understood IK as knowledge gained through experience from human interaction with culture, politics and religion as well as environment that governed social and economic life of society members as purported by Potokri (2016) in the literature.

The Kenyan participants also highlighted that some of the indigenous experiential knowledge concepts are gradually learnt in the community and they cut across many academic disciplines and thus, they pointed out that it is impossible to ignore the impact of IK on the school curriculum content and that it is imperative to reconnect education process with community developmental skills and values through curriculum integration of IK in order to regenerate and sustain communities. These participants' views are consistent with the concept of place-based education of McInerney and Down (2011) and Sobel (2014) who comprehend place-based education as the process of using the local community and environment as a basis to teach concepts in various subjects across the curriculum such as language, arts, mathematics, social studies and science.

3.   IK ITEMS VALUED BY TEACHER EDUCATORS

The Indigenous knowledge items that the teacher educators valued most highly fell into the categories of native languages; history and culture; agricultural and environmental issues; herbal medicine and healing; and scientific and technological skills.

Native languages

Just as Heugh (2005); Grin, (2005), opine that learning indigenous languages is relevant and sustainable by itself and that it is inappropriate to pay lip service for the sake of economy of scale, participants from South Africa and Kenya identified local languages as important forms of IK in their communities, this contention was held much more strongly amongst the South African participants. However, local languages were recognised by both groups as a medium of transmission of IK items from one generation to the other. Although respondents from both cases called for the teaching of local languages in school as part of the curriculum subjects, integrating local language in other subjects like history and also using local language as a language of instruction in lower grades of schooling it was emphasized more by South African participants who claimed that both the knowledge content contained in the Eurocentric school curriculum and that the languages spoken and used as medium of instruction in school curriculum are not learner friendly. Such 'user-unfriendly' contexts hinder the learners from understanding and participating in creation of knowledge and need to be interrogated (Brock-Utne, 2006; Sesanti, 2016). The South African respondents called for a liberating educational curriculum that recognises and incorporates indigenous African knowledge systems and epistemologies that can be tapped and integrated in the school curriculum to contextualise learning. This finding suggests that the South African teacher educators are not content with the current curriculum content with respect to integration of indigenous language and knowledge and they think that it does not serve the needs of learners

effectively. This call is in line with the ideas of King and Schielmann (2004) who noted that combining the best of one's own traditions with the best of Western knowledge provides for quality in its true sense. Most participants from both Kenya and South Africa highlighted that IK items such as language folktales is embedded in indigenous literature and folklore and are rich heritage uphold by the communities that needs to be considered as a basis for learning other knowledge.

History and culture

Arts, customs, social institutions of a group of people and technology are inherently cultural (Van Wyk, 2002), and culture, in the study participants' views, reflect a way of life. The participants in both the South African and Kenyan cases expressed their belief in the value of history and culture stating that it upholds their identity and heritage. Most of the Kenyan participants expressed interest in *"traditional dances-historical cultural sites-cultural beliefs and taboos"* (Respondent K4). Almost all Kenyan respondents agreed that these forms of IK items enhances cultural conservation and integration and gives community an identity and heritage if well appropriated in the school curriculum. This notion resonates with the ideas of Thaman (2009); Pene, Taufe'ulungaki & Benson (2002), who note that in order for schools and curricula to positively respond to the needs of making teaching and learning more culturally inclusive; there is need for a paradigm shift from the current predominantly Euro-centric curricula and school systems used in African countries.

Most of the South African participants strongly promoted Xhosa cultural structures and practices, beliefs, religion, norms and taboos. Participant S10s' response helps define this stance when saying, *"I think it is essential that the 'constructive' cultural structures/ practices that regulated the 'life' of Xhosas be included in the curriculum"*. There was consensus that African people are spiritual and this is displayed in the way they perform

rituals, organize family, and conduct succession. Most participants seemed to value the cultural ways in which behaviour was traditionally regulated, discipline was approached and the way values of communal 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 thus not owned by Africans (Gumbo, 2016). Participant S1 said "*It's our history* [Nongqawuze and the cattle killing story]. *The only problem is that it was not written by and owned by IsiXhosa speakers*".

The South African participants felt that most of the content in primary history in South Africa contains only a little distorted African history with very few African heroes included. These participants called for facilitation of meaningful subject content through integration of more indigenous knowledge in order to make subject matter comprehensible for the learners (Abah, Mashebe & Denuga, 2015). The responses from both the Kenyan and South African cases lead to the deduction that history and culture are embedded in the local languages and are valued assets of the community as well as for the study participants.

Agricultural and environmental IK

Both the Kenyan and South African respondents presented various related agricultural skills and environmental issues that they valued for curriculum integration. However, indigenous ways of crop farming such as use of manure to improve soil fertility, growing traditional vegetables that participants claimed to be healthier, food and grain preservation appeared to be IK items common to both cases which are often referred to in the literature (Gumbo, 2016). Outlined by the majority of participants was also the making of local flour by grinding maize locally, local brewing of porridge and beer. This was illustrated by participant S5 who stated that "*We used to keep crops like maize and… grind the maize on*

our own using grinding stones, and brew drinking porridge (amarhewu) and traditional beer from the maize we harvested".

This finding suggests that indigenous agricultural practices enabled indigenous people to live an economical life. These participants' preferences of IK items are also identified by Emeagwali (2003) who revealed that there exist indigenous technologies that involve fermentation of cereals such as sorghum and maize into alcoholic beverages and vegetable based soup. Other agricultural and technological forms of IK valued by South African respondents included the use of oxen for ploughing in hilly or mountainous terrain, planting drought resistant seeds, traditional pests control, traditional livestock breeding and rearing, as well as appreciation of local geographical features and historical sites in the environment (Atte, 1992).

The Kenyan participants on the other hand pointed more often to indigenous skills of studying weather patterns and predicting weather by use of animal and birds' migration patterns as well as plant behaviour (Van Sertima, 1991). These participants outlined that shading off the leaves and flowering of plants were very important phenomena in the farmers' calendar in that it implied change of farming activities with respect to a new season. They also noted that animal behaviour such as the croaking of frogs was an important indication with reference to how far the rains were. Participant K3 said "*Signs of frogs croaking as a sign of rain was also believed in culturally and it is knowledge that can be used to date*".

The concept of indigenous weather forecasting was supported by K1 who said that environmental indigenous knowledge such as *"studying weather patterns by use of trees/sun/wind and even animals and bird's migration",* are applicable indigenous skills of predicting weather. Kenyan participants also emphasized on the use of farm manure in

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cultivation of traditional vegetables stating that it is an important practice and the use of calabashes to store milk and convert it to sour milk was also mentioned and deemed worthy. These findings on valued agricultural practices were similar to Mandikonzas' (2006) findings on the study of indigenous practices in Zimbabwe.

Herbal medicine and healing

All teacher educators from both countries expressed a great deal of trust in herbal medicine and traditional healing in treating common ailments. South African participants agreed with participant K2 who said "*but we also use to live on herbs! there is nothing wrong consulting the herbalists*" particularly where modern medicine has been challenged like the issue of cancer. South African participants pointed that plants were used both as herbs and as food. The South African participants pointed that in a number of ways plants were used to treat ailments and enhance healthy living. As an example, South African participants pointed to Aloe Vera plants stating that they can be used to treat almost all ailments for example; can be used to maintain a healthy skin and as a cosmetic. This finding was congruent with Shavas' (2016) idea that, embedded within indigenous agricultural practices is local knowledge on the use of plants both as food and as medicine. However, majority of Xhosa respondents also showed interest and expressed a great deal of believe in traditional healing stating that it should not be discarded both in the society and in education.

Kenyan respondents also expressed confidence on herbal medicine that cure common diseases such as cancer and asthma which corresponds to the findings of Emeagwali, (2003) whose investigation established a number of diseases that can be treated using indigenous medical technologies such as; retarded labour, malaria fever, skin ulcers, bronchitis amongst others. Participant K2 affirmed by saying "*we are going back to consult indigenous medicines. There are actually herbalists for cancer, asthma and other diseases*". Most of the

Kenyan participants agreed with the use of plants for treatment of common ailments citing examples of [irokwet] a common herb plant and Sodom apple as examples of commonly used herbal plants amongst the Nandi community members. While Kenyan participants argued for integration of herbal medicine and healing in school curriculum in order to offer an alternative skill for first Aid and treatment of common ailments as well as conservation of plants, some South African and Kenyan respondents called for integration of herbal medicine in education in order to prevent the loss of the skill as a result of less interaction between learners and old people who possess this herbal medicinal knowledge. This finding correlates with the idea of Bowers (2011) who posits that education should orient learners to recognize human and environmental assets such as traditional cultural practices and conservation of natural resources.

Scientific and technological skills

As Hoppers points that indigenous technology forms, a body of knowledge developed by a culture, that provides methods or means to control the environment, extract resources, produce goods and services and improve the quality of life (Odora-Hoppers, 1998), participants from both cases pointed out various indigenous technological and scientific skills as well as experiences valued. South African respondents listed some of the valued scientific and technological skills as; visual design skills, traditional house construction, weaving by use of reeds to make hats and all types of mats, pottery work, bead work, fabric and art decorations all these linked to arts and culture. Participant S5 recommended infusion of 'rich' scientific and technological skills such as *"the use of reeds and plastic to make table mats, trays, baskets locally can be taught in school curriculum"*. This finding concurs with Hoppers' idea that indigenous technology is not just woven baskets and handicrafts for tourists, but it rather expands up to a range of technologies such as looms, textiles, jewelry

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and mineral manufacture; and technological knowledge in agriculture, fishing, forestry, resource exploitation, atmospheric management techniques, knowledge transmission systems, architecture, medicine and pharmacy (Odora-Hoppers, 1998).

Scientific and technological IK items valued by the Kenyan participants were similar to those voiced by the South African participants. In addition, they focused on the skills of making ropes using sisal, traditional costumes, weaving, cloth decorations and beadwork all in which they advocated for its integration in the technical school curriculum. Participants also highlighted iron extraction skills, extraction and conservation of other natural resources to be other expertise valued indigenous knowledge in cultural communities as is also evident in Emeagwali (2003). Kenyan participants also mentioned the indigenous skills of making war and defense weapons such as a bow and poisonous arrows to be IK that is relevant to security disciplines. All respondents therefore opined that it is imperative that learners be exposed to indigenous scientific and technological perspectives and knowledge content in order to address current problems, topics and issues that face society (Gumbo, 2016; Van Niekerk, 2004).

4.   PLACE AND POSITION OF IK IN THE SCHOOL CURRICULUM

Odora Hoppers (2002) contends that IKS forms the backbone of the social, economic, scientific and technological identity of indigenous people. In tune with Hoppers all of the participants acknowledged that learners go to school when they have already acquired some diverse skills and indigenous knowledge that in a way needs to be appropriately aligned and harmonised with formal modern school knowledge without causing knowledge conflicts. Education is both a prerequisite to, and a tool for, enhancing the opportunities of learners to exercise their social, cultural, economic and political rights (King & Schielmann, 2004). Participants in this study recognise that for education to successfully achieve its goals, there

should be a balance between indigenous knowledge and other forms of knowledge in the education curriculum. This idea concurs with Brock-Utne's (2006) emphasis on the important role which education can play to counteract the colonisation of the African mind when she urges Africans to question knowledge included in the curriculum. The place and position of indigenous knowledge items highlighted by the participants were examined and three general themes emerge, namely; Arts subjects, language subjects and science subjects:

Arts subjects

It was notable that while the South African respondents could clearly articulate valued IK items that they felt should be highlighted in the school curriculum, they had very little to say in terms of the place and positioning of such items in the school curriculum. However, a few of the South African respondents placed learning of cultural patterns, ways of dressing, bead work, African history and heroes as IK items that can fit into history subject within arts and culture curriculum. The participants' view of integration of culture is compatible with the idea of Shizha (2009) who states that culture contains the IKS of the people and general culture is symbolic as it is based on the symbolisation of things as they are used in behavioural patterns that a group of people understands.

The participants challenged the current South African primary history curriculum content claiming that it is not inclusive and does not reflect the African culture. Participant S9 firmly said:

"*Coming, to history hey! you will laugh! In grade 5 the only African person in my daughters' school text book was Nelson Mandela. In history subject, there's only Nelson Mandela. So far in grade 6, I have not seen anything that is African…there is a lot that needs to be done with regards to history*".

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Shava (2016) calls for stakeholders to indigenise the curriculum against a background where IK has been undermined and marginalised to an intersection between schools and local communities which is a reflection of place based pedagogy. Almost all the South African participants agreed that arts and culture linked knowledge such as weaving, needle work pottery are essential cultural knowledge that needs to be considered, appropriated and integrated in the curriculum.

On the other hand, generally most Kenyan participants suggested integration of herbal medicine, cultural beliefs and taboos into Christian religious education (CRE). The indigenous strategies of planning war and defence, and a community's economic, political and cultural dimensions were thought to be appropriate to be infused into the social education curriculum. Kenyan participants further proposed integration of stories like 'The Nandi Resistance' and mineral extraction skills into history and government. Participant K2 affirmed this stance by saying:

> "*Learners should learn about one another's culture in its totality. That means knowledge on aspects of a people's social, economic, political and cultural dimensions of communities need to be known to learners. To fit well into society one needs to understand very well about its dynamics. I would prefer it to be integrated with social education and ethics as well as history and government*".

The participants' call for integration of these arts and cultural skills in the school curriculum reinforce the view of Okoth (2016) who points that although society is fast changing, the role that IK systems play in the life of children cannot be ignored, nor the fact that knowledge is socially constructed and that learners already have some knowledge acquired from home through observation of traditional practices and beliefs, stories, riddles and proverbs, games and play and daily interactions with adults (Okoth, 2016).

Language subjects

Most Kenyan and South African participants greatly valued the Nandi and Xhosa languages respectively. Both cases showed concern on how local languages can be integrated in the school curriculum both as a language of instruction at lower grades of learning and as a subject. Their concern for integration of local languages correlates with the view of the UNESCO (2000) which states that successful education programmes require a relevant curriculum that can be taught and learnt in a local language and build upon the knowledge and experience of the teachers and learners among others. All the respondents in both cases attested to value greatly the language components such as folktales, riddles, proverbs, tongue-twister's songs, storytelling, games, drama and poems giving a reason that *"our heritage is in our language* (participant S8).

Shava (2016) points out that a unifying language within the community enables communication of knowledge and provides the main medium for the representation and transmission of IK. Both sets of participants agreed that local language components are mediums through which IK is transmitted from one generation to another. Some Kenyan participants added that these language components can be introduced to children as part of English language and history subject in form of stories at early childhood education. Almost all participants from both countries corroborated that these essential language components are embedded in local languages and used to warn and guide learners shaping their behavior and discipline throughout life. Participants argued that there is need for local language inclusion in the main school curriculum. Participant S8 emphasized saying *"culture is embedded in the language we speak and now this is in the literature that is there in the language"*. However, to the contrary in sub-Saharan Africa curricula, both content and pedagogy continues to teach

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students a foreign culture and worldview in a foreign language that inhibit the learning experiences of students (Shazha, 2013).

Whereas most Kenyan participants proposed integration of these elements "*right from ECD* [early childhood education] *in social activities, language activities and primary school through to secondary school*" (participant K6), their counterparts from South Africa did not specify the subjects and grades they think are appropriate for integration with some recommending integration in all areas of the curriculum.

Science and mathematics

De Beer & 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. Most participants in this study concurred with De Beer & Whitelock when they highlighted how interaction in the science classroom can be improved by using local languages to teach science. This is also in agreement with Shizha (2005) who points out that many studies have revealed positive value of incorporating indigenous languages into science teaching. Participants from South Africa and Kenya claimed that the scientific (IK) concepts learners comes to school with are fundamental to the learning of 'new' science and maths concepts at school.

Most participants from both cases had varied views on valued scientific and mathematical indigenous knowledge items that can be regarded as science or mathematics. However, both cases identified herbal medicine to be IK item that suits integration in science and biology subjects. Most Kenyan respondents highlighted "*Medicine indigenous knowledge, Environmental indigenous knowledge e.g. studying weather patterns by use of trees/sun/wind, shielding from enemy,*" as stated by participant K3, storage of food and

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traditional house construction to be valued scientific IK items worthy of inclusion into the school science curriculum. Traditional dances were also categorised to fit in social science curriculum by the Kenyan participants. On the other hand, besides herbal medicine that South African respondents specified to fall under science, they also identified ways of farming as well as grain preservation in agriculture as appropriate knowledge for integration at all school levels. This finding is similar to Mandikonza's (2006) study outcomes which established that the use of grain storage hut, winnowing grains, post-harvest pest control, processing, preservation and storage of milk amongst others are IK practices which can relate to classroom science concepts and can be infused into curriculum to counteract the practice of teaching IKS detached from its own sociocultural contexts Nhalevilo, (2013).

Other indigenous knowledge highlighted by South African participants includes the timing of Xhosa circumcision which was done early in the morning or late in the afternoon in order to curb excessive bleeding. Different uses of clay i.e. were also emphasized with participant S8 saying:

> *"Clay that is used in boys when they are taken to the bush is for a preventive measure against snakes…snake becomes sensitive to blood. Now the white clay closes the pores and the person now will begin to smell like soil. So the snake will just move without being attracted by anything"*

Plant classification, ethnomathematics, skills of stopping destructive storms, lightning and thunder were other knowledge stated and recommended for integration into curriculum by South African participants, however, as noted before, no specific grades or subjects were proposed. These findings are in agreement with Gumbo (2016) and Mandikonza (2006) study outcomes for investigating the cultural significance of IK practices in science learning which revealed that there is a possible application of IK practices in providing contextualized

science education process related to daily experiences of local communities as compared to decontextualized textbook–based science teaching.

5. PRINCIPLES THAT COULD GUIDE INTEGRATION OF IK INTO THE SCHOOL CURRICULUM

In this topic, five major themes emerged from an analysis of the data from the two study cases. One theme was common to both cases while the four were slightly different and are discussed as follows.

Political influence

On the principles that could be used to guide the integration of IK into the school curriculum, most South African respondents agreed with participant S5 who said politics has the greatest influence on what content goes into school curriculum in South Africa. Participants affirmed Shizhas' (2013) notion that the political elites, who decide on what constitute valid school knowledge, often takes for granted the collective knowledge on indigenous perspectives of African indigenous people saying *"integration is a matter of political realm, anything that needs to happen can happen here…there is no barrier as long as it is a political will"*. This finding was in agreement with Mauleys' (2001) observation from the policy documents that since independence, education reform has been political rather than professional in developing countries, Kenya and South Africa included. However, in the participants' perspective, using political influence to authenticate knowledge content is not the best way to transform and decolonise the African curriculum.

Two out of the eight participants had a view that the best principle is to give learners an opportunity to democratically contribute to what it should be learnt in school curriculum. One of the respondent's view that "*problem based learning where learners are free to discuss and present their ideas*" was seen to be a fundamental guideline for successful integration of

IK in an African contextual curriculum by a majority of the respondents. This finding was consistent with the view of Shizha (2013) who posits that inclusive perspectives in knowledge production and mediation should be the aim of curriculum transformation.

Most South African respondents expressed a concern that the teaching resources provided by the current curriculum to teachers are not relevant to integration of African languages in the school curriculum claiming that apart from the national curriculum statement document written in IsiXhosa, all other supporting documents are written in English. For that reason, participant S4 proposed that "maybe even the children's books need to be Africanised!" suggesting that one of the reasons for poor implementation of an IK integrated curriculum could be inappropriate and irrelevant teaching materials. This view is consistent with Van Niekerk (2004) who claims that there is no commitment to embed IKS at curriculum implementation level.

Knowledge relevance

For education to be liberating it should focus on relevant contexts and local African knowledge(s) that can help African society to withstand the challenges of a rapidly changing global economy (Msila, 2016). This position was affirmed by the Kenyan participants' expression that although society is fast changing, the role that IK systems play in moulding children cannot be ignored, nor the fact that knowledge is socially constructed even before young children join school. This is similar to Okoths' (2016) and Odora Hoppers (2001) position where they emphasise that learners do not come into formal education contexts as empty vessels. Instead learners already have some knowledge acquired from home through observation of traditional practices and beliefs, stories, riddles and proverbs, games and play and daily interactions with adults and the environment. However, most of the Kenyan participants thought that the relevance of each IK item should be considered before it is

infused into the school curriculum. This finding was in agreement with Webb (2016) who suggested that in order to answer the questions of what and why each IK should be included in the curriculum, one needs to establish its importance, legitimate academic discipline, and how the knowledge can be used to strengthen the understanding of the subject into which it is integrated to allow for more effective learning. Participant K8 added that "*in the face of multiculturalism and internationalization of knowledge, the relevance of IK to the majority should be considered before its' integration to the curriculum*".

All of the participants seemed to agree and showed concern that there has been a great deal of IK that has not found its way into the curriculum although it is important and practical knowledge for society. They pointed out that the current curriculum and subject syllabus are mostly examination oriented and thus teaching theoretical knowledge and ignoring the initial indigenous knowledge the learner brings to school. This inference is supported by Lunenburg (1998) who stated that the dominant teacher-centred teaching methods used in the present formal education systems negates the constructivist theory which believes that children actively construct their own knowledge, rather than simply absorb and memorize ideas spoken to them by teachers.

Developmental appropriateness

Unlike the South African participants, the Kenyan participants highlighted the principle of building knowledge and knowledge delivery from the known to the unknown basing on the learner developmental stages. The participants pointed that learner friendly curriculum content and pedagogy are crucial elements in the process of developing an all-inclusive curriculum based on efforts to reconnect the process of education, enculturation and human development to the well-being of community life (Knapp, 2014). These participants noted that African indigenous knowledge comprises skills and knowledge which were learnt

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using participatory pedagogies in stages based on age, gender, and even area of specialisation. Citing the integration of simple ogre stories at childhood education as an example and complex indigenous technologies of cultivation and mineral extraction at higher levels, the participants proposed a careful selection of viable IK knowledge content to be integrated at every stage and age of learning as well as appropriate 'learner friendly' pedagogies to be used to implement them.

The Kenyan participants also believed that indigenous education approaches can augment learning processes in formal education contexts, contribute to the transformation of African educational curriculum, and make them more relevant to their context (Potokri, 2016). Participant K2 confirmed that "*a focus on the approach, level/grade of learner and relevance should be considered in curriculum delivery. Knowledge should be built from known to unknown*" with the majority of the respondents proposing the introduction of IK items in grades based on the level of difficulty of the concept and relationship of the IK concept with the subject of inclusion. However, Mudaly & Ismail (2013) point out that an important pedagogical implication is that teachers need to have a conceptual knowledge of indigenous knowledge which is germane to the area in which they operate if they are to teach it effectively. One participant, K6, exceptionally opined that "*All indigenous knowledge should be integrated in the subjects that will be compulsory…and disseminated at all levels of learning by ensuring that is developmentally appropriate*".

All of the Kenyan participants agreed that some of the IK items have already been integrated and what needs to be done is realignment of that knowledge and appropriation in the current curriculum to suit the needs of current society. Most participants realized that all the stakeholders equally have the responsibility in ensuring that IK is integrated in appropriate grades and subjects in school curriculum and effectively implemented if education is to yield African sustainable development. However, they proposed that KICD

should consider incorporating IK during curriculum development process in order to provide a blended knowledge that reconciles the IK of the learners with modern knowledge that enables effective learning (Hewson, 2015).

Knowledge 'demarginalisation'

The conversations that took place around the principles that could guide integration of Indigenous Knowledge into the school curriculum created a new word; 'demarginalisation'. Demarginalisation is not an English term; however, it was used by the participants to represent the act of reconsideration of knowledge that had initially been marginalised and the all-inclusive processes that take into account the relationship between community projects and learning objectives. For Msila (2009) representation of IKS in formal education contexts provides an opportunity for an inclusive approach to education. In harmony with Msilas' view, a majority of the participants from Kenya and South Africa expressed their view that IK should be integrated with other knowledge rather than isolated as a parallel form of knowledge. The above inference is also purported in Sefa Deis' (2000) literature argument that integration of IK into academies is to recognise that different knowledge can co-exist, different knowledge can complement one another, and also that knowledge can complement and conflict at the same time.

When the participants outlined the exclusion of the role of community's knowledge in the current westernised modern education system they pointed out that it lacks contextual relevance (Shava, 2016). They highlighted that African indigenous knowledge, including culture and local languages, have been marginalised in the school curriculum for a very long time, and that today there is a need for its appropriation and integration in order to solve local problems. This has led to various calls for Africanisation that involves the adaptation of the

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subject matter and the teaching methods geared to the physical and cultural realities of the African environment (Letsekha, 2013).

Most of the respondents pointed out that the selection of IK content for integration should be an all-inclusive process that takes into account the relationship between community projects and learning objectives. This approach resonates with the call for adoption of Place Based Education (PBE) in schools (Gruenewald, 2003). The rationale for Place Based Education is premised on creating opportunities for young people to learn about and care for the ecological and social wellbeing of the communities they inhabit, and the need to connect schools with communities as part of a concerted effort to improve student engagement and participation (McInerney & Down, 2011; Bowers, 2005; Gruenewald, 2003).

All of the Kenyan participants outlined curriculum infusion of IK to foster socially oriented learning, develop the mind and the intellect for rigorous community activities as advocated by Emeagwali (2003) and "*preferably what will benefit across all the other communities as well and it should be IK that has a positive impact on the lives of human beings*" (participant K4). Participants also opined that IK content should be strategically positioned to improve the quality of teaching and learning of other knowledge. This opinion concurs with Gumbo's (2016) proposed idea that infusion of indigenous technologies in the curriculum has the potential to make teaching and learning relevant for learners, especially indigenous learners.

Both the South African and Kenyan participants shared a perception that indigenous languages and culture have been marginalized for a long time in school curricula and they thought that it is a fundamental barrier to the process of integration of IK in school curricula. Education of whatever form becomes successful when it is user friendly and underpinned by the peoples' culture (Sesanti, 2016). All South African respondents strongly called for

"*Diverse forms of knowledge and multiculturalism as experienced by the citizenry*", which they claimed to be representation and consideration of the African multiple cultures as a basis for integration of IK in the school curriculum.

6.   EMERGING THEMES

When analysing the data two themes emerged which were not based on the research questions, but which ran as a clear thread through the Imbizo/Baraza narratives and the individual interviews. These two issues were the use of the Imbizo/ Baraza as an African methodology and the poor documentation of Indigenous Knowledge.

Imbizo/Baraza as an African methodology

The South African participants thought that using an Imbizo to gather information on Indigenous Knowledge in relation to the curriculum was a new, appropriate and more contextual method of gathering the participants' experiences on IK and the school curriculum. They said that they were impressed by the fact that the Imbizo allowed an 'outflow of IK ideas' between participants and offered an opportunity to really get to understand the perceptions and understanding of common IK issues amongst themselves. One South African participant, S1, shared that the Imbizo:

> "*brought back old memories… what the Imbizo did was to get us think about it again and look at it from different angles and get to hear what the other people think about the story because that is what is being lacking everybody else has his own ways of interpreting the story*".

In an interview, participant S3 expressed how the Imbizo allowed a free sharing of ideas and perceptions of IK by saying the Imbizo:

"Was very much meaningful to me. It sets eh… a tone where people can express themselves freely and eh it allows for example for the outflow of ideas from one's mind and in the process, it affords one an opportunity to get to know how do other people that are part of Imbizo perceive what you understand as an individual".

All of the South African participants attested that when they used their own indigenous language in the study Imbizo it aroused them to trace their cultural roots and IK (Msila, 2016), and proposed that a follow up Imbizo and a joint book and newsletter publications of indigenous knowledge that arose from their discussions be considered. Concerns were raised that:

"There are important views that have been raised here [in the Imbizo] *if we just leave them they will disappear into thin air"* (Participant S4).

"Beyond this Imbizo we can sit and plan how we can capture all these and make it a project" (Participant S1).

"We must meet and have our own Imbizo and extend this discussion I propose a book. We can have solid chapters" (Participant S2).

"We can have a book with stories aiming at little children. And we can have an academic book." (Participant S7)

The reason that prompted the participants to think of writing on IK suggests that they know that there exists so much relevant IK out there which has not been documented and that there are no forums to reinforce and preserve it and thus there is need for more publication in the field of indigenous knowledge.

All the three participants interviewed in the Kenyan case commented on the use of Baraza as a suitable method to access participants' attitude, experiences and perceptions of IK in the school curriculum. Similar to South African participants, Kenyans supported the use of the local language, Nandi, in the Baraza discussion pointing that it was most appropriate particularly in expressing traditional cultural terms and experiences that would not be authentic when expressed in English language (Brock-Utne, 2006). Participant K5 said *"language was not a barrier to our discussion and so…the Nandi part of the discussion helped us to share our understanding of eh… okey…Nandi values yaah and cultural knowledge deeply"*. All of the Kenyan participants commented on the Baraza approach to research stating that it upholds the heritage of the community in the academic field with the majority proposing that Kenya Institute of Curriculum Development (KICD) should take advantage and use such forums to select common relevant IK content for integration into the school curriculum.

Generally, participants from both cases revealed that it is difficult to share IK experiences and culture purely in a second language like English because culture is symbolic (Shava, 2009) and said that even if it can be done, *"you find that the context of the knowledge like the proverbs, folktales, riddles etc. gets distorted"*. All of the participants called for the use of the African methodologies to enhance and contextualize African research. These findings concur with Higgs (2003) who points out that an African philosophy of education needs to empower communities to participate in their educational development by enhancing the experiences of the learners and teachers. The participants' idea of the Imbizo/Baraza as an African methodology conforms with Shizha's (2013) notion when he points out that pedagogical practices that integrate history are also conducive to a reconstructed curriculum that incorporates reality as perceived from different culturally historical moments.

Poor documentation of IK

While the participants from both countries were concerned that despite its relevance to problem solving and sustainable development, preservation of IK was threatened if the initiative to integrate it into the school curriculum is not taken seriously, it was emphasized more by the Kenyan participants. Participant K8 said this is because of "*profiling and documentation that is missing or the language, but they exist*". Participants owed poor documentation of IK to its oral form of transmission (Shava 2016). Participant K3 said "*... this indigenous knowledge was basically orally transmitted and when modernity came in, we discarded that... that is why this indigenous knowledge is disappearing because we didn't document*".

Most Kenyan respondents thought that IK is a very wide useful body of knowledge whose dormancy is partly attributed to non-documentation and implementation not clearly stated by the curriculum policies just as participant K1 said "*that adequate documentation is missing*". Unsuccessful integration of IK is also traced to urbanization and modernization which has resulted to reduced social interaction and knowledge sharing with indigenous wise people in the society. This finding is congruent with the idea of De Beer & Van Wyk (2011) who posited that one of the reasons for lack of integration of IK is lack of literature and books on indigenous knowledge. Participants emphasized on factors that deter valuation of IK in the curriculum as:

"*Old folks no longer tell these stories to children. Not much has been written clearly about such stories of the Nandi community. What is available is in a few books available to scholars only. No forum for internalizing those kind of knowledge*" (Participant K4).

Participant K1 attested to his experience of Nandi riddles as an example of IK, by saying:

"I remember our parents telling us [tongoch? cho!!] an introduction part of a Nandi riddle *and sometimes I would like to remember some of those Nandi riddles but there is no document that you can reference such important knowledge in school"*.

The above sentiments were echoed amongst the South African participants who were also concerned that most of the African history in the curriculum is not written by Africans and not represented well thus not owned by Africans (Gumbo, 2016). Notably, participant S1 said "*It's our history* [Nongqawuze and the cattle killing story]. *The only problem is that it was not written by and owned by IsiXhosa speakers*".

7. LIMITATIONS OF THE STUDY

The first limitation of this study is that it only included 10 academic staff members in teacher education from two African Universities; One in the Eastern cape and one in Uasin-Gishu –Kenya. These groups, which were Xhosa natives of the Eastern Cape and the Nandi of the Western Highlands of Kenya, only represent a small fraction of the teacher education staff members in these universities. The study is therefore relatively small-scale and its findings cannot be generalised to the whole population of university academic staff or to all other African Universities. The fact that I, as the researcher, do not speak isiXhosa nor am I a Xhosa native might have limited the free expression of sensitive cultural issues and knowledge and also supressed participation during the Imbizo discussion. Also, in the process of translation and transcription of data from isiXhosa to English there might have been loss of meaning.

These limitations were kept in mind throughout the study and I had close support from an isiXhosa speaking assistant (more accurate term perhaps should be co-researcher)

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throughout my time in South Africa who helped me in terms of navigating cultural issues and enabled me to be accepted by the Xhosa group of respondents both in terms of them participating in the research and accepting me as part of the Imbizo. The same co-researcher, who has postgraduate degrees in education and hails from a deep rural area of the Eastern Cape (Transkei), is also a qualified isiXhosa-English language translator, and transcribed and translated the isiXhosa when it was used (for example, the audio-recordings of the Imbizo). We also employed member checking with the respondents to ensure that our understandings and perceptions were appropriate and relevant. The responses from the Xhosa participants, who hail from urban and rural parts of the Eastern Cape, were so unanimous that I would be very surprised if their feelings would not be similarly reflected by another group of Xhosa teacher educators in another university in the Eastern Cape. In the Kenyan case I am a Nandi native and issues of language and acceptance were not of any hindrance. As such, despite the limitations noted above, I am satisfied that this study meets an acceptable level of credibility and trustworthiness to support the claims that are made.

8.   IMPLICATIONS AND RECOMMENDATIONS

This study was able to explore teacher educators understanding and perceptions of value, place and position of Indigenous Knowledge in the school curriculum by using questionnaires, the Imbizo/Baraza method and individual semi-structured interviews. The study also managed to explore some of the principles that teacher educators believe could be used to integrate IK into school curricula. These findings have implications for teacher development, curriculum development, and further research in the field.

Despite the provision for integration of IK in current curriculum policy documents, it appears that it is still not clear to teacher educators what IK should be taught, where and when it should be taught, exactly why each item should be taught, or how things should be

taught. There appears to be no underpinning pedagogical structure to curriculum development that includes IK, for example Place-Based Pedagogy/Education and, as such, it would probably be helpful for teacher educators to consider the types of pedagogical approaches that could contribute to integrating IK into the school curriculum in their teacher training programmes.

Similarly, it seems sensible to suggest that teacher educators should research ideas related to IK that could be beneficial to the majority of the learners' in particular geographical and social contexts and develop learning materials to suit their needs. Involving as many as possible education stakeholders in the development of curriculum should result in a realistic curriculum that will not receive resistance at the implementation stage. Thereafter policy makers should have a framework for policy changes and be able to assess and review their implementation at school level.

As noted earlier, the scope of this study is limited and, as such, a number of recommendations for further research can be made. For example, it would be helpful to undertake a comparative assessment of the stakeholders' perceptions of indigenous knowledge in the school curriculum among the learners and the teachers in Kenya and South Africa. Similarly, it would be interesting to know the effects of teacher perceptions of IK on their implementation of IK integrated curriculum in primary schools and the extent to which teacher training curricula in Kenya and South Africa embrace the integration of IK. Another question is what are the implications of integrating local languages in the University curriculum in Kenya and South Africa, as well as the implications of multiculturalism and urbanisation on the integration of mother tongue languages in the school curricula in Kenya and South Africa.

9.   CONCLUSION

The findings of this study suggest that teacher educators in African universities feel that the time is ripe for teacher education to be linked to African experiences (Msila, 2016). Indigenous knowledge is now being considered to be an essential body of knowledge that can be integrated in the school curriculum to make teaching and learning contextual and meet dynamic needs of the society. There are various forms of IK items from one community to another that can be differently classified ranging from technological, science, cultural environmental etc. The choices around these items of IK into the mainstream curriculum has resulted in debates between scholars claiming marginalisation of indigenous knowledge and others critiquing the extent to which the current curriculum reflects the changing needs of the society in this millennium. Claims have been made that there is no commitment to integration and implementation of IK in the modern curriculum that is dominated by western culture.

Current literature highlights the marked neglect of IK at the implementation level despite curriculum policy documents providing for it (Gumbo 2016). Motivated by the belief that teacher educators and teachers have a significant influence on curriculum implementation, this study focused on an investigation of Xhosa and Nandi teacher educators' perceptions of value, place and position of IK in the school curriculum and principles that could be used to integrate IK in the curriculum.

Although the participants' definitions of IK were varied semantically, the data revealed that they all had a common conceptual and comprehensive understanding of indigenous knowledge. It was evident that participants understood IK as place based knowledge that comprises indigenous skills and practices that defines survival and way of life of people related by a common culture and locality. The, participants also generally defined IK as mainly oral and trans-generational knowledge derived from interaction with the

environment, lived experiences, games and language. The study revealed that some participants understood IK as a way of knowing related to society values and culture that facilitates peoples' meaning-making and understanding the world and its realities.

The participants in this study strongly argued that IK is embedded in local languages and that the fundamental step in integration of IK in school curriculum should include the integration of local languages in the curriculum. Most of the participants strongly proposed the use of local languages in teaching other subjects and as a language of instruction at early childhood education. In history and culture, indigenous knowledge valued by participants ranged from traditional dances, cultural sites, taboos, norms beliefs and even African religious practices that regulate behaviour. The participants lamented that the current primary history content in South Africa represents very little African history to a lesser extent and advocated for a more inclusive curriculum. Various agricultural and environmental skills that participants valued were highlighted. Indigenous agriculture which includes; the use of animals for ploughing, the use of farm manure, growing traditional vegetables and drought resistant seeds and traditional pest control were outlined. Traditional grain and milk preservation, local brewing of porridge and alcohol as well as indigenous ways of predicting weather by observing animal and plant behaviour were also identified by most participants as valued indigenous skills. The value and use of herbal medicine in treating various illnesses was outlined and their desire for its integration in the school curriculum was expressed. Scientific and technological skills such as traditional house constructions, weapon making, visual design skills, weaving pottery and textile skills were also shown to be valued by the participants. Overall the participants called for inclusion of IK in the modern curriculum to make learning more accessible and interesting.

The participants recognised that for successful achievement of education goals, one should strive to balance indigenous knowledge and other forms of knowledge in any education curriculum. While the South African participants did not clearly outline place and position for each valued IK item highlighted in the school curriculum, most of the participants in both groups argued that the education system should be guided by research and that a task team should be commissioned to consultatively come up with proposed IK divided into themes that can easily be categorized into subjects and placed into grades. The Kenyan participants were able to specify subjects they would want integration of specific IK items outlined however both cases did not specify the appropriate grades of integration. While the South African respondents called for ubiquitous integration of IK, the Kenyan participants proposed that only relevant and common IK items cutting across communities be integrated in the school curriculum. They also advocated that the Kenya Institute of Curriculum Development should plan for an all-inclusive curriculum development process by integrating IK at the curriculum development stage and clearly outline possible and realistic ways of implementing IK integrated curriculum at the school levels.

'Demarginalisation' was a strong issue in terms of being a principle for integrating IK in the school curriculum, which can be likened to 'the politics of recognition' noted by Hodson (2009) and social justice for the marginalized (Dei, 2000). The respondents noted that curriculum transformation and implementation entirely depends on education policies which are mainly influenced by political orientations and thus they suggested that political influence should be used to get IK content integrated appropriately and implemented in the school curriculum. The relevance of the knowledge to be integrated in the curriculum was also highlighted as a major principle. The participants proposed that content selection of IK that adds value to the life of the learners and its evaluation should be done prior to integration and implementation follow-up and research should be carried out. Participants also proposed

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that selection and grading of IK content to be integrated in the school curriculum should take into account the learners' developmental stages and grades. They pointed that the level of difficulty of the knowledge concept should be put into account while placing knowledge into curriculum in order to comprehend learning. Finally, an inclusive education approach was proposed in which both modern knowledge and IK are intertwined in the curriculum in order to serve the current needs of society in general and those of indigenous cultures in their natural contexts.

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APPENDIX A: THE CONUNDRUM OF THE CATTLE KILLING

THE STIMULUS STORY

The conundrum of the cattle killing

Jeff Peires writes that one day in April 1856 two girls walked down to the fields near the Gxara River to scare the birds away from their crops. There they met two tall strangers who said:

'Tell everyone at home and the whole Xhosa nation that our ancestors will rise from the dead in good health from the ground on one day if all living cattle are killed and no new crops are sown. Great herds of fat cattle will appear for the people, the grain pits will be filled, and the arisen will drive the white man from our lands into the sea forever'.

The elder of the two girls, Nongqawuse, asked 'Who are you?' and they whispered the names of two people who everyone knew to be long dead. She then asked 'Who sent you? They replied 'Chief Napakade the eternal, son of Sifuba-sibanzi the broad chested one'.

Nongqawuse told her uncle (small father) Mhlakaza, who had adopted her when she was orphaned during a battle in the Amathole Mountains, of what she had heard. Mhlakaza, who after living in Grahamstown, being baptised into the Methodist church, and serving the Anglican Archdeacon Merriman as an interpreter, had become to be seen by many as great prophet. In 1856 he had left the Archdeacon and established a kraal east of the Kei near the Kobonqaba River in 'Xhosaland', outside of British rule.

Mkhalaza's reputation had grown to such an extent that Sarhile, king of the Xhosa people east of the Kei River, began to use him as a councillor. He began to eloquently, energetically and widely spread the words spoken by Nongqawuse. Hundreds of people flocked to the Gxara pool where the prophecy had taken place. Nongqawuse had whispered conversations with the 'new people' who would arise and showed them dim black shapes rising and falling in the sea. Some people said they had heard the voices, others said they could not. Some said that they had seen the shimmering shapes of the 'new people' beneath the glistening surface of the Gxara pool. Others saw nothing.

Most importantly, Sarhile believed and he ordered his people to kill their cattle.

The nation was divided into the believers and the unbelievers. Makhalaza began to make more and more prophecies around the cattle killing. When his prophecies did not come to pass he blamed the unbelievers for not killing their cattle. The chief believed him and more cattle were killed. When Mhakalza's many prophecies still did not happen he blamed their failure on the shoulders of the *amagogotya* – the 'stingy ones' who would not kill their animals and had sold

them. Eventually the number of believers overwhelmed the unbelievers and their cattle were slaughtered for them. Nongqawuse then named the 3rd of January, 1857 as the day of the great uprising.

The day dawned and nothing happened. Thousand starved to death and the population of the region fell by 80%.

Many survivors set off for the White towns. There were sympathetic white people who set up soup kitchens, but Sir George Grey stopped them. He explained that he had stockpiled food for the foreseen starvation. He did distribute food, but it is said that he only gave it to those who signed contracts for farm labour in the Cape Colony. In this way land was emptied and he was able to allocate it to white farmers. He also imprisoned a number of Xhosa chiefs on Robben Island.

How can this incredible story be explained? There are a number of perspectives which have been put forward. Amongst them are the following.

(i)   Sir George Grey hid in the reeds at the Gxara pool and whispered to Nongqawuse and she believed him. Others say the 'ancestors' she saw were black agents for his plan to break the Xhosa nation

(ii)   Nongqawuse was bribed and is therefore 'one who can never be forgiven'.

(iii)   It was the white missionaries fault because their message of 'resurrection' gave hope to the Xhosa people

(iv)   It was Mhakalaza's fault because he was a skilful orator, adapted Christian messages about 'resurrection' to suit his own purposes, and would not back down when his prophesies did not come true

(v)   The Xhosa people were devoid of hope and their cattle were dying of 'lung sickness' anyway, so they had little to lose by believing the prophecies

(vi)   Sir George Grey had nothing to do with the cattle killing, but did use its aftermath to his advantage and the disadvantage of the Xhosa people

Jeff Peires, renowned historian, author of the '*The House of Phalo*' and '*The Dead Will Arise*' (which informed Zakes Mda's novel *The Heart of Redness*), and who later represented Ngcobo for the ANC in the National Assembly, wrote a chapter in *Radical History Review* on the cattle killing catastrophe. Much of what has been written above has been taken from his chapter and his book *The Dead Will Arise: Nongqawuse and the Great Xhosa Cattle-Killing Movement of 1856-7.*

Please read Professor Peires' chapter *'Suicide or Genocide? Xhosa Perceptions of the Nongqawuse Catastrophe'* before you answer the questionnaire.

Note: The above representation of the issues around the cattle killing was written by Paul Webb and translated by Kholisa Papu for Janet Ronoh's use as reflection stimulation piece for her MEd research study on the place and position of indigenous knowledge in the school curriculum.

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The Girl Nongqawuze
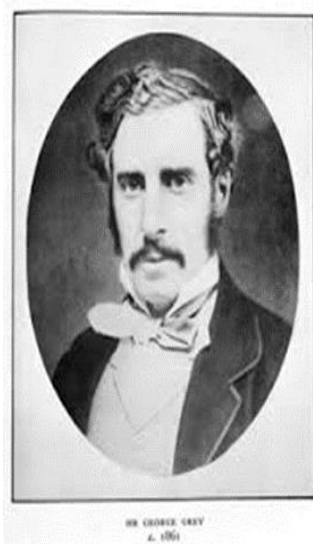
Sir George Grey

King Sarhili

APPENDIX B: ISIMANGA SIKANONGQAWUSE

THE ISIXHOSA TRANSLATED STIMULUS STORY

Isimanga sikaNongqawuse

UJeff Peires uyasibhalela ukuba ngenye imini ngenyanga ka Tshazimpuzi (kuEpreli) kumnyaka ka 1856, amantombazana amabini ehla esiya emasimini akafuphi nomlambo iGxara eyokugrogrisa iintaka ukuze zingasondeli ezityalweni. Phaya badibana nabantu ababini, abade nabangabaziyo abaye bathi kubo:

'Xelelani bonke abantu kowenu nesizwe sonke sakwaXhosa siphela ukuba izinyanya zethu zovuka emangcwabeni ngenye imini ziphile qete ukuba zonke iinkomo eziphilayo ziyabulawa; futhi akukho zithole zityalwayo kwakhona. Imihlambi yeenkomo ezityetyisiweyo zobonakala phambi kwenu, oovimba boophuphuma, nabangasekhoyo bovuka emangcwabeni babaqhubele elwandle abamhlophe, bemke amhlabeni wethu naphakade'.

Omdala kula mantombazana mabini, uNongqawuse, wabuza 'Ungubani ke wena?' Bona basebeza amagama amabini abantu ababesele belandulele eli. Waphinda wabuza, 'Nithunywe ngubani?' Baphendula ngokuthi 'nguNkosi uNaphakade, unyana ka Sifuba-sibanzi'.

UNongqawuse waxelela utatomncinci wakhe yonke into ayivileyo. uTatomncinci wakhe uMhlakaza wamthathela kuye wamkhulisa emva kokuba abazali bakhe bebulewe kwimfazwe eyayikwintaba zaseAmathole. uMhlakaza, emva kokuhlala eRhini, wabhaptizeshwa kwicawa yamaMethodi, iWesile, esebenzela iNtsumpa (umdikoni) yamaAnglican uMerriman njengetoliki, wayesaziwa ngabaninzi njengomprofethi omkhulu. Ngomyaka ka 1856 wayishiya iNtsumpa leyo yenkonzo yamangesi (uMdikoni) wakha ubuhlanti empumalanga yomlabo weNciba kufuphi nomlambo iKobonqaba esizweni samaXhosa, ngaphandle kwempatho yamaNgesi.

Intsebenzo nesidima sikaMhlakaza sasibalasele de neNkosi yamaXhosa uSarhili, owayehlala emphuma yomlambo iNciba wamenzauCeba/uMcebisi. Umhlakaza waqalisa ukubalisa ngobuciko nangokudlamka amazwi athethwa nguNongqawuse. Amakhulu abantu adibanela kwichibi iGxarha apho isiprofetho safikela khona. uNongqawuse wayemane esebezelana 'nababantu batsha' ababezakuvuka kwabafileyo bababonise icimi-danya wezithunzi ezazimane zivela elwandle. Abanye abantu bathi bave amazwi, bambi bathi khange beve nto. Bambi bathi bazibonile izithunzi ezazingucimi-danya kwakweli chibi iGxarha. Bambi zange babone nto.

Okubalulekileyo, uSarhili wamkholelwa wayalela abantu bakhe ukuba mabazibulale iinkomo zabo.

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Isizwe sohlukana kubini, banbi bangamakholwa, bambi ababi ngamakholwa. UMhlakaza waqalisa ukuvakalisa iziprofetho ngeziprofetho malunga nokubulawa kweenkomo. Zisakungafezeki iziprofetho zakhe waqalisa ukutyhola abo bangengomakholwa ngokungazibulali iinkomo zabo. Inkosi yamkholelwa inkomo zabulwa ngakumbi. Zisakungenzeki kwakhona iziprofetho waphinda watyhola abo bagcisayo ngezabo iinkomo esithi ngamagogotya athengisa imfuyo yabo endaweni yokuyibulala. Exesheni inani lamakholwa labalininzi ukogqitha elabo bangakholwayo neenkomo zabo zabulawa bejongile. Ngoko, uNongqawuse waxela umhla 03 kweyoMqungu 1857 njengemini yovuko olukhulu.

Olosuku lwafika akwenzeka nto. Amawaka abantu alamba de asutywa kukufa nenani labemi yaloongingqi lehla ngamashumi asibhozo ekhulwini.

Abaninzi abasindayo bathi chu ukuya kwidolophu zabamhlophe. Kwakho abantu abamhlophe ababanovelwano babanceda ngokutya nodwa uMunzana George Grey wabanqanda. Wacacisa ukuba ebegcine ukutya okuninzi koovimba esenzela lo mhla wendlala ude wafika. Wakwaba ukutya kodwa kodwa kuthwa wakunika abo batyikitya izivumelwano sokusebenza iifama zeeNtshona Koloni. Ngolu hlobo umhlaba wamaXhosa wabalikheswa waze wawabela abamhlophe. Wabamba nenani lnkosi ZamaXhosa wazivalela kwisiqithi iRobben Island.

Zingacaciswa njani elibali limangalisayo? Zininzi iinkalongenkalo esezivelelwe. Ezinye zazo zezi zilandelayo:

(i) UMnumzana uGeorge Grey wazimela ezingcongolweni kwichibi iGxarha wasebezela uNongqawuse naye wamkholelwa. Abanye bathi ezi 'zinyanya' wazibonayo yayingabasebenzisana noGrey kwiyelenkqe lakhe lokuchitha isizwe esintsundu.

(ii) UNongqawuse wanyotywa yaye 'nguye omakangaze axolelwe'.

(iii) Ityala libekwa kubafundisi bamaKrestu kuba iintshumayelo zabo zovuko zanika amaXhosa ithemba

(iv) Ityala libekwa kuMhlakaza kuba wayelichule lokuthetha, eguqula imfundiso zobuKrestu zokuvuka kwabafileyo ukuze zihambelane neenjongo zankhe, yaye zange arhoxe xa iziprofetho zakhe zingazange zenzeke.

(v) Abantu bakwaXhosa baphulukana nethemba yaye neenkomo zabo zazisifa sisifo semiphunga kakade, futhi kwakukuncinci ababezakuphulukana nako xa bezikholelwa ezi ziprofetho.

(vi) uMnunzana uGeaorge Grey zange abenanxaxheba ekubulaweni kweenkomo kodwa wakusebenzisa ukufa kwazo njengenzuzo kuye nangona ukufa kwezi nkomo kwabayilahleko kumaXhosa.

uJeff Peires yingcaphephe eyaziwayo yezifundo zembali, ukwangumbhali wencwadi ethi '*Indlu kaPhalo'* (*The House of Phalo*) nethi '*Bakuvuka abafileyo'* (*The Dead Will Rise)* neyabasisiseko sencwadi kaZakes Mda ethi '*Intliziyo Yobubomvu'* (*The Heart of Redness*). Lo kaPeires wandula wamela iNgcobo kumbutho kaKhongolose (ANC) KwiNdibano kaZwelonke, waze waphinda

wabhala isahluko kwincwadi yembali ethi *'Radical History Review'*, ebhala ngesi sithwakumbe sokubulawa kweenkomo. Okuninzi okubhalwe apha kucatshulwe kwesi sahluko nakwincwadi yakhe ethi '*Abafileyo Bovuka: UNongqawuse nenyhikityha yokubulawa kweenkomo zamaXhosa ngo 1856-7'* (*The Dead Will Rise: Nongqawuse and the Great Xhosa Cattle-Killing Movement of 1856-7.*).

Nceda ufunde isahluko sikaNjingalwazi Peires esithi '*Ukuzibulala okanye Ibulawo'Imbono zamaXhosa zesithwakumbe sikaNongqawuse' (Suicide or Genocide? Xhosa Perceptions of the Nongqawuse Catastrophe) phambi kokuba uphendule Imibuzo yolu phando.*

Qaphela: Le nkcazelo ingentla ngemiba ehambisana nokubulawa kweenkomo zamaXhosa ibhalwe nguPaul Webb yatolikwa nguKholisa Papu eyitolikela uJanet Ronoh ukuze ayisebenzise njengesikhumbuzi kuphando lwakhe lwezifundo zeMaster yeEducation. Izifundo ezo zakhe zidilishana nendawo nobume bolwazi lwemveli kwiKharithyulum yesikolo.


Iincwadi ezisetyenzisiweyo (*References*)

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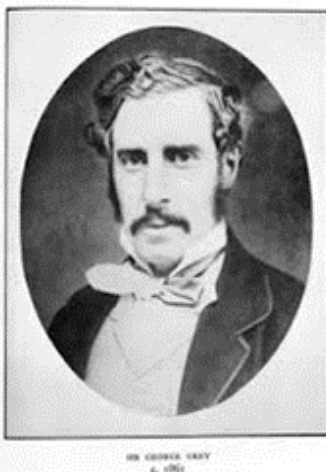
Sir George Grey

King Sarhili

APPENDIX C: THE NANDI RESISTANCE

THE STIMULUS STORY

The Nandi resistance

The Nandi resistance was a military conflict that took place in present day Kenya between 1890 and 1906. It involved the Nandi community and elements of the British Army. Nandi was the strongest community in Kenya because they had a well organised army. In the late 19th century, the Nandi was the dominant community in the rift valley Kenya having replaced the dreaded Uasin Gishu Masai. The Nandi were a raiding community that had proved to be an obstacle to British efforts to build the Uganda railway through surprise attacks on the British in 1899 and continued guerrilla warfare. Some of the reasons for their resistance were to keep Europeans from invading their territories, building the railway line through their land and to defend their freedom. The whites' action of killing the Nandi warriors around Guasa Musa camp in 1895 provoked the Nandi who raided the camps of whites murdering two white men.

Koitalel *Arap* Samoei born in 1860 was an 'Orkoiyot' (the Nandi prophet), the supreme chief of the Nandi people of Kenya who was enthroned in 1885. He led the Nandi resistance against the British colonial rule. He followed his father Kipnyolei *Arap* Turukat who was put to death in 1890 by clubbing for the failure of one of the fighting units in raiding expeditions. It is believed that the Orkoiyot had been disturbed and coerced by the Nandis who gave him pressure to allow them go to the raid even though it was not safe. They went to war in protest and the warriors were killed and that infuriated the Nandis who stoned him to death. Kipnyolei is said to have foreseen his death and had instructed his sons, Kipchomber *Arap* Koilegei and Koitalel *Arap* Somoei not to accept authority of leading the Nandi after his death.

Orkoiyot Kipnyolei prophesised on the coming of the 'devils' (foreign people) who would subdue the Nandi community and rule them and that one day there would come a big snake from the Indian Ocean through the Nandi Land belching fire and smoke, going to quench its thirst in

Lake Victoria and this turned out to be the Uganda railway which infuriated the Nandi into resisting the whites' rule. They believed that the Europeans were devils because of their clothes and colour. Their thinking was reinforced by the sound made by the European guns which was similar to sound made by the Nandi women skin cloth when hit during a tribal dance. The Nandi recognised the British as the devils that Kimyolei predicted would rule them and fought them vigorously in a vain effort to ensure that the prophesy would not come to pass.

The British were known to easily subdue any tribes that resisted them by invading their villages and burning down crops and everything else thus starving the survivors into submission. Orkoiyot Koitalel *Arap* Samoei was appointed to direct war against British. When British colonials began building the Uganda railway through the Nandi area, he led an eleven-year resistance movement against the railway since the Nandi community did not want it to pass through their land and they desired to remain independent. The success of the many raids organised by the Orkoiyot increased his power.

British Col. Richard Meinertzhagen believed that the death of Samoei would weaken the Nandi resistance on colonial rule. The British organised one of the strongest punitive forces to be employed in East Africa. It is believed that Koitalel *Arap* Samoei was betrayed by one of his disciples i.e. one of the people in his counsel because Col. Richard could not have penetrated Koitalels' security hierarchy. It is also said that he had prophesised that he was going to be betrayed by his own Nandi people. Sources indicate that he even organized his last supper, where he ordered slaughtering of a bull and he told his wife that he had been called by the 'Mzungu' (European) but felt he might not come back. It is also believed that he cursed his betrayers and the Nandi by performing a ritual of piercing the tongue of the slaughtered bull with thorns, roasted it and ate it as a sign of a curse to his betrayers. On October 19th 1905 on the ground of what is now Nandi bears club, Koitalel was asked to meet Col. Richard Meinertzhagen under the guise of negotiating a truce. Koitalel had been advised by the elders not to shake the hands with the 'Mzungu' (European) during the peace conference because if he did, that would give him away as the leader. He defied and extended his hand and was instead shot immediately and assassinated in cold blood along with his 22 companions who were his chief advisers. He was beheaded and his head was taken to a museum in Britain, and the assassinator took the leader's

three secret African tribal sticks that represented three arms of government 'Samburto' i.e. the military, priesthood and the administration.

The Nandi became disorganised after that, a peace conference was held on 15th December 1905 with terms of conference being that by 15th January 1906 the Nandi were expected to have moved to a reserve whose boundaries were drawn by the colonial government and that force would be employed to compel the resisting Nandi to move to the reserves. The Nandi were not willing to move but their houses were burnt, crops destroyed and all their animals seized. Official records show that 2500 Nandi were killed and six wounded with approximately 90 military killed, finally land was allocated to European settlement. Koitalel's son Barsirian *Arap* Manyei born in 1882, later became the Nandi leader from 1919 until 1922 when he was detained by the British. He was not released until 1964 making him the longest serving political prisoner in Kenyan history. Today Koitalel Samoei is considered the greatest leader that the Nandi ever had. He is considered as a Nandi Hero and a mausoleum has been built in Nandi hills in his commemoration. A University is also being set up in Nandi County in commemoration of what he stood for.

How can this incredible story be explained? There are a number of perspectives which have been put forward. Amongst them are the following:

(i)   Koitalel Samoei was killed because he defied his father's instructions not to take over the Nandi leadership after his death.

(ii)   Orkoiyot Samoei was assassinated after a betrayal by some Nandi community elders.

(iii)   It is believed that the event unfolded as had been prophesized by the Orkoiyot Kipnyolei.

(iv)   Arap Samoei was not blessed by his father to be a prophet otherwise he would have predicted his death and avoided the peace meeting.

(v)   Some people think that Arap Samoei was betrayed by his disciples just like Jesus.

Note: The above representation of the issues around the Nandi Resistance was written by Janet Ronoh and translated by Stephen Kipchumba for Janet Ronoh's use as reflection stimulation piece for her MEd research study on the place and position of indigenous knowledge in the school curriculum.

Note: Please read the Nandi Resistance story before you answer the questionnaire.

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Arusei, E. & Tanui, P. (2011). Historical injustices and ethnic conflicts in the Rift Valley: The case of the Nandi. *International Journal of Arts and Education, 1*(2) 28-31.

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APPENDIX D: BORIETAP NANDIEK AK CHUMBEK

NANDI TRANSLATED STIMULUS STORY

Borietap nandiek ak chumbek

Boriet nekiborie Nandiek askarikap lugetap Chumbek eng kenyitap 1890 agoi 1906 kogii luget neo mising eng emetap Kenya. Ki kim bororietap Nandi eng bororiosiek tugul eng emetap Kenya amu kitinyei kandoinatet ne ki tetat nebo luget. Eng kenyitap elibut akenge ak tamanwagik sogol, kokion Nandiek Maasaek komanda eng Uasin-Gishu akon'get icheget ko bororietap bik che change eng Rift-Valley. Kigechin akobokjin Nandiek Chumbek koborei ijek akobutei oretap karitap mat yekingotech. Kiek konogutiet neoo kabokjinet eng Chumbek chekiteche oretap karitap mat ne kiwendi emetap Uganda.

Kibokji Nandiek Chumbek amu kimechei korip emenwa asimabun oretap karitap mat ne kiteche Chumbek. Kiripei kora katiagnatenwa ak kandoinatenwa. Kinerekso Nandiek yekingobar Chumbek askarikap luget chebo Nandi eng notok kobokji keriosiekap Chumbek akobar Chumbek oeng eng kenyitap 1895.

Orkoiyot Koitalel Arap Samoei kokigisichei eng kenyitap 1860. Kindojin inendet Nandiek eng luget neoo nekigiesioi bounatetap Chumbek. Kinam bounatetap kwan Kipnyolei Arap Turukat nekiorkoiyot Arap Samoei eng kenyitap 1885. Kibar Nandiek Kipnyolei Arap Turukat eng kenyitap 1890 yekingebar Nandiek chekigaba luget kobor tugug. Naat kele kiijikji Nandiek orkoiyot komachei ichek koba luget n'ganda kigaeet ogoiyot eng kasarata. Kiingelelji ichek orkoiyot akoba luget nekipkebar chechan'g eng ichek. Kosubkei ak baretap pichotok kokinerekso Nandiek nebokwon'gut akolach orkoiyot Arap Turukat kobar. Kigomaoten meenyi ako kilenji werikchik: Kipchomber Arap Koilegei ak Koitalel Arap Samoei matkoyan kandoinatetap Nandi kogakebar inendet. Kimaoten Kipnyolei kole tun bwonei Nandi 'oik' chenyikorebei bounatet akondochi ichek. Akenge eng bounotosiekap Kipnyolei ko kile tun nyonei ndaret neoo nebunu nyanjetap India neyosu mat ak iyeto, akinyokobunei emetap Nandi

kwendi kotisei melelda eng nyanjetap Victoria ne notok kitok kele oretap karitap mat ak kinerekso nandiek mising akotoi kobargei ak Chumbek.

Kiyan Nandiek kole Chumbek ko ki oik amu ngoroik chekilochi ak lelindap borwekwak. Kikochi tuletap bundukitap Chumbek koyan kole oik iman bichoto. Kigergei tuletap bundukitap Chumbek ak tuletap chepkauyetap kwonyik ye kokikwer eng tien. Kinay Nandiek kole oik chekikomaoten Kipnyolei kole nyikoipei kandoinatetap pikap Nandi ko Chumbek ak kitoi kobargei icheget ak chumbechoto asimesulda maonatep Kipnyolei. Kinootin Chumbek kele ibelisie ichek yekabargei ak bororiet agetugul amu kibokjin nganasosiek akobelei minutik ak kiy agetugul eng noto ko kiiruguti bik kotkokongei kindoji.

Orkoiyot Arap Samoei ko kigilewen inendet kotelelji bororietap Nandiek. Kingotoi Chumbek kotech oretap karitap mat kobun emetap Nandi, kondoji Koitalel boriet ak kapokjinet ne kiip kenyisiek taman ak akenge. Kiigochi kabelisietap kapokjinosiechoto kimnatet neoo Orkoiyot. Kiimongu kandoinatetap askarikap lugetap chumbek Col. Richard Meinertzhagen kole ngebar Orkoiyot Arap Samoei koegu let nebo kapokjinosiekap Nandiek ak kandoinatenwa. Naat kele kin'gweta Orkoiyot chitap ko amu kiribot inne missing. Mwaat kele kisipkomaoten kole n'gwetoi inne bikchik chebo Naandi. Mwaei alake kole kien'y kirgit eng koskolin'gunoto, ako kin'gwomisie, kolenji chepyoset "kakoguro chumbindet ako akose ale maweksei". Kokile kitor n'gelyeptap kirgit nekigaeny en'g katok akoeny akwam en'g koborunet nebo chubisietap koigeny en'g ichek chekin'gwektoi inendet.

Eng tarikitap 19 arawetap taman kenyitap 1905 eng yekigure nguno 'Nandi Bears Club' kokigur Chumbek Orkoiyot kwo kotuiyo ak Col. Meinertzhagen kongalale tetutikap keip kalyet eng kwenunwa. Kigosyikemwachi Orkoiyot kondoik alage chegitoreti inendet kolenji megat Chumbek eng eut yeiwe tuiyenwa amu uyo kegoite kandoinatetab bororietab Nandi.

Kin'gyeit anyun tuiyonoto Orkoiyot ak boisiek chekibendi tugul, kokiigat inendet Col. Meinertzhagen eng eunyi ak eng yotok komwok Col. Richard eng bundukit kobar Orkoiyot ak bikjik tiptem ak oeng che kimi tugul. Kigitil ak keip metitap Orkoiyot kwo emetap chumbek Britain koboto korokwekchik somok chekikoborunetap samburto eng kandoinatenyi.

Kibet anyun kandoinatetap Nandi ak kiit kogur tuiyet Chumbek nebo kalyet. Kitil chumbek kole ki magat ngoitei tarikit 15 arawetap akenge 1906, ko kakou Nandiek kosir kiwoto koba mbaret

nekitilji Chumbek ako agetugul neesio keonei asikarikap lugetap Chumbek. Kiingelelji Nandiek Chumbek koesio kou ako kigibelee ichek korik, minutik akerebee kiagikwak. Naat kele kigibar Nandiek 2500 akiguoten taman akebar askarikap luget tamanwagik sosol ak en'g let kopchejigei Chumbek imbaretap Nandiek.

Kinam anyun kandoinatetap Nandi weritab Orkoiyot Arap Samoei ne kikigure Barsirian Arap Manyei eng kenyitap 1919 agoi 1922 yekigirat inendet Chumbek amakitiach agoi kenyitap 1964. Naat inendet ra ko kiplelutiet ne kigirat kenyisiek chechang mising eng emetap Kenya.

Raani konaat Orkoiyot Koitalel Arap Samoei kele ki kondoindet ne kigim eng kondoik tugul chebo Nandi ako nguno ko kigetech kot eng Nandi Hills nekikigonorji bortanyi akibwote inendet.

Kigotiem koguiyo bik che terchin agobo atindiondonito kou ni:

(i)   Len alage kigibar Orkoiyot Koitalel amu moisub ngalek chekigomwochi kwan kolech menam kandoinatetap Nandi kogamei.

(ii) Ibwati alage kole kigingwekta Samoei kondoik alage chebo Nandi.

(iii) Kigilul bounatetap Nandi kou yekigamaoten Orkoiyot Kipnyolei.

(iv) Kimatakibore koitalel akilul bounatetap Nandi ndakigeberur kwan kometochi kandoinatet.

Note: The above representation of the issues around the Nandi Resistance ko kisirei Janet Ronoh akowaldaji Stephen Kipchumba asikoboisie Janet Ronoh eng somanenyi nebo MEd research ne metinyi ko "…the place and position of indigenous knowledge in the school curriculum."

Kigisiree otindiondoni bukuisiek cheisubi (References)

Arusei, E. & Tanui, P. (2011). Historical injustices and ethnic conflicts in the Rift Valley: The case of the Nandi. *International Journal of Arts and Education, 1*(2) 28-31.

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APPENDIX E: QUESTIONNAIRE (SOUTH AFRICAN PARTICIPANTS)

QUESTIONNAIRE (*South African Participants*)

INDIGENOUS KNOWLEDGE IN THE SCHOOL CURRICULUM: TEACHER EDUCATOR PERCEPTIONS OF PLACE AND POSITION

I, Janet Chepchirchir Ronoh, a master's student at NMMU, am carrying out a research study on "Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position". The information I receive will only be used for the purpose of this study and the participant's names will not be revealed (remain anonymous) and please note that your participation is voluntary and you may withdraw from the process at any time if you so desire.

The questionnaire has two sections. The first section will provide topic related information and the second section will provide biographical data which will help interpret the data. Completing the questionnaire should not take more than approximately 20 to 30 minutes. Please answer all the questions in both sections.

- There is no right or wrong answer (please feel free to use your own sheets of paper if you wish to write more than the space this form allows).
- Please respond to 'boxed' response questions by placing a cross (put in an X) in the appropriate box.
- The term 'native' in this study refers to a person born in a specified place or associated with a place by birth, whether subsequently resident there or not
- **Do not** write your name on the questionnaire.

SECTION ONE

(i)   What is your personal definition of indigenous knowledge?

(ii)   Did you already know about the cattle killing of 1856/7? If so how did you learn about it?

(iii)   If you know the story, is it essentially the same as what was written in the piece that you

have just read? Please elaborate if different.

(iv)   Did it make any difference to you reading the story in isiXhosa or English? Explain your

answer.

(v)   Do you consider knowledge about the cattle killing to be an example illustrating an indigenous knowledge item, system, or another type of knowledge?

(vi)   Is this story well known among the Xhosa people?

Not known at all	Known by some people	Known by most people	Known by everyone

Please elaborate below on your answer.

(vii)   Do you think it is something worth knowing about?

Not worth knowing	Has some worth	Is really important to know	Essential that it be known

Please give your reason(s) below for the choice above

(viii) If you think it is worth knowing about, do you think it is knowledge that should be included in the school curriculum?

YES   NO

Please give reasons for your answer.

(ix)   Do you think the issue of the cattle killing would be of value to other school children who are not Xhosa natives?

YES   NO

Please give reasons for your answer.

(x)   If you think it should be included in the curriculum, where would you place it (subject/s and age level/s)? Please give reasons for your answer.

(xi) What, in your opinion, are the other forms of indigenous knowledge that you value and in your opinion would be worthy to be included in the school curriculum? Please explain and elaborate.

(xii) Which subject(s) and grade(s) do you think is appropriate to integrate the indigenous knowledge listed above?

(xiii) In your opinion, what are the principles that can be/should be used to introduce indigenous knowledge into the school curriculum?

SECTION TWO – BIOGRAPHICAL DATA

Female   Male   Other

Age Bracket

18- 25   26-35   36-45   46-55   56-65   Above 65

What is/are your academic specialisation/s.

Qualification/s

| B degree | Honours (5th year) | Master's | Doctoral | Other (specify) |

Duration of experience as a teacher educator in years

0-5   6-10   11-16   More than 16

Have you ever had the opportunity to incorporate indigenous knowledge into your teaching as a teacher educator? Please elaborate.

Where did you grow up (spend your formative years?). Please comment if you feel it is appropriate.

THANK YOU FOR PARTICIPATING IN THIS STUDY.

APPENDIX F: QUESTIONNAIRE (KENYAN PARTICIPANTS)

QUESTIONNAIRE *(Kenyan Participants)*

INDIGENOUS KNOWLEDGE IN THE SCHOOL CURRICULUM: TEACHER EDUCATOR PERCEPTIONS OF PLACE AND POSITION

I, Janet Chepchirchir Ronoh, a master's student at NMMU, am carrying out a research study on "Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position". The information I receive will only be used for the purpose of this study and the participant's names will not be revealed (remain anonymous) and please note that your participation is voluntary and you may withdraw from the process at any time if you so desire.

The questionnaire has two sections. The first section will provide topic related information and the second section will provide biographical data which will help interpret the data. Completing the questionnaire should not take more than approximately 20 to 30 minutes. Please answer all the questions in both sections.

- There is no right or wrong answer (please feel free to use your own sheets of paper if you wish to write more than the space on this form allows).
- Please respond to 'boxed' response questions by placing a cross (put in an X) in the appropriate box.
- The term 'native' in this study refers to a person born in a specified place or associated with a place by birth, whether subsequently resident there or not
- **Do not** write your name on the questionnaire.

SECTION ONE

(i)   What is your personal definition of indigenous knowledge?

(ii)   Did you already know about the Nandi resistance? If so how did you learn about it?

(iii)   If you know the story, is it essentially the same as what was written in the piece that

you have just read? Please elaborate if different.

(iv)   Did it make any difference to you reading the story in Nandi or English? Explain your

answer.

(v)   Do you consider knowledge about the Nandi resistance to be an example illustrating an indigenous knowledge item, system, or another type of knowledge?

(vi)   Is this story well known among the Nandi people?

    Not known at all   Known by some people   Known by most people   Known by everyone

    Please elaborate below on your answer.

(vii)   Do you think it is something worth knowing about?

    Not worth knowing   Has some worth   Is really important to know   Essential that it be known

    Please give your reason(s) below for the choice above

(viii)   If you think it is worth knowing about, do you think it is knowledge that should be included in the school curriculum?

    YES   NO

    Please give reasons for your answer.

(ix)   Do you think the issue of the Nandi resistance would be of value to other school children who are not Nandi natives?

    YES   NO

    Please give reasons for your answer.

(x)   If you think it should be included in the curriculum, where would you place it (subject/s and age level/s)? Please give reasons for your answer.

(xi)   What, in your opinion, are there other forms of indigenous knowledge that you value and in your opinion would be worthy to be included in the school curriculum? Please explain and elaborate.

(xii)   Which subject(s) and grade(s) do you think is appropriate to integrate the indigenous knowledge listed above?

(xiii) In your opinion, what are the principles that can be/should be used to introduce indigenous knowledge into the school curriculum?

SECTION TWO – BIOGRAPHICAL DATA

Female   Male   Other

Age Bracket

18- 25   26-35   36-45   46-55   56-65   Above 65

What is/are your academic specialisation/s.

Qualification/s

B degree   Honours   (5th Master's   Doctoral   Other (specify)
                  year)

Duration of experience as a teacher educator in years

   0-5   6-10   11-16   More than 16

Have you ever had the opportunity to incorporate indigenous knowledge into your teaching as a teacher educator? Please elaborate.

Where did you grow up (spend your formative years?). Please comment if you feel it is appropriate.
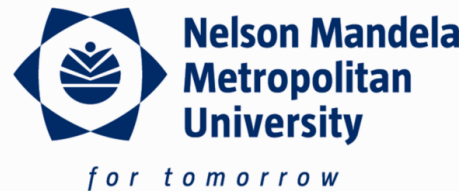
THANK YOU FOR PARTICIPATING IN THIS STUDY.

APPENDIX G: ETHICS CLEARANCE

ETHICS CLEARANCE NUMBER

FACULTY OF EDUCATION

Tel. +27 (0)41 504 4568

Fax. +27 (0)41 504 1986

16 August 2016

Prof P Webb / Ms J Ronoh

Education Faculty

NMMU

Dear Ms Ronoh

Indigenous knowledge in the school curriculum: Teacher Education Perceptions of place and position

Your above-entitled application for ethics approval was approved by the Faculty Research, Technology and Innovation Committee of Education (ERTIC) at the meeting held on 2 August 2016.

We take pleasure in informing you that the application was approved by the Committee.

The ethics clearance reference number is **H16-EDU-ERE-012.**

We wish you well with the project. Please inform your co-investigators of the outcome, and convey our best wishes.

Yours sincerely

Ms J Hay

Secretary: ERTIC

APPENDIX H: INFORMATION AND INFORMED CONSENT

NELSON MANDELA METROPOLITAN UNIVERSITY

INFORMATION AND INFORMED CONSENT FORM

I am Janet Ronoh, master of education student at Nelson Mandela Metropolitan university undertaking a research on "indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position". In order to complete my research studies, I will work with teacher educators who are Xhosa natives at NMMU and Nandi native teacher educators at Moi university. My expectation is that they share their understanding, perceptions, value, place and position of indigenous knowledge as well as principles that could be used to integrate indigenous knowledge into the school curriculum. I will be grateful for your participation in this study.

RESEARCHER'S DETAILS AND SUPERVISORS	
Title of the research project	**Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position**
Name of researcher	**Janet Chepchirchir Ronoh**
Researchers' contact	**+254723944360, ronohjanet07@gmail.com**
Name of supervisor	**Prof Paul Webb**
Supervisors' contact	**Paul.webb@nmmu.ac.za**
Co-supervisors	**Prof Julius Tanui and Prof Bernd Siebenhuner**

DECLARATION BY OR ON BEHALF OF PARTICIPANT	
I, the participant and the undersigned	(full names)

Contact number	
OR	

HEREBY CONFIRM AS FOLLOWS:
I was invited to participate in the above-mentioned research project

that is being undertaken by	Janet Chepchirchir Ronoh
From	Faculty of education NMMU

THE FOLLOWING ASPECTS HAVE BEEN EXPLAINED TO ME (THE PARTICIPANT):		
1.	**Aim:**	I understand that the purpose of the study is to investigate teacher educators' perceptions of indigenous knowledge in the school curriculum and the principles that they think can be used to integrate indigenous knowledge into the school curriculum. This should provide findings which can guide curriculum developers during curriculum reforms to integrate indigenous knowledge.
2.	**Procedures:**	I understand that the information given by me shall be used for the purpose of this research and any other publication later if need be.
		I understand that I will be requested to fill in a questionnaire, participate in a semi-structured interview and a focus group discussion (Imbizo/Baraza) that will be recorded for later analysis.
		I am aware that filling the questionnaire will take approximately 20 minutes, interview session will take approximately 45 minutes and the Imbizo approximately one and a half hours.
3.	**Confidentiality:**	I am aware that my identity will not be revealed in any discussion, description or scientific publications by the investigator, and that pseudonyms shall be used for representation in the study.
4.	**Voluntary participation refusal/ discontinuation:**	I am informed that my participation is voluntary
		I am aware that my decision whether or not to participate will in no way affect my present or future care / employment / lifestyle

4.	THE INFORMATION ABOVE WAS EXPLAINED TO ME BY:						
The researcher							

In	**English**						

and I am in command of this language

I was given the opportunity to ask questions and all these questions were answered satisfactorily.

5.	No pressure was exerted on me to consent to participation and I understand that I may withdraw at any stage without penalisation.

6.	Participation in this study will not result in any additional cost to myself.

I HEREBY VOLUNTARILY CONSENT TO PARTICIPATE IN THE ABOVE-MENTIONED PROJECT:

Signed/confirmed at	on	20

Signature or right thumb print of participant	Signature of witness:
	Full name of witness:

APPENDIX I: PERMISSION LETTER FROM SOUTH AFRICAN UNIVERSITY

PERMISSION LETTER FROM THE INSTITUTION: SOUTH AFRICAN UNIVERSITY

<div align="right">
11 Tiran Road
Summerstrand
Port Elizabeth.
27 May 2016.
</div>

The Dean
Faculty of Education
P.O. Box.
South Africa.
Dear Dean

Re: Request for permission to conduct research in the Faculty of Education

My name is Janet C. Ronoh, a Masters' Degree student at Nelson Mandela Metropolitan University. I am conducting research on "Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position" in which data gathering is planned to commence as from June 2016 to December, 2017 using a questionnaire, an Imbizo, and semi structured individual interviews. I will be conducting this research under the supervision of Professor Paul Webb (NMMU-South Africa), Professor Julius Tanui (Moi University-Kenya), and Professor Bernd Siebenhüner (University of Oldenburg-Germany). I am hereby seeking consent to conduct research in your Faculty. The research study will include teacher education academics of Xhosa origin in your Faculty (approved research proposal attached).

The research will be subjected to the Ethical Principles as prescribed by NMMU that include:

➢ Participation will be via invitation and informed consent. Participants will be under no obligation to remain in the project should they wish to withdraw

➢ All information will be dealt with in strict confidentiality and no person will be identified in any way in the products of the research.
➢ The activity will be conducted at the participants' convenience

Should you need more information please contact me at janet.ronoh@nmmu.ac.za

I look forward to your favourable consideration.

Yours faithfully,

Janet C. Ronoh

Student Number s216878063

PERMISSION TO CONDUCT RESEARCH IN THE SCHOOL OF EDUCATION

I, -------------------------------------, Dean, School of Education at -------------------------- University, grant permission for JANET RONOH to conduct research in the Faculty as described in her research proposal "Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position" for 2016 and 2017.

Dean: School of Education

SIGN: ………………………….

DATE: …………………………

APPENDIX J: PERMISSION LETTER FROM THE KENYAN UNIVERSITY

PERMISSION LETTER FROM THE INSTITUTION: KENYAN UNIVERSITY

Janet Chepchirchir Ronoh
P.O BOX 3336,
Eldoret- Kenya.
10th September 2016.

The Dean
Faculty of Education
P.O. Box
Kenya.
Dear Dean

Re: Request for permission to conduct research in the Faculty of Education

My name is Janet C. Ronoh, a Masters' Degree student at Nelson Mandela Metropolitan University. I am conducting research on "Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position" in which data gathering is planned to commence as from June 2016 to December, 2017 using a questionnaire, Modified Focus Group Discussion (Tuiyet/ Baraza), and semi structured individual interviews. I will be conducting this research under the supervision of Professor Paul Webb (NMMU-South Africa), Professor Julius Tanui (Moi University-Kenya), and Professor Bernd Siebenhüner (University of Oldenburg-Germany). I am hereby seeking consent to conduct research in your Faculty. The research study will include teacher education academics of Nandi origin in your Faculty (approved research proposal attached).

The research will be subjected to the Ethical Principles as prescribed by NMMU that include:

  ➢ Participation will be via invitation and informed consent. Participants will be under no obligation to remain in the project should they wish to withdraw
  ➢ All information will be dealt with in strict confidentiality and no person will be identified in any way in the products of the research.
  ➢ The activity will be conducted at the participants' convenience.

Should you need more information please contact me at janet.ronoh@nmmu.ac.za

I look forward to your favourable consideration.

Yours faithfully,

Janet C. Ronoh

Student Number s216878063

PERMISSION TO CONDUCT RESEARCH IN THE SCHOOL OF EDUCATION

I, ------------------------- Dean School of Education at --------------------------, grant permission for JANET RONOH to conduct research in the Faculty as described in her research proposal "Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position" for 2016 and 2017.

Dean: Faculty of Education

SIGN: ………………………………………

DATE: ………………………………………

APPENDIX K: IMBIZO PROTOCOL

PROTOCOL FOR THE IMBIZO

Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position

(i)   Imbizo leader to welcome the group and get them to chat about the story and the answers to the questions

(ii)   Talk about other Xhosa IK that the participants know about and whether they feel that they should be included in the school curriculum

(iii)   Ask what and how much IK should be included in the curriculum – how does one choose (i.e. what constitutes school knowledge in South Africa (how is it chosen)

(iv)   Ask how should the chosen IK be integrated with the existing content in the curriculum (or should it not be integrated but be a separate subject)?

(v)   Get the group to how one might define and validate knowledge for the official curriculum in the face of multiculturalism, globalisation and the internationalisation of knowledge – what are the principles to be used.

APPENDIX L: BARAZA PROTOCOL

PROTOCOL FOR THE BARAZA

INDIGENOUS KNOWLEDGE IN THE SCHOOL CURRICULUM: TEACHER EDUCATOR PERCEPTIONS OF PLACE AND POSITION

(vi)   Baraza leader to welcome the group and get them to chat about the story and the answers to the questions

(vii)   Talk about other Nandi IK that the participants know about and whether they feel that they should be included in the school curriculum

(viii) Ask what and how much IK should be included in the curriculum – how does one choose (i.e. what constitutes school knowledge in Kenya (how is it chosen)

(ix)   Ask how should the chosen IK be integrated with the existing content in the curriculum (or should it not be integrated but be a separate subject)?

(x)   Get the group to how one might define and validate knowledge for the official curriculum in the face of multiculturalism, globalisation and the internationalisation of knowledge – what are the principles to be used.

APPENDIX M: CONFIDENTIALITY CLAUSE

CONFIDENTIALITY CLAUSE

Indigenous knowledge in the school curriculum: Teacher educator perceptions of place and position

I _____Signature_____ Date_____

Hereby agree that any information that will be shared in this 'Imbizo/Baraza/' for the purpose of the study shall remain strictly confidential amongst the group members and that each participant shall be held responsible for the information revealed. Any information shared shall not in any case bring about victimization of the participant and the researcher.

APPENDIX N: INDIVIDUAL INTERVIEW SCHEDULE

INDIVIDUAL INTERVIEW SCHEDULE

INDIGENOUS KNOWLEDGE IN THE SCHOOL CURRICULUM: TEACHER EDUCATOR PERCEPTIONS OF PLACE AND POSITION.

Individual semi-structured interview will be administered.

The following guide questions will be used;

(v)   What is your general understanding of indigenous knowledge? What are some of the knowledge that you consider as examples of indigenous knowledge in your community and what is your perception on the knowledge?

(vi)   In your opinion, do you think the IK items mentioned above is of value and worthy to be included in the school curriculum or otherwise?

(vii)   Which subjects and school levels in the curriculum do you believe is appropriate for integration of valued IK items mentioned above?

(viii) What principles do you believe should be used to appropriately introduce indigenous knowledge into the school curriculum?

Other questions will arise during the interview from participant's responses. I will therefore use probing questions, follow up questions, specifying questions and interpreting questions to get details and correct interpretation of what the interviewee says during the interview.