EXPLORING THE CULTURAL HERITAGE PRESERVATION THROUGH DIGITISATION: A CASE STUDY OF TRADITIONAL CHILDREN'S GAMES IN LIMPOPO PROVINCE SOUTH AFRICA

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DECLARATION

I, Thizwilondi Joanbeth Madima, hereby declare that this study submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in African Studies in the Department of African Studies, is my own work in design and execution, and that all reference materials contained therein have been duly acknowledge.

Signature:  Date: 20 May 2021

DEDICATION

I dedicate this study to my late son Rabelani, his brother Mukovhe and my triplets Mutsireledzi, Mulondi and Musiki. My dear mother, my brothers and sisters, you are such an inspiration to me.

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ABSTRACT

The aim of this study was to explore how traditional children's games could be preserved through digitisation. This study is premised on the contention that modernisation has led to the disappearance of most traditional children's games. Children no longer play most of these games because they no longer have the access, place and time to do so. In dominant contemporary culture, most children spend their time hooked up in playing modern games using their cellular phones, computers and a vast array of similar or related gadgets. The digital preservation of traditional children's games seems to be a largely unaddressed topic in scholarship. Instead, much focus is drawn towards the digital preservation of library materials and aspects of tangible cultural heritage. Traditional children's games were originally preserved through oral tradition, then later through books and various forms of print-works. Preserved in this way, they are largely not accessible to most children. This study was grounded on the Sankofa, Diffusion of Innovation and the Afro-centric socio-ontogenesis theories. This study applied the case study and participatory action research design. Data collection methods included semi-structured interviews, focus group discussions, observations and document analysis. The study participants were elders, educators and students from various disciplines and they were selected using the purposive sampling technique. Various ways of preserving games through digitisation such as social media, digital applications (apps) and websites were explored. In addition, barriers to the digitisation of traditional children's games were identified, and they include the disconnection between the digitised games and the original games, as well as lack of internet connectivity in most rural areas. This study resulted in the development of two new innovations. An app was created for *muravharavha* and *mufuvha games,* while a website that hosts *ndonde*, *khadi* and *mahundwane traditional games* was also developed. The study recommends that the digital preservation of traditional children's games should be robustly pursued through social media, apps and websites. The success of the recommendations is contingent upon the support by stakeholders such as institutions of higher learning, schools, policy makers and rural communities.

Keywords: *Culture, Cultural heritage, Digitisation, Preservation, Traditional children's games*

ACRONYMS

4IR	:	Fourth industrial revolution
APA	:	American Academy of Paediatrics
CAPS	:	Curriculum Assessment Policy Statements
DBE	:	Department of Basic Education
DOI	:	Diffusion of innovations
ICH	:	Intangible Cultural heritage
ICOMOS	:	International Council on Monuments and Sites
ICT	:	Information and communication Technology
IK	:	Indigenous Knowledge
IKS:	:	Indigenous Knowledge Systems
PAR	:	Participatory Action Research
SRSA	:	Sport and Recreation South Africa
TCG	:	Traditional Children's Games
UN	:	United Nations
UNCRC	:	United Nations Convention on the Rights of the Child
UNESCO	:	United Nations Educational, Scientific and Cultural Organisation
UNICEF	:	United Nations Children's Fund
UNGA	:	United Nations General Assembly

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

This study was framed within the socio-cultural milieu of the Vhavenda tradition in the Vhembe District of the Limpopo Province in South Africa. Just like most traditional societies, Vhavenda preserved their culture, traditions, beliefs, values, norms and other cultural practices through the word of mouth or orally. From time-immemorial, the custodians of culture in the Vhavenda society have been the elders. Due to lack of durable and sustainable indigenous knowledge preservation mechanisms, and considerable sections of the elderly population are passing on, taking their wealth of knowledge with them while leaving younger generations culturally deprived and without a reference point or an absolute sense of indigenous consciousness, awareness and self-identity. Through various forms of intangible and tangible cultural values and activities, Vhavenda traditional practices have been instrumental in teaching, raising and developing their children. Their fundamental belief is that a well-raised generation of children today forms and shapes heritage custodians of tomorrow. This premise places the society at the centre of child upbringing. T and within the purview of the Traditional African Cultural Learning and Development. This paradigm is a thrust towards the preservation, distinguishing and upholding the uniqueness cultural identity within the broader context and galaxies of various alternative cultures.

Several studies show that children are molded by society's beliefs and value systems through interactions with their peers in activities such as plays, artistic pursuits, routines and games (Corsaro & Eder, 1990). However, this notion is contested by behaviourists who postulate that child development and socialization require modeling and reinforcement by adults who are the key agents to human learning (Bandura, 1986). Though Piaget argued that children interpret, organize and use information from the environment, I am of Gray's idea who believes that children's socialization process occurs mostly in public spaces than in private environs (Gray, 2012). Gray further emphasizes that knowledge and skills gained from children's interaction within the group of playmates are better and honest than the ones they get through adult socialization (Gray, 2012).

The current study, though firmly rooted in African perspectives of development and thought, attempts to delve into the role and place of indigenous play activities within a modern and highly technologized environment. Psychologists such as Piaget 1954 cited in Berger (2005) extensively studied the Western and Eastern child, and hardly focused on the African child. These scholars were interested in the socio-cognitive development paths of children and based on their conclusions, with a blanket approach, also generalized onto the African child (Nyota & Mapara, 2008). Western learning and development are based on the formal schooling system as opposed to the traditional African approach. The traditional African form of socio-cognitive development occurs within the socio-cultural context through activities such as games, riddles and songs. In is on this basis that my interest in adopting the Afro-centric perspectives in this study stems from.

Traditional children's games were a lifelong learning process that occurred on a daily basis and were woven into the cultural fabric of African traditional societies (Mushi, 2009). Childhood development in traditional societies was mostly centered in playing games and this was the case with the Vhavenda traditional society. It was a form of life skills development within the framework of an informal curriculum. These skills were transferred through traditional children's games that required team play such as *bune*, *shavha mbevha tshimange tshi a luma* and *tshitari tsho mu sinela*. Every traditional game promoted social skills such as self-awareness, effective communication, interpersonal relationships, and empathy. These games were suited according to age group in design and intensity. Through participating in traditional games, children also developed their thinking skills such as creative thinking, decision making and problem-solving. Thinking skills were mostly found in traditional children's games like *mudzumbamo*, *khube* and *vhanangahae! Vhuyaniha*. Some of the games taught African children about resilience, coping with stress and emotions, for example, games such as musangwe, duvheke and geimi. Other games such as *mahundwane* were of a holistic nature and (Daswa, 2018). Such life skills fostered abilities for adaptive and positive behaviour that enabled the children to deal with the demands and challenges of everyday life. When applied to current contexts, skills learning based on indigenous games may similarly serve as a guide to understanding human behaviour and actions in day to day life (UNESCO, 2017).

As an African researcher in the 21st century, I observed with concern how the advent and advancement of the digital era has strongly caused a shift not only in general lifestyles, but also in the socialization, learning practices and upbringing of children. The children's socio-cultural

world of play is increasingly being confined to domesticity due to the easy availability of entertainment at home. Whereas the frolicking of children was a common sight in village open spaces, the physical participation of children in indigenous games is no longer a common sight in modern times. That places a demand on African scholarship on how best to develop models that embrace such technological change without doing away with rich cultural games. In light of the foregoing, this study sought to document and store the knowledge shared by the knowledge holders about the Vhavenda traditional children's games in technological platforms through the process of digitization.

As has already been indicated earlier about the elderly who are the corpus institutional repositories of knowledge, they are not adequately leaving a body of knowledge from which to draw from. While the progressive invasion of digitization can be viewed as a threat to African systems, it can also be harnessed to advance the preservation of indigenous games. This is not without its challenges and controversies, for inherently embedded in digitization are socio-economic implications of which the digital divide is the foremost. The storage of documented knowledge on traditional children's games in technological platforms is defined as digitization. To the best of the researcher's knowledge and investigation, there are hardly any studies which explore the digitization of indigenous games in the South African context. The pertinence of the current study lies in the assumption and prospect that by designing, storing and preserving traditional games on digital platforms, it will assist in ensuring that children will learn about these games within the medium that they can currently access and easily connect with.

Given the multidisciplinary nature of the study, the research team consisted of computer science students and the study became part of their experiential learning. The idea to work alongside students was to foster a symbiotic relationship wherein while they would apply their skills as innovators in this study, I would also use that expertise to conceptualise and actualise the digitization of indigenous games. The games which were of focus for digitization were *ndode*, khadi, *muravharavha* and *mufuvha*. Some of these games are also present in variated forms in other cultures other than the Vhavenda one.

My preliminary investigation explored the existence of some form of documentation of digital preservation of Vhavenda traditional games. As far as I could establish, no study has been conducted about digitization of traditional children's games in an African indigenous perspective, only a study by Daswa (2018) explored prospects for the documentation of

children's game called *mahundwane*. In a sense, this study is a sequel to it and attempts to comprehensively focus on the digitization of various games. I thus reckoned that the integration of technology with indigenous knowledge systems would contribute to the enduring and sustainable preservation of traditional children's games through efficient storage, access and technological gamification.

1.1.1 My life story

At this juncture, I will share my life story and background to provide context in terms of how my upbringing influenced and informed the choice of the research framework, theories and methods in this study. Certainly, my background greatly influenced my worldview and personal philosophy. According to Khupe (2014), research is not a neutral knowledge-creation exercise but is influenced by socio-cultural experiences and histories that continually shape our thinking. It is for this reason that I decided to give my life story and professional journey. In hindsight, I strongly suspect perhaps my interest in children's games is some sort of over-compensatory behaviour for the deprivation of play that I feel I missed in my childhood and formative years. But that is for psychologists to decide and put a name to it.

I, Thizwilondi Joanbeth Madima, am the fourth child out of eight children in the family of Vho-Ndiafhi and Vho-Grace Madima of Tshifudi village. I grew up within the Protestant religious movement background wherein we were raised as Christians. With my grandfather being a minister in the Lutheran Church then, we were not allowed as children to socialize with our neighbouring peers. This was to supposedly protect us from getting polluted by the vices of this world. I used to watch with childlike envy as my peers played and frolicked in the streets engaging in all sorts of traditional childhood games, while I, on the other hand remained stuck in sequester at home under the watchful gaze of our strict and overprotective guardians or singing hymns and reciting scriptures.

I am thus convinced without any speck of doubt that such strict Christian upbringing forced my siblings set us on a path that was unique and different path from the rest of our peers in terms of our capacity to face the real world in our latter years. While I cannot speak for my siblings, personally the impact was felt when I started attending school. My life skills were a no match for my peers who were street wise extroverts and seemed to have a better grasp on how to go about life. The school environment was unlike my rather uneventful and monotonous

home set up. Life at school was multi-dimensional and abuzz with activity. It was at school where I first came into contact with traditional games. I sampled most of them during break times and physical education classes. Most of the knowledge that I had accumulated at home seemed inadequate, if not inapplicable in the face of the electric atmosphere I was now exposed to. Still reeling from the effects of what I would call a deprived socialization experience in childhood, I progressed through the school system and matriculated. I took a teacher training course thereafter and this transition was to expose me further still to the world of traditional games.

I started working as a teacher at the age of 21, and was stationed in a remote, rural Venda village of Guyuni in Ha-Makuya. This village was a total archetype of a marginalized and rustic African traditional setting. The school had poor infrastructure which consisted of only two classrooms. The classrooms accommodated four grades (this meant that two different grades were combined and put in one class). All the other grades were taught under tree shades. The institution had no ablution block hence the bush was utilized for ablution activities. In spite of the poor conditions, the community maintained their indigenous knowledge practices and traditions. There was no electricity in their households, but the children were exposed to the traditional games practices as their full-time occupation. Growing without exposure to cultural practices made me enjoy taking cultural activities as my extra-mural activity at school. After I was made redundant, I moved to a different school in a village called Tshidongololwe in Thengwe. It was also rural but with relatively acceptable infrastructure. I enjoyed teaching and learning environment there, and my interest and involvement in novel traditional activities continued.

My first engagement in research was on education training and development. I, however, steadily gravitated towards Indigenous Knowledge Systems after having been fascinated by indigenous games. I subsequently enrolled for the Master's degree in African Studies and my focus was on the preservation of a Venda traditional children's game called *mahundwane.* My *research* interest in *traditional games was further boosted when I was offered the opportunity to* offer lectures in the Bachelor of Indigenous Knowledge Systems (BIKS) degree programme at the University of Venda. Being concerned about the loss of cultural games and their diminished prominence in scholarship because of rapid changes associated with the digital era, I embarked on my research journey by exploring the feasibility of preserving traditional children's games through digitization. My interest in the interface between indigenous

knowledge and technology mirrors my personal experiences of being exposed to the hybrid environment of Western beliefs at home and traditional beliefs I encountered later in school. I realized that instead of holding these in tension, they could be adopted and used to structure a mutually reinforcing and symbiotic framework which rejected the toxic redundancies of each while embracing the cardinal strengths of both. In the context of digitizing indigenous games, the same spirit can apply. And this is the gap that this study attempts to navigate and hopefully fill in scholarship.

1.2 Problem Statement

Research on children's traditional games is increasingly attracting scholarly interest in fields such as African Studies, anthropology, pedagogy, sociology, psychology and kinesiology (Mawere, 2012). This interest occurs against a background of a historically long onslaught against African culture by mainly Western ethnologists who viewed African traditions as being backward, inferior and even immoral (Roux, 2009). On the flipside, it also occurs in a contemporary environment wherein the advancement of modernisation seems to stifle whatever is left of what was once a pristine, undisrupted and glorious tapestry of African practices and traditions. The erosion of cultural values is a cancer that occupies scholars in the African Studies discourse. Through indigenous games and knowledge, children learn about their communities and this helps in the perpetuation of societal structures, laws, language and values inherited from the past (Nxumalo & Mncube, 2019). Hence, there is a call for the digital preservation of such games within a decolonised, Afrocentric framework. However, the preservation of indigenous games through digitisation is an emerging field of scholarly inquiry especially in South Africa. Traditional methods of transmitting knowledge on indigenous games are mainly through oral transmission and artistic performances. Print media also has played a role in perpetuating such knowledge in the form of books and articles. However, diminishing trends in children's participation in indigenous games in Africa calls for more creative and sustainable modes of preserving and transmitting knowledge on indigenous games to the younger generation. The digital era seems to have come with no significant attempt to preserve traditional children's games through digital platforms. Most games on technological platforms are Western or Eastern in orientation, design and philosophy, a situation which further alienates most African children from their games. Digitising African indigenous games can help re-orient children to their roots, especially when the modern family structure has

changed and grandparents who are supposed to impart such knowledge are not so much in the picture. This study therefore attempted to fill this gap by exploring the digitisation of selected Tshivenda traditional games.

1.3 Research purpose

The purpose of this study was to develop a framework for the preservation of traditional children's games through digitisation.

1.3.1 Objectives of the study

- To establish the importance of preserving traditional children's games through digitisation
- To explore the prospects of preserving traditional children's games through digitisation
- To determine the challenges of preserving traditional children's games through digitisation

1.3.2 Research questions

- What are the importance of digitising traditional games?
- What are the prospects of preserving traditional children games through digitisation?
- Which are the challenges of preserving traditional children games through digitisation?

1.4 Significance of the study

This study attempts to bridge the gap between cultural practices and modernity, the preservation and access of indigenous games through digital means. Most children that are raised in modern times are being fed on a diet of foreign ways of entertainment whose values go against the grain of everything African. Some of these games have torn into the fabric of society and have influenced children to engage in violence, sexual orgies and in some extreme cases even suicide. They have had little exposure to African indigenous games whose objective

is to instill values and Ubuntu in order to shape a better society. In pre-colonial Africa, children would learn values by being apprentices and understudies to communal elders who would teach them games which had moral significances. Without diminishing the role of elders, relationships and particularly the corpus in the transmission of knowledge, it is the central argument of this study that digitization can be used alongside traditional methods of knowledge transmission and preservation to fill the deficit in a social environment where knowledge on cultural practices is diminishing. Modernisation is here and it cannot be done away with. However, the current study is not to entirely oust Westernised and Eurocentric physical activities but rather to position Africa at the centre of defining and shaping its own discourses by purposively using technology to package, frame and disseminate its forms of cultural heritage (Mbembe, 2015). Van Stam (2012) calls it Africanising expressions of Information and Communication Technology (ICT) wherein culturally sensitive technology is driven by social innovation in the continent of Africa resulting in genuinely community-oriented technologies.

The emphasis on foregrounding African thought and philosophy is not necessarily mere advocacy for a return to a romanticised pre-colonial past to rediscover old knowledge practices. The main trajectory centres around engaging with concepts rooted in Africa while taking into account present and future situations and contexts (Oelofsen, 2015). Hence, it is envisaged that the digitisation of African indigenous games may result in sustainable preservation, wider dissemination and adoption in school curricula. It is not the objective of this study to overhype digitisation as a sacrosanct and perfect model. The moment one speaks of digitisation, inherently implied in the same term are issues of affordability, electricity, technical know-how and other imperatives that are needed for its implementation to be effective, and yet they are scarce in marginalised segments of society, a fact which cannot be wished away or glossed over. The socio-politico-economic challenges and limitations around digitisation are a subject of scrutiny in scholarship as will be seen in the ensuing chapters. This study is a scholarly contribution to those conundrums and that debate, and beyond that, optimistically envisaging a practicable Afro-centric framework for re-discovering, preserving, reviving and shaping culturally responsive discourses and praxes in the arena of children's indigenous games for current and future generations.

1.5 Definitions of concepts

1.5.1 Culture

Culture is a way of life of a group of people, their behaviour, beliefs, values, and symbols that they accept without thinking about them, and that are passed along by communication and imitation from one generation to the next (Hostede,1997). The concept of culture forms the basic foundation of the study.

1.5.2 Cultural heritage

An expression of the ways of living developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expressions and values. Cultural heritage is often expressed as either intangible or tangible cultural Heritage (International Council on Monuments and Sites (ICOMOS, 2002)). In this study, intangible cultural heritage is the focal point because traditional children's games are categorised under intangible heritage.

1.5.3 Digitisation

In technical terms, digitisation means to transform non-digital objects (e.g., books or pictures) into digital forms (Preuss, 2016). The term can be traced back to the 1950s in relation to computers as the action or process of converting analogue data (esp. in later use images, video, and text) into digital form. In this study, digitisation is the creation of digital forms of indigenous games to represent the original games with the intention to preserve and disseminate the knowledge and values that reside in these games through technological gadgets. The significance of this study is not to delve deep into the sophisticated computer or technical aspects and practices of the term, but rather to also explore the social implications of increased digital usage and technological platforms for economy, society and culture, and how this can be beneficially applied in the context of indigenous games.

1.5.4 Intangible cultural heritage (ICH)

ICH is the non-material part of a people's culture and consists of tales, narratives, games, songs, music and all the knowledge usually transmitted by oral or sound means. This heritage is the basis where a human group finds its identity, its prospects for the future, its memory and its history (Civarello, 2007).

1.5.5 Preservation

It refers to the totality of processes involving the protection and safeguarding of cultural heritage from extinction or deterioration through their maintenance, conservation and restoration for use by current and future generations (Makwae, 2017). In this study, it is reckoned that knowledge on traditional children's games will be preserved through digitisation.

1.6 Study layout

The study consists of six chapters and are outlines as follows:

Chapter 1: Introduction and Background of the Study

This chapter introduces this study and outlines its background. Also appearing in this chapter are study's problem statement, its aim, objectives and the research questions. In addition, this chapter deals with the significance of the study.

Chapter 2: Theoretical Framework

This chapter provides the theoretical lenses through which this study is anchored. It consists of a selected set of theories that support the logic behind the research flow, structure, objectives, data collection and analysis in the study.

Chapter 3: Literature Review

This chapter reviews literature related to this study. Literature was reviewed to determine what other scholars say related to this study. Reviewing literature here also helps to position this study in the context of what have already written concerning the research topic.

Chapter 4: Research Design and Methodology

The chapter explains the research design and methodology. It also describes the population, sample and sampling procedures used in this study. Also, included in this chapter are the methods used to collect data, and how the collected data were analysed. The paradigmatic orientation for the study is also presented.

Chapter 5: Data Presentation and Analysis

This chapter presents data as collected through interviews. It also deals with data analysis.

Chapter 6: Findings, Conclusion and Recommendations

The chapter brings the curtains down to this study. That is, this study's findings, conclusion and recommendations are provided.

1.7 Chapter Summary

This chapter provided an overview of this study. Generally, the introduction, background, aim and objectives of this study reflected the foundation that determined the problem that needed to be addressed in this research project. It also outlined the rationale for this study, and what it would add to the body of knowledge in this area of research, taking into consideration what other studies have so far done about the preservation of traditional children's games. The next chapter provides this study's theoretical framework on the digitisation of cultural heritage in the form of indigenous games

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

This chapter provides the theoretical lenses through which this study is anchored. The main theories guiding the study are the Sankofa theory, the Diffusion of Innovations theory as well as the Social Ontogenesis theory. The Sankofa theory provides the basis upon which African people should go back to their indigenous forms of knowledge and apply them in their current contexts to forge a sustainable developmental path ahead (Dei, 2012). In this study context, the dominant notion is that indigenous games are disappearing, but it is upon African scholars and communities to revive these games to benefit the current and future generations as propounded by Sankofaism. The Diffusion of Innovations theory is used to explain how technologies penetrate various contextual spaces. The Diffusions of Innovations Theory is adaptable to various contexts, hence its adoption in this study (Rogers, 2003). The digitisation of indigenous games is an innovation that potentially breeds a hybrid system of knowledge, with potential for cultural conflicts, clashes and sensitivities which must be negotiated through the Africanisation of the technological expressions which are sought to preserve and convey African indigenous games.

The Social Ontogenesis theory has its focus on childhood development, in which effective learning can be achieved by way of culturally responsive processes which consider the unique nuances and idiosyncrasies of the African child (Nsamenang, 2006). In the context of this study, this theory is adopted to reflect that a child-centred and contextual approach is important in digitising indigenous games. Children have agency and therefore their locally distinctive Africanness, creativity and play experiences should not be sacrificed at the altar of de-contextualised, universalistic Western play influences. The combination of these theories reflects how the digitisation of indigenous games is a contested space. In mediating such a space, striking a balance between digitally preserving intangible heritage and maintaining its African essence is like bridging the gap between Africa's past glories, present realities and future opportunities in a dynamic world. It requires multiple voices, stakeholders and disciplines to formulate a sustainable Afrocentric model.

2.2 Sankofaism

Sankofaism is a philosophical paradigm which focuses on promoting African and indigenous ways of knowledge and skill development (Dei, 2012). The African concept of Sankofa emphasises on building bridges between the past and present to offer a formidable future. It provides a renaissance launching pad for the preservation of a treasured positive past, which seeks to provide the foundations that promote methodologies which are consistent with realities in Africa (Eshun, 2011). It is a pivotal theme in Afrocentric education, philosophy, and cultural milieus as it presents platforms for confronting mischaracterisations of African creative and pedagogical spaces (Bastos, 2009). The philosophy derives from the West African symbol of the 'Sankofa' bird which flies forward with its head facing backward. The Adinka symbol for Sankofa is typically depicted as a bird flying forward with its head turned backward. The egg in its mouth represents the "gems," or knowledge of the past upon which wisdom is based. It also signifies the generations which are to come in that that they stand to benefit from that wisdom. The Sankofa bird's stance is interpreted to mean that it is not shameful for people to revert to something that they had previously forgotten, or even neglected. The Akan people of Ghana reckon that the past lightens the present, and that the quest for knowledge is a continuing process (Beale, 2013). Slater (2019: 2-3) provides graphic and vivid imagery about the Sankofa bird and Sankofaism:

> 'This bird has its feet planted firmly on the ground, and the head is turned backwards. The symbol and the word, when translated together, literally mean it is not taboo to fetch what is at risk of being left behind. This symbol has been interpreted and re-interpreted in several different ways, but what it symbolises is that the Akan people's search for knowledge is based on critical reasoning, as well as intelligent and patient investigation of the past. The Akan people believe the past serves as a guide when planning and obtaining the wisdom of the past enables planning for a strong future. Visually and symbolically, Sankofa is expressed as a mythic bird that flies forward while looking back with an egg (symbolising the future) in its mouth, or sometimes portrayed as a stylised heart.'

Slater (2019: 2-3) goes on to further state that:

> 'The Sankofa has also been used as a symbol whereby knowledge of the past can be utilised to map out the future; or where a mistake has been made, the wrong can be rectified and lessons can be learnt from

> the experience. In this sense the Sankofa symbol alludes to a historic past that is uniquely African and it is remembered when building a better future. The idea is of looking to the past with the understanding that both the good and the bad have formed the present situation. That is to reach back and touch base with the past and assemble the best of what our past must offer us, so that we can achieve our full potential as we move forward. Whatever we have lost, forgotten, sacrificed or been deprived of, can be reclaimed, revived, preserved and perpetuated. The egg off the bird's back indicates that we extract what is valuable from the past, and export it into the present to make positive and benevolent use of historical knowledge. It is precisely this wisdom of learning from the past, which ensures a strong future.'

The Sankofa paradigm aims to counter the domination of prevailing Western cultural paradigms which are viewed as universal frames of references even in post-colonial societies. One of the key aspects of the Sankofa paradigm is to forge mechanisms for preserving, promoting and propagating African heritages. The recovery and renewal of dwindling African creative heritages should be steered by Africans, and must holistically address the identity crisis that seems to plague African societies even, or especially in the physical activity domain of indigenous games (Tondi, 2017). Sankofaism is a reminder that as African societies face and march on towards the future, they must turn, reach back to the past and retrieve all that is positive from the rich repositories of their cultural heritage and worldviews (Bastos, 2009).

Indigenous games are a form of Afro-centric knowledge production that can entrench the cherishment of traditional modes of recreation in African societies. Indigenous games can help build pride and a Pan-Africanist consciousness by deconstructing notions of Western epistemological superiority which reflects in the high incidences of children who participate in games such as soccer, rugby and related modern games while shunning, or even oblivious of indigenous games (Odora-Hoppers, 2017). Indigenous African epistemologies have been misconstrued as mere socialisation processes meant to prepare children for work in the home. However, the richness of African heritage as expressed in ceremonies, rituals, recitations, sports, poetry, riddles, songs, proverbs, folktales, word games, puzzles, tongue-twisters and dance warrants that African ways of knowing should take centre stage in academic discourse and everyday life (Zulu, 2006). Indigenous children's games represent an important area within the pedagogical and socio-cultural fabric of every ethnic group in Africa. Therefore, preservation of children's indigenous games should be explored within a framework that is rooted in the mostly overlooked positive aspects of African indigenous thinking and

philosophy. Hence this study's orientation and grounding within the Sankofa paradigm (Telda, 1995).

2.2.1 Application of the theory in various studies

Various studies have adopted perspectives of Sankofaism to explore various socio-cultural phenomena. Martin and West (2018) explore the historicity of Afro-American genealogy to dispel the narrative that the ancestry of the enslaved Black people in the United States and their descendants is largely unknowable. However, in the 21st Century, the descendants of the enslaved are truly able to "go back and fetch" the origins of their past in tangible ways for them to understand the present and to step confidently into the future.

Felder (2019) explores on the representation of marginalized doctoral student experiences to raise questions about participation and contributions within the dialogue on doctoral education research and practice in the United States and South Africa. By premising their study on Sankofa, they went back to previous trends in literature on doctoral degree completion to identify opportunities for exploring doctoral experiences. The findings recommended the application of cultural approaches in the development of scholarship which supports historically marginalized doctoral students. Tondi (2017) endeavours to identify challenges confronting the post-colonial Africa in the 21st century and the context of globalisation processes, and to locate the role of the African organic intelligentsia in reclamation and revitalization processes of the African culture, values and practices over against the domination of the European perspective and mindset. By deploying Sankofa, Tondi (2017) opines that African intelligentsia should redefine and consolidate African concepts, terms and philosophies such as *Ubuntu* and *Ujima* to renew African heritages and address the social, economic and intellectual plight of many African communities (Tondi, 2017).

Dei (2012) invokes the West African symbol of the 'Sankofa' bird to respond to questions on how to pioneer new analytical systems for understanding our local/indigenous communities. Dei concludes that African learners should develop theoretical prisms and perspectives that can account for our lived experiences and our relationality with other learners, prisms rooted in our cultures, histories and heritage. Talpade and Talpade (2014) explore the need for culturally responsive pedagogy among students within the Sankofa framework. The analysis for culturally relevant pedagogy revealed the emergence of technologically related strategies

intertwined with those of the traditional past. Eshun (2011) adopts the Sankofa philosophy to propose a postcolonial methodology for eco-tourism research in Africa. The same study by Dei (2012) concludes by expressing the need for the development of research methodologies and methods that take holistic approaches to researching on tourism in Africa. The common narrative in all these studies is the need to foreground the importance of indigenous knowledge in various fields to solve practical problems and deepen scholastic thought. However, studies that have deployed the Sankofa paradigm in the arena of indigenous games are scant.

2.2.2 Implications for the current study

In this study, indigenous games are explored from a perspective of being a culturally specific and responsive approach to recreation among children (Liddell & Talpade, 2014). This study involves 'going back' to ancient traditional forms of physical activity, and relating them to present technology so that African children may march into the future grounded in Afrocentric expressions of physical activity while maintaining flexibility to accommodate the elastic nature of culture by embracing technology. The values inherent in indigenous games are explored and the pearly gems of knowledge from the elderly as corporeal institutional holders are invoked as a way of looking back and to bring into the present the socio-cultural significance of indigenous games. Among most African children, Sankofaism can be a buffer against both subliminal and apparent negative images about Africa that has led some of Africa's children to devaluate the traditional African way of life. While Sankofaism accommodates the borrowing of ideas and technologies from other peoples of the world, its cornerstone attributes rest upon African cultural heritage, the transcending of ethnic and national blinders to appreciate the relatedness of the African world community experience, the placement of Africa and African values at the centre of investigation, the preparation of learners to contribute to society, and the cultural and academic excellence, spiritual development, community building, and physical fitness and health (Telda, 1995).

Fig 1: The mythical Sankofa bird

2.3 Diffusion of Innovation Theory

Modern digital technologies exceed the limitations placed on heritage protection and they provide powerful tools for heritage recognition, protection, presentation, and communication (He, Ma & Zhang, 2017). Digital platforms and applications can play an active role in promoting the understanding of heritage and can be the best long-term investment for preserving heritage (Economou, 2016). Indigenous games constitute a part of a people's intangible heritage. This is further expanded by Civallero (2007:1):

> 'A people's intangible heritage is composed by the nonmaterial part of its culture: tales and narratives, games and songs, music and all the knowledge usually transmitted by oral or sound means, in traditional societies as well as in urban, westernized ones. This heritage is the basis where a human group funds its identity, its projects for the future, its memory, its history, its fears, its desires… When peoples lose this untouchable, fragile fragment of their culture –as it daily happens to aboriginal societies all around the world- they lose their reason for living, their past and their future'.

The above view not only describes intangible heritage, but it also has implications on the need to develop or adopt enduring and sustainable systems of preserving and promoting cultural heritage, as failure to do so can be an existential threat to any society. Indeed, in most African societies these traditions are transmitted through oral and physical expression with human knowledge holders as repository institutions of such heritage. Such traditional transmission enriches social bonds and socialises children into group identity and development (Civallero,

2007). New technologies however can play a key part in identifying, documenting, preserving, promoting cultural heritage. Digital resources from the disciplinary domains of information and communication technologies (ICTs) can provide useful tools for recording and collecting information about expressions of intangible heritage. De la Porte and Higgs (2019), citing Anderson (2006), states that however reckoning that good management of digitisation should include guidelines for digitisation which include collection management, access, metadata and intellectual property (including copyright and privacy issues). In introducing digitisation in African traditional games, it is critical to adopt a theoretical framework that enhances understandings of the technological, socio-cultural processes in people's adoption of innovations. At the same time, it should be a theoretical framework whose underpinning assumptions and factors can, with sensitivity, be extensively mapped onto the contours and landscapes of African systems of knowing. The current study uses the Diffusion of Innovations Theory in providing understandings on processes involved in introducing and adopting technology and innovation on the digitisation of indigenous games in an African context.

The Diffusion of Innovations Theory was developed in 1962 by Everett Rogers. The model arose out of Rogers' interest in wanting to understand why farmers took long delays in adopting ideas that could have been beneficial for them. The theory consists of five phases which an individual or decision-making unit experiences in the adoption of an innovation (Enfield, Myers, Lara & Frick, 2012). Fig 2 shows the five stages in the innovation-decision process.

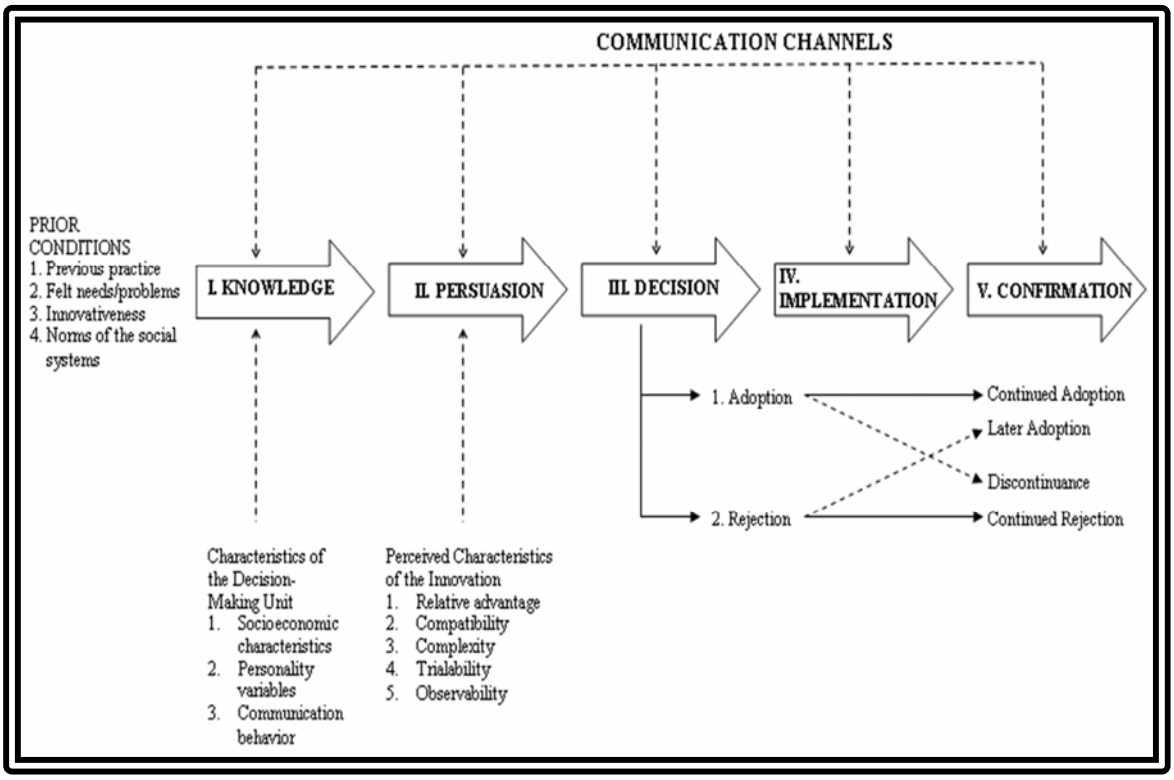


Fig 2: Five stages in the innovation-decision process

2.3.1 The knowledge phase

The individual becomes aware of the innovation's existence, learns how to use the innovation, and gains an understanding of how it functions. In this step, an individual learns about the existence of innovation and seeks information about the innovation. "What?" "how?," and "why?" are the critical questions in the knowledge phase (Rogers, 2003).

2.3.2 The persuasion phase

The individual then passes through the persuasion phase, weighing the desirable, direct, and anticipated consequences with the undesirable, indirect, and unanticipated consequences to form a favourable or unfavourable attitude toward the innovation. The individual shapes his or her attitude after he knows about the innovation, so the persuasion stage follows the knowledge stage in the innovation-decision process. Furthermore, Rogers states that while the knowledge stage is more cognitive- (or knowing-) centred, the persuasion stage is more affective - (or feeling-) centred. Thus, the individual is involved more sensitively with the innovation at the

persuasion stage. The degree of uncertainty about the innovation's functioning and the social reinforcement from others (colleagues, peers, etc.) affect the individual's opinions and beliefs about the innovation (Rogers, 2003).

2.3.3 The decision phase

The individual chooses to adopt or reject the innovation. Often the individual first adopts the innovation on a trial basis before making the decision to fully adopt or reject the innovation. However, rejection is possible in every stage of the innovation-decision process. Rogers expressed two types of rejection: active rejection and passive rejection. In an active rejection situation, an individual tries an innovation and thinks about adopting it, but later he or she decides not to adopt it (Sahin, 2006). A discontinuance decision, which is to reject an innovation after adopting it earlier, may be considered as an active type of rejection. In a passive rejection (or non-adoption) position, the individual does not think about adopting the innovation at all. Rogers stated that these two types of rejection have not been distinguished and studied enough in past diffusion research. In some cases, the order of the knowledge-persuasion-decision stages can be knowledge-decision-persuasion. Especially in collectivistic cultures such as those in Eastern countries, this order takes place and group influence on adoption of an innovation can transform the personal innovation decision into a collective innovation decision (Rogers, 2003).

2.3.4 The Implementation Stage

At the implementation stage, an innovation is put into practice. However, an innovation brings the newness in which "some degree of uncertainty is involved in diffusion". Uncertainty about the outcomes of the innovation still can be a problem at this stage. Thus, the implementer may need technical assistance from change agents and others to reduce the degree of uncertainty about the consequences. Moreover, the innovation-decision process will end, since "the innovation loses its distinctive quality as the separate identity of the new idea disappears" (Rogers, 2003: 180). If the individual adopts the innovation in the decision phase, he or she enters the implementation phase by putting the innovation to use. The innovation may be implemented exactly as it had previously been used by earlier adopters or undergo reinvention —the modification of the innovation to some degree.

2.3.5 The confirmation stage

In the confirmation phase, the individual seeks reinforcement of the innovation decision he or she has made (Enfield *et al*., 2012).

2.3.1.1 Factors affecting the rate of adoption of an innovation

According to Rogers (2003), the five factors which influence the rate of adoption of an innovation are the perceived attributes of innovation, type of innovation decision, communication channels, and the nature of the social system and the extent of the promotional efforts of change agents. These factors and their implications on the digitisation on indigenous games are briefly explained below.

- **The Perceived Attributes of Innovation**

These are the attributes which determine how people perceive an innovation. They are also divided into five:

Relative Advantage

This is the extent to which an innovation is better than the already existing idea or practice which the innovation comes to replace. In the context of indigenous games, if their preservation was only on people and analogue materials, human knowledge holders are dying with their knowledge while analogue systems are outdated. However, caution must be taken in the sense human agency in indigenous systems is of paramount importance (Rogers, 2003). The socialisation and enculturation process based on kinship and community spirit is a key foundation in transmitting values to the next generation. So, if digitisation is suspected to replace such human agency instead of being supportive and subordinate to human agency and cultural practices, it might be frowned upon. Matthews (2017) argues that some innovation processes fail to show respect for the creativity and intelligence of indigenous people, they tend to come packaged with exogenous participatory processes, encourage scaling-up, and ignore the innovation that already occurs in indigenous communities. In some cases, it might be more feasible to support the existing indigenous processes of innovation rather than by focusing on initiating change.

Compatibility

This is the degree to which an innovation is perceived as being consistent with existing values, past experiences, and needs of potential adopters. In the context of this study, digitisation can appeal to the modern child in the sense that there is a rise in the use of modern technology. At the same time, issues of affordability and access to such technology for most children in rural African rural contexts can pose challenges. Matthews (2017) posits that an innovation process that is initiated and controlled by community members will likely lead to more satisfying and sustainable outcomes for communities. Such a scenario is also a departure from Africans being treated as passive recipients of externally provided technological innovation (Lotriet, Mathee & Mazanderani, 2009).

Complexity

This is the degree to which an innovation is perceived as relatively difficult or easy to comprehend or operate by potential adopters. In the context of digitising indigenous games, the technological platforms on which such games are played should be user friendly. If the community views the platforms as simple, they will adopt the process of digitisation faster than when it is perceived to be complex. Geyser (2018) posites that the South African milieu necessitates game design that lowers intimidation levels experienced through the demands of a high technology environment.

Trialability

This is the degree to which an innovation or aspects may be trialled by potential adopters to see how compatible, advantageous, or complex it will be to the social system (Rogers, 2003). The area of digitising indigenous games is a new area in South Africa and Africa. However, if the trial process is compatible with the general African ethos and convenient for children, then the rate of uptake will be higher than when, for example, it is invasive. The accessibility of technology in South Africa is skewed not only across the dynamics of an entrenched gender divide, but also across racial and economic fault lines. The history of oppression and the denial of opportunities and poverty due to apartheid have shaped the opportunities, self-esteem of race-groups to this day and it affects the likelihood of individuals in these groups to be able to lead a flourishing life (Geyser, 2018). Those within a social system which does not have easy

access to technology will have difficulties in adopting digitisation of indigenous games. Lotriet *et al*. (2009: 9) however emphasise on the need to maintain the socio-cultural mores of a people:

> 'People of all socio-economic tiers can never simply be treated as passive recipients of technical largesse and equating improved access to technology with improved lives is a grossly oversimplified view. Based on this, a grass roots approach to structuring the use of technology is frequently advocated with a stress on people's self-assessed needs and behaviour rather than superimposed expectations.'

Observability

This is the degree to which potential adopters can perceive results of an innovation after trailing it for some time (Rogers, 2003). Due to technological advancement, there is a trend among young generations to favour digital contemporary games instead of playing their traditional or cultural games. But if the promotion, preservation and cultivation of cultural games by using digitisation methods observably attracts children's interest while maintaining the African indigenous and cultural integrity of the games, such technologies can be adopted reasonably fast (Chepa, Alwi, Din & Mohammad, 2014).

- **Type of Innovation Decision**

The second factor which influences the rate of adoption of an innovation according to Rogers (2003) is the type of innovation decision. Rogers postulates three types of innovation-decisions which affect the rate of adoption of an innovation and these are:

The optional innovation-decisions

Optional innovation decisions are usually made by individuals who do not depend on the decisions of others to reject or adopt the innovation. Personal and optional innovations usually are adopted faster than the innovations involving an organizational or collective innovation-decision.

Collective innovation-decisions

These are made when members of a system decide to adopt or reject an innovation on consensus. The African social eco-system usually involves extensive consultative processes before taking a decision which can potentially have far reaching consequences. A collective decision is the most feasible one in the African context.

Authority innovation-decisions

This is when the choice to adopt or reject an innovation made by relatively few powerful individuals in a system.

- **Communication channels**

Communication is a process by which participants create and share information with one another in order to arrive at a mutual understanding.

- **Social system**

Rogers defines a social system as a set of interrelated units that engage in joint problem solving to accomplish a common goal. He further identifies that the nature of a social system, such as the norms of the system and the degree to which the communication network structure is highly interconnected, also affects an innovation's rate of adoption (Rogers, 2003: 208).

- **Extent of change agents' promotion efforts**

Rogers (2003) sees change agents as individuals who influence a client's innovation decision in a direction deemed desirable by a change agency. According to Rogers, the rate of adoption of an idea depends on the extent of change agents' promotional efforts. In the context of digitising indigenous games, various stakeholders should be involved. Among them are traditional leaders, African knowledge holders, ICT professionals, policy makers, political players, academics as well as cultural experts. If there is buy-in from all such stakeholders, the rate of adoption may be faster. The agency of indigenous individuals and communities is however the most central in the appropriation of technology (Lotriet *et al*., 2009).

2.3.1.2 Application

The Diffusion of Innovations has been applied in several contexts. Boamah, Dorner and Oliver (2015) adopted the Diffusions of Innovation Theory to understand digital preservation management in Ghana. Their findings revealed that corruption and ineptitude on the part of corporate and traditional leaders were barriers to data preservation management. Undue interference from political players was also a major hindrance especially if it was perceived that data preservation management initiatives initiated by political rivals (Boamah *et al*., 2015). Navarrete (2019) makes references to the DOI Theory to explore innovations in museums in the Netherlands. The study observed that digitisation innovation processes enabled access and reuse of quality images online. Genlott, Grönlund and Viberg (2019) deployed the Diffusion of Innovations Theory to investigate the dissemination of digital innovation in Swedish schools. Their study revealed that teacher development programmes could drive technological change, but this required effort from leaders at both school and district level. Muinde (2009) adopted the Diffusion of Innovations Theory to explore factors affecting the adoption of information and communication technologies for communication of research output in research institutions in Kenya. Institutional, legal and social factors affected the adoption of Information and Communication Technology.

2.3.1.3 Implications for this study

Within this study's framework, the Diffusion of Innovations approach enhances understandings on factors which influence the digitisation of indigenisation children's games as a form of innovation in the African context. ICTs can be a very good platform for children to be presented with virtual games and toys that they can no longer see in everyday life. This could further develop their interest and motivation for crystallising and actualising these games in the real world as opposed to the games remaining suspended in the virtual sphere of the digital world (Tufekčić, 2016). The success, however, depends on funding in terms of improving access to technology for rural populations. This may revive the socio-cultural aspects of family and community life by enabling children to access and engage in activities which otherwise were disappearing outside any form of preservation.

2.4 Social Ontogenesis Theory

The Afrocentric social Ontogenesis Theory propounded by Cameroonian born scholar Augustine Bame Nsamenang has its antecedents in Ecological and Cultural Theory, but its orientation slants towards viewing children's development from an African contextual view. Most studies on childhood development have as their theoretical underpinnings European scholars such as Vygotstky, Freud and others whose seminal notions of socio-psychological development seemingly ignore the unique contextual developmental nuances of the African child. In the process, indigenous Afrocentric knowledge is shredded, de-contextualised and sacrificed on the altar of universalistic worldviews which sometimes ignore cultural agency and even plurality in human development (Nsamenang, 2006). Nhemachena, Mlambo and Kaundjua (2016) argue that consistent with the de-colonial trajectory, it is high time that the Global South in general and African scholarship should use its organic data to cultivate its own theories rather than being mere concierges of sometimes irrelevant or inapplicable Global North theories in African contexts. In the context of studies involving children, Balton, Uys and Alant (2019: 1-2) observe that:

> 'There has been an overwhelming call to improve the understanding of how children develop within an African context as Euro-American definitions of competence have been uncritically adopted as the norm for children in Africa. It therefore becomes critical for early childhood interventionists to gain insight into the activities that young children are exposed to within family settings as this influences their participation, engagement and learning.'

Children are highly valued in Africa and their upbringing involve the instilling of values, norms and beliefs that influences their psychosocial development. Indigenous games are the cultural mirrors which reflect the community's lived realities and a strategic way of instilling values in African socio-cultural and historical milieus (Burnett & Hollander, 2004). The social ontogenetic paradigm' foundational principle is relationships, which are vital in the development of every African child. The essence of Africanist worldviews and philosophy include wholeness, community and harmony, and these are deeply embedded in cultural values (Owusu-Ansah & Mji, 2013). In Africa, humans need each other and children's interactions through various ways of cognitive and social intercourse are foundational to adequate individuating which eventually leads to full personhood. In simple terms, there is no self that

can be achieved outside the communal locus and interconnectedness as a person functions in each social circle. This is aptly captured by the popular Southern African axiom: '*umuntu ngumuntu ngabantu'*, which affirms one's personal humanity is a function of recognising the humanity of and in others thereby on that score establishing humane relations with them (Nxumalo & Mncube, 2019). In a sense, therefore, *other humans* are irreplaceable, not even through technology, in the holistic developmental process of a child. This is in stark contrast to Eurocentric frames of reference whose emphases and developmental pathways universalise childhood growth based on biological milestones at the expense of other social and contextual realities which influence childhood development (Serpell, 2019). Children develop better when their learning is framed through the lenses of their cultural identity (Awopegba, Oduolowu & Nsamenang, 2013). In the words of Tchombe, Petersen and Robinson (2019: 2), they highlight that Nsamenang:

> 'adopted a lifespan perspective, with special attention to Africa's children and youth. Bame was one of the earliest leaders in developing an indigenous African psychology. His research was informed by a theoretical perspective in which the determinants of human development, health, and relationships were seen to be anchored in both interactive contextualism and biology.'

The Afrocentric Social-Ontogenesis Theory proposes that during a child's developmental period, families, peers and the community as a social environment play key roles in shaping a child's core beliefs, values and practices. Such cultural connectedness allows children to use their evolving behavioural scripts to shape their own development within their communities of habitat (Diale, Mpofu, Fatima, Nadia, Dunbar-Krige, Kayi & Pillay, 2019). Additionally, most African children especially, in rural contexts face harsh survival realities such that even in the context of play and games, they make progress through their own agency through peer relationships as well as by creatively seeing potential in discarded objects and natural substances such as clay and stones to play games (Nsamenang, 2008).

Pence and Nsamenang (2008: v) argue that:

> 'Issues connected with children's welfare and child development are appearing on national and international agendas with greater prominence and frequency. However, the international image of children is becoming increasingly homogeneous and Western-derived, with an associated erosion of the diversity of child

> contexts. Local perspectives, activities, and practices are all too often considered to be deviant or deficient by comparison and, like local languages, submerged in their wake. In the African context, children play a critical role in their own development, and have a responsibility for their own 'self-education.'

In the context of indigenous games, African children can express their movement and physical culture for self-identify themselves as opposed to trying to mimic others. Incorporation of African values does not necessarily mean Western ways of movement and the attendant technological contraptions should be done away with. Rather, childhood development practices such as games must be informed by cultural expectations to reinforce the connection between childhood development and context (Kalinde, 2016). Such practices are most likely to minimise the impact of social exclusion among African children, enhance understandings on what constitutes 'normal' childhood within the African communal context and improve the ecological relevance and sustainability of the interventions (Oppong, 2015). This is also supported by Ejuu (2019: 325) who notes that:

> 'African communities need to start taking the indigenous games seriously; it is a tool they can use to inculcate cultural heritage in their children. In most cases, some people in the communities look down upon such games in favour of the western games. As a result, we continue to see a proliferation of western indigenous games as a sign of development, yet we forget that they too worked hard to develop and market their games. We need to encourage communities that have started reintroducing indigenous games and holding festivals or competitions in such games. These gestures have been able to bring alive the cultural heritage which had been lost due to disuse. Teachers in schools need to start using indigenous games as pedagogy in class to teach academic skills. In doing this, they will be using familiar pedagogy, promoting cultural heritage, and also make the learning relevant to the community. More efforts to document some other indigenous games are needed so as to establish a repertoire of such games for the use of the new generation that has never been exposed to them. Both written and digitalised versions of the games can be uploaded into specific open access repositories that can be accessed by all those interested in them.'

The Social Ontogenesis Theory by Nsamenang can be viewed as falling under a broad framework of Eco-Cultural Theory which in simple terms positions the developing human being within a geographically context-bound culture characterised by a social system with

cultural imperatives of the people who inhabit that social ecosystem (Nsamenang, 2015). Fig 3 depicts an Eco-Cultural Theory, upon which the Social Ontogenesis Theory is an antecedent.

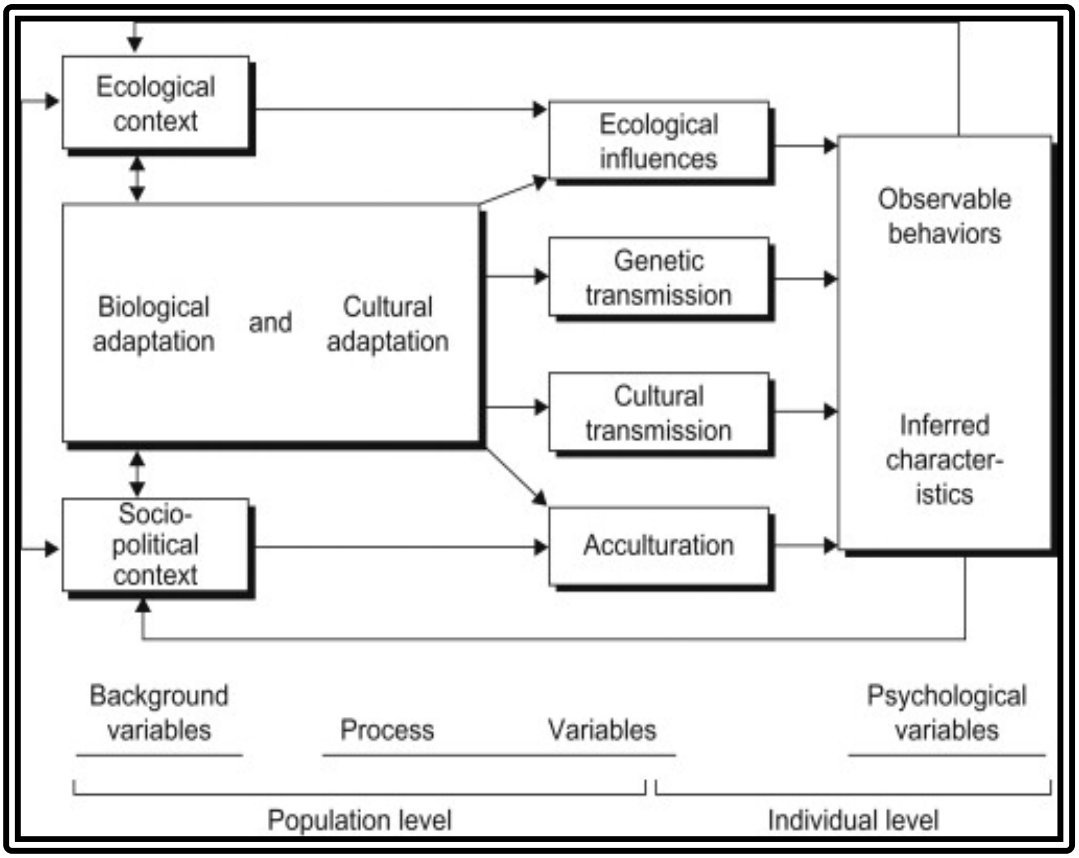


Fig 3: Eco-cultural framework linking ecology, cultural adaptation and individual behaviour (Berry, 2003: 55)

2.4.1 Application of the theory in various studies

A study by Diale *et al.* (2019) utilised the Nsamenang's Socio-Ontogenesis Theory as a theoretical lens to explore the ways in which social systems at the family, school and community levels influenced African children's development with special focus on orphans in Botswana, South Africa and Zimbabwe. Findings from their study were consistent with Nsamenang's social ontology hypothesis that within communities, children enact functional social roles for their personal and collective wellness with others. In sub-Saharan African cultural heritage settings, cultural connectedness allows children to use their evolving behavioural scripts to shape their own development within their communities of habitat.

Balton *et al*. (2019) borrow from Eco-Cultural Theory to describe activity settings that typically developed young children in a low-income area in South Africa. Participants in this study believe that children learn most by participating in activities and by observing others. The results showed that children were exposed to different types of activities and experiences depending on the beliefs, values, practices and resources of families. This was highlighted by children's high participation in care, play and spiritual activities as well as lower participation in certain chores and educational activities like cutting and pasting.

Ejuu (2019) applies Nsamenang's Africentric thoughts to reflect on the heritage, pedagogy and practice of African indigenous games. The study reckoned that African scholars need to emulate Bame Nsamenang in speaking of African renaissance as opposed to always thinking that nothing good can come out of it. Afrocentric thinking, pedagogy, and decolonisation of the African mind can start with our indulgence in indigenous African games both within and outside the community.

2.4.2 Implications for this study

In the context of this study on the digitisation of indigenous games, the Africanisation of such processes is important, as to maintain sustainable and contextual relevance when children engage in such games. Serpell (2019: 5) reckons that:

> 'Scientifically inspired systematic interventions to enhance the quality of human development in Eco-cultural context must connect with endogenous practices and ethno-theories of child-rearing, to generate sustainable progressive social change. Scientific validation of theories of human development requires that they make sense to relevant stakeholders, including parents, community leaders, national governments and regionally respected experts. But, historically, Africa has been neglected by scientific theories of human development, with only minimal participation by African subjects, African researchers (and authors) and African audiences.'

Based on the foregoing, the key aspects and contributions of Nsamenang's theory that are gleaned involve recognising the importance of social context in childhood development as shaped by parents, peers and the broader community, organic African cultural values in planning and implementing childhood development initiatives. Viewing human agency, especially children, as key in the construction of games they play as well as the playing

environments, shared routines, social relations and interdependence as indispensable aspects of childhood development and introducing children to interventions that are within the scope and purview of their culture.

2.5 Chapter Summary

This chapter explored the theories underpinning this study. These are the Sankofa, Diffusion of Innovations and the Social Ontogenesis Theories. The next chapter review the literature related to the study and subject under investigation.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

The previous chapter mapped out the theoretical landscape upon which this study is situated. This chapter positions the study in relation to the body of literature on indigenous games and their digitisation. It explores the views of key scholars in textbooks, journals, conference papers and theses to determine what is known about the study and its related concepts and what is yet to be explored on the same. The literature review also provides key perspectives and a basis for conducting the current study by identifying gaps in the literature. Although the current study is broadly framed within the discipline of African Studies, its thematic focus appraisal straddles and spans across study areas such as anthropology, information and communication technology, information and library science, knowledge management, pedagogy, decoloniality, legal aspects, early childhood development and human movement science. The current literature review interweaves key aspects gleaned from these subject areas into a tapestry through which to rethink, re-imagine, reshape and steer the safeguarding, preservation, access, promotion and dissemination of children's indigenous games. As will be shown in the unravelling of segments to follow, the digitisation of cultural heritage in general, and indigenous games are relatively new and novel fields of research inquiry that present unique opportunities and challenges in the African context (Ognjanovic, Marinkovic, Šegan-Radonjic & Maslikovic, 2019). Before delving into the digitisation theme straightaway, the review is prefaced by a synopsis on African indigenous games and indigenous knowledge. The synopsis is deemed a key entry point in appreciating the implications of digitising such cultural expressions. Other aspects which are included are pedagogical issues since children spend huge amounts of time in schools and educational systems are strategic places in promoting indigenous games. The review also explores the key benefits of indigenous games and their classifications so that the digitisation process is informed by an understanding of the nature of these games in their original state.

3.2 Synopsis on indigenous games and indigenous knowledge

Research on children's indigenous games is increasingly attracting scholarly interest in fields such as African Studies, anthropology, pedagogy, sociology, psychology and kinesiology (Mawere, 2012). This interest not only emanates from the curiosity to explore the ingenuity and inventiveness of African people in their aptitude to create games for recreation and pastimes, but also for reinforcing cultural values which are under the threat of extinction (Goslin, 2009). This renewed scholarly interest occurs against the background of an African cultural historicity which suffered sustained onslaught by mainly prejudiced Western ethnologists and missionaries who viewed African traditions as being backward, inferior and even immoral (Roux, 2009). Eurocentric scholars have mostly assumed that indigenous knowledge has no validity or application in the physical world except perhaps in the metaphysical, spiritual or cosmological realms which to them almost invariably bordered on the demonic and the occult when explored through African systems of knowing (Mawere, 2012). This onslaught even extended to African people's movement or physical culture as reflected in games, wherein the Western caricature of indigenous games was that of uncoordinated movements which not only lack grace, but were unscientific at best and primitive at worst. Out of such a hegemonic epistemological mis-conceptualising of indigenous games, most African children have been made to believe that Western sports constitute the cornerstone of physical recreation, fitness and wellbeing, much to the detriment of Africa's movement and physical culture. It is the duty of Afro-centric scholarship to debunk such notions. This is best captured by Shehu (2004:29)

> 'The denotation of indigenous games as ancestral or aboriginal forms of physical rivalries and initiatory contests often elicits the reaction or creates the impression that they are barbaric, vicious and archaic. But it is a question of perspective. We can as well replace this dysfunctional perspective with another that casts indigenous games in a meaningful light. Indigenous games are not idle or barbaric practices at all; they are instruments of sacralising, refreshing, educating, staying strong and healthy and enjoying a rightful pride of affiliation with one's people. They symbolise cultural abstracts, proofs and specimens of how various native groups access and engender wellbeing through sensible conviviality, creative dance, competitive physical activity and other enactments that order relationships with the body and the cosmos.'

Any endeavour to explore the preservation of indigenous games must, of necessity, be grounded in understanding the role and importance of indigenous knowledge (IK). The basic definition of indigenous knowledge is the multifarious set of knowledges and technologies developed around specific conditions of populations and communities that are native to a geographic area. This knowledge develops through the processes of acculturation and kinship relationships that societal groups form, and are handed down to younger generations through oral tradition as well as cultural practices like rituals and rites (Mawere, 2012). Odora-Hoppers (2002) observes that one of the key reasons for increased scholarly attention on IK is that the world stands at the crossroads in search of nuanced imaginations of sustainable development within a decolonising framework to excavate the subjugated knowledges with a view to making them available and accessible for present and future generations. In African studies and within the context of indigenous knowledge, there is a growing body of knowledge that explores the role of indigenous knowledge on such subjects as health, diet, reproduction, agriculture, architecture, climatology and ethics. Such scholarship results in knowledge construction (content) that is more closely linked to indigenous people' s own life-worlds, histories and stories (context) (Nxumalo & Mncube, 2019). However, indigenous knowledge on African people's physical culture which deals with people's movement practices such as indigenous games and their preservation seems to lag in scholarship. Mawere (2012) notes the following key characteristics of indigenous knowledge:

- IK is embedded in a people's culture as it is manifested in the community's collective history, beliefs, practices and relationships.
- IK is collective though some parts of it are sacred and secrete to a group or some individuals.
- IK is holistic in so far as it contains a total worldview.

IK is never static, but always dynamic. This is because no human being and consequently society is an island unto itself. Cross-pollination of ideas results in changes and evolution of cultural practices. Table 3.1 shows the differences between indigenous knowledge and conventional knowledge.

Table 3.1 Differences between indigenous knowledge and conventional knowledge

Indigenous knowledge	**Conventional knowledge**
Generated by societal members through trial and error as members seek solutions to their daily problems	Generated by planned procedures and rules
Drawn from existing societal wisdom and other local resources and a sense of creativity	Drawn from set-out principles, theories, and laws
Passed on orally (though this is changing) from one generation to the next	Passed on through documents and other stores of knowledge
Normally not found in school curricula (though this is changing)	Found in school curricula
Generated in specific local contexts, though influenced by knowledge generated in other contexts (which means IKs are dynamic and not static)	Generated in academy
Normally not found in packages	Found in package such as disciplines
Constantly changing, produced as well as reproduced, though perceived by outsiders/external observers as static	Normally found in permanent form such as theories and in print
Emphasises cooperative communalism as it strives to include all children in the community	Emphasises competitive individualism as it eliminates learners through failure of tests

Adapted from Mawere (2015: 60)

Nxumalo and Mncube (2019) reckon that through indigenous games and knowledge, children learn about their communities and this helps in the perpetuation of societal structures, laws, languages and values inherited from the past. In the context of indigenous games, Shehu (2004:22) opines that:

> 'To the extent that Western sports were entrenched in African societies by a mixture of articulation, imposition and collaboration, there is a need to reposition, represent and re-engage the localised games that

> were displaced for colonial sports to gain a foothold in postcolonial schools and communities.'

Despite Africa's rich history of indigenous games, several these games have gone extinct without having been documented in most historical and anthropological accounts of the indigenous people of Africa. Tufekčić (2016: 37) was even blunter by highlighting that:

> 'Traditional children's games (have) disappeared from the life of a modern child at large and today are unknown to children. They are not part of the everyday natural environment of a modern child any longer. One can even talk about disappearance of a large number of elements of children's sub-cultures in connection with games and playing that traditionally shaped the world of childhood and youth.'

The preceding view does not paint a pleasant picture since indigenous games impact on number of pertinent issues such as African identity, cultural diversity and accessibility of resources (Sport and Recreation South Africa (SRSA), 2018)). It therefore, stands to reason that such knowledge should be preserved and transmissible to restore some lost elements in the physical and movement identity of African children. Mawere (2012) cites the World Bank (1998) about some key steps in transmitting indigenous knowledge as:

- **Recognition and identification**

Some IKs may be embedded in a mix of technologies or in cultural values, rendering them unrecognisable at first glance to the external observer (technical and social analyses may, therefore, be required to identify indigenous knowledge). It is important that they are recognised and identified.

- **Validation**

This involves an assessment of IK's significance and relevance (to solving problems), reliability (i.e., not being an accidental occurrence), functionality (how well does it work?), effectiveness and transferability. The significance of indigenous games in developing common health and social issues should be spotlighted. Additionally, it must be ascertained that these games can be played in other contexts as well.

- **Recording and documentation**

Recording and documentation is a major challenge because of the implicit and inferred nature of IK (it is typically exchanged through personal communication from master to apprentice, from parent to child, etc.). In some cases, modern tools could be used, while in other circumstances it may be appropriate to rely on more traditional methods (e.g., taped narration, drawings). These aspects require documentation for preservation and posterity.

- **Storage in retrievable repositories**

Storage is not limited to text document or electronic format; it could include tapes, films and through story-telling. Such storage enables accessibility to users and players if they have access to the devices.

- **Transfer**

This step goes beyond merely conveying the knowledge to the recipient. It also entails the testing of the knowledge in the new environment. Pilots are the most appropriate approach in this step.

- **Dissemination**

Dissemination to a wider community adds the developmental dimension to the exchange of knowledge and could promote a wider and deeper ripple impact of the knowledge transfer. The dissemination of knowledge on indigenous games can promote participation among children as they gain more exposure to how and why the games are played.

In line with the thrust and orientation of this study, if ever there are to be technological adoptions involved in preserving and promoting indigenous knowledge based activities such as indigenous games, there should be respect for African culture, and not a perpetuation of pejorative and negative stereotypes. That is, digitisation should not only preserve indigenous culture, but should possibly create new pathways for the development of indigenous ideas in contemporary and emerging technology while retaining the integrity and spirit of indigeneity

(Robbins, 2010). To that end, one of the emerging fields and key perspective which warrants scholarly mention in this study is decolonisation.

3.3 The decolonisation discourse and indigenous games

Before the advent of colonialism, children's participation in physical activities in Africa was engrained and embedded in the fabric of its diverse ethnic communities (Amusa & Toriola, 2010). Such indigenous education consisted of traditions and folklore as well as knowledge that were tied to tribal ceremonies and orally handed down across generations. Traditional education revered physical prowess and strength. Games united communities in activities such as harvest festivals and wedding ceremonies (Chepyator-Thomson, 2014). Such physical activities were the hallmark of recreational movement expression among African children (Mwisukha, Rintaugu, Kamenju & Mwangi, 2014). Through colonialism, an advancement of the colonialist enterprise of purportedly civilising Black children through the missionary school's system threw out most indigenous recreational and artistic physical activity pursuits (Munchick, 2017). African indigenous games were de-legitimated without any significant attempts to incorporate them in the curriculum while colonially inspired activities continued to flourish up to now (Shehu, 2004). Mawere (2012:30) argues that:

> 'The protracted slavery and colonial relationship between Africa and Europe resulted in the dehumanisation of the African people and perpetuated socio-economic, racial and cultural stereotypes about Africa and the [indigenous] African people. Even today such stereotypes, misrepresentations and prejudices against Africa and the [indigenous] African people have continued to be circulated and recycled by many Eurocentric scholars and African protégées'.

Despite the prolonged colonial enterprise to eradicate African systems of knowing, Ndlovu-Gatsheni (2020) notes that indigenous knowledges were merely subdued, but not necessarily or completely exterminated, hence the quest to revive such knowledges through the decolonisation framework. Decolonisation is about the unlearning, deconstructing and dismantling the hegemonic culture of dehumanisation brought about through the systemic oppression of colonisation (Odora-Hoppers, 2017). This unlearning involves the mind, personality, social actions, education settings (teaching and learning), curriculum and research practices (Chukwuere, 2017). This culture of dehumanisation through colonisation did not only result in the decimation of African indigenous political and economic systems, but also

attempted to annihilate Africa's ways of knowing. Nldovu-Gatsheni (2020) deploys the term 'epistemicide' to describe this phenomenon of killing African epistemologies (knowledges), an addition to the litany of so many evils that colonialism brought about such as genocide. Scholars such as Escobar (2011) and Benjamin (2019) call for a reformed medium of digitisation which leads to a transformed understanding of science, one which does not perpetuate hegemony, but would help humans reinterpret their place at the level which is responsive and relevant to their existential realities, histories, contexts, developmental thrusts, aspirations and culture.

Western systems of knowledge production have earned notoriety in the decolonial discourse for being repressive towards the populations of the Global South. The Global South refers broadly to the regions of Latin America, Asia, Oceania and Africa. The term is ensconced among its other cousins such as "Third World" and "Periphery," to denote regions outside Europe and North America and they are mostly characterised by low-income and more significantly, cultural marginalisation (Geyser, 2018; Dados & Connell, 2012). Culture is the way of life of a people and it consists of norms, beliefs, taboos and overall social and therefore there can be no people without a culture. An assault to a people's culture by eternal forces therefore poses an existential threat which is aptly captured in Chinua Achebe's Things fall apart:

> 'Does the white man understand our custom about land? How can he when does not even our tongue? But he says our customs are bad; and our own brothers who have taken up his religion also say that our customs are bad. How do you think we can fight when our brothers have turned against us? The white man is very clever. He came quietly and peaceably with his religion. We were amused at his foolishness and allowed him to stay. Now he has won our brothers, and our clan can no longer act like one. He has put a knife on the things that held us together and we have fallen apart' (Achebe, 1958: 152)

The decolonisation process therefore requires the creation of alternative knowledge systems to counter the epistemological hegemony of Western and Eurocentric ways of knowing. Geyser (2018) notes that the making of games is inherently a form of knowledge production and this stance is stressed in de-colonial theory. The aim is not to entirely oust Westernised and Eurocentric worldviews but rather to position Africa at the centre of defining and shaping its own discourses and praxes (Mbembe, 2015). The emphasis on foregrounding African thought and philosophy is not necessarily mere advocacy for a return to a romanticised pre-colonial

past to rediscover old knowledge practices. The main trajectory centres around engaging with concepts rooted in Africa while considering present and future situations and contexts (Oelofsen, 2015). In further clarifying the ways in how the decolonisation of knowledge systems can unravel, Chilisa (2012) and (Laenui, 2009) outline five stages of phases which characterise the process of decolonisation. These are rediscovery and recovery, mourning, dreaming, commitment and action.

3.3.1 Rediscovery and recovery

This is when colonised people rediscover and recover their own history, culture and identity. Various causes or reasons may bring people to a place of discovery and recovery. These could include curiosity, desperation, escape or fate (Laenui, 2009; Chilisa, 2012).

3.3.2 Mourning

Mourning involves lamenting the continued assault on the world's colonised and oppressed peoples' identities and social realities. The process of mourning is considered crucial to the process of healing and denotes reminiscing on the on-going attack on indigenous people. This stage can take an indeterminate amount of time if there appears to be no alternative course of action (Laenui, 2006; Chilisa, 2012).

3.3.3 Dreaming

This stage is when indigenous histories, worldviews and knowledge systems are invoked to theorise and imagine alternative knowledge systems. Dreaming calls forth histories of the colonised to envision alternate possibilities. Among other interventions, this involves a commitment to recognise the voices of the colonised in bringing curriculum change through research driven interventions. It is considered the most crucial phase for decolonisation as it involves the full exploration of a range of possibilities through debates and consultation. It allows indigenous people to express their hopes and full aspirations (Laenui, 2006; Chilisa, 2012).

3.3.4 Commitment

This is when people find their voice and demonstrate the commitment to include the voices of the colonised. In this process, people combine their voices to forge a combined course of action which expresses the will of the indigenous people (Laenui, 2006; Chilisa, 2012).

3.3.5 Action

This is when dreams and commitments translate into strategies for social transformation. This action should arise from a logical outworking of the commitment of the people. It is a pro-active step taken upon the consensus of the people (Laenui, 2006; Chilisa, 2012).

The preceding steps can also be applicable in bringing back indigenous games and their digitisation process. However, any commitment and action requires safeguards so that the end-product reflects a truly decolonised epistemic system. Ndlovu-Gatsheni (2020) deploys what he coined as the ten Ds of the de-colonial turn in explaining the process of de-constructing colonial knowledge or epistemic systems. They comprise of decolonisation, deimperialisation, depatriachisation, deracialisation, dedisciplining, deprovincialisation, debourgeoisement, decorporatisation, democratisation and dehierarchisation. They are represented and briefly explained in table 3.2.

Table 3.2 Ten Ds of the decolonial turn

Decolonial Turn	**Elaboration**
Decolonisation	Shifting from Eurocentric scaffold of knowledge to African and other subjugated knowledges.
Deimperialisation	Changing the modern power structures which anchor and enable universalisation of European knowledge.
Depatriachisation	Undoing the androcentrism in knowledge generation and opening up to feminist, queer and womanist scholarship.
Deracialisation	Removing the colour-line and abyssal thinking in knowledge.
Dedisciplining	Liberating knowledge from disciplinary empires and academic tribes.

Deprovincialisation	(Re)placing Africa into the centre of knowledge and releasing it from marginality and peripherality.
Debourgeoisement	Liberating knowledge from dominant white minority male elite intellectuals and opening it up to knowledge from African intellectuals, peasants, workers, and women.
Decorporatisation	Confronting market invasion and colonisation of universities and challenging commercialisation and commodification of knowledge and education
Democratisation	Opening up to mosaic epistemology and ecologies of Knowledges
Dehierarchisation	Decentering hierarchies of thought and knowledge

Having focused on decolonisation, the next section explores the intersection between education and indigenous games, with implications for a typically decolonised curriculum.

3.4 The intersection between education and indigenous games

Before the advent of colonialism, indigenous games were transmitted through informal ways of learning. Such informal learning was woven into the cultural fabric of society and occurred outside institutional and organised school systems such as we have today. Instead, it was derived from grandparents, parents, friends and peers through the processes of socialisation. Informal education is learning which occurs outside institutional school systems wherein knowledge is derived incidentally through daily influences from family and friends (Farahani, Mirzamohamadi & Noroozi, 2014). Socialisation is a learning process which involves the acquisition and internalisation of norms and values by individuals as they interact and interrelate with others in society (Coakley & Pike, 2014). Socialisation from family members and peers has been crucial in influencing on children's physical activity participation as it shaped the immediate context that children were exposed to, thus influencing their identities and physical activity options (Thurston, 2011). It can thus be argued that before the colonial period, children's indigenous games thrived in Africa.

In colonial South Africa, the domination of European learning systems resulted in Western and European oriented physical activities having precedence over indigenous physical activities. Schools served as outposts of colonial indoctrination with physical activity resources being iniquitously allocated to perpetuate racial and classist education systems (Chepyator-Thomson, 2014). Most of the schooling for non-Whites occurred in missionary schools and rode on the belief that European culture was superior to all native customs. It is upon these customs that the physical activity life of indigenous people was embedded. By advancing the colonialist enterprise of purportedly civilising Black children, missionary schools threw out most indigenous recreational and artistic physical activity options (Munchick, 2017). Local indigenous games were meanwhile de-legitimated without any significant attempts to incorporate them in the curriculum while colonially inspired activities continued to flourish (Shehu, 2004). In South Africa, activities with Dutch, German, British and Swedish influences were popular in schools. Among black schools, activities which comprised of militarised drill were used as a form of physical activity to enforce social control and promote wholehearted compliance among black learners (Cleophas, 2015).

The gaining of South Africa's independence in 1994 raised initial hopes that the curriculum would pave way for a more democratised educational framework which would reflect the decolonised state. However, curricular reform comprised of many false starts and experimental policies which reduced physical activity in the curriculum (Stroebel, Hay & Bloemhoff, 2017). In the current learning situation, indigenous games are notionally provided for in the National Curriculum Statement (NCS) Grade R – 12. This curriculum comprises of Curriculum and Assessment Policy Statements (CAPS) for each school subject (Department of Basic Education, 2011). The main learning areas in which traditional games feature are Life Skills and Life Orientation. Life Skills is taught from Grade R to 6 while Life Orientation is taught from Grade 7 to 12. The two learning areas' concept and philosophy are the same despite the differences in name. Life Skills and Life Orientation, basically comprise of an aggregation of various sub-components such as Creative Arts, Physical Education as well as Personal and Social wellbeing. The main sub-area in which indigenous games are offered is Physical Education (PE). Roux (2017) calls for the reinforcement of the PE curriculum with indigenous games as a key constituent. These can foster a positive self-concept among learners within the context of their own cultural heritage. However, the extent to which indigenous activities are harnessed for PE lessons by rural schools is not fully ascertained.

The development of the learner's gross and fine motor skills and perceptual development is fundamental through PE. Physical and motor development is integral to the holistic development of learners. It makes a significant contribution to learners' social, personal and emotional development. Play, movement, games and sport contribute to developing positive attitudes and values. This area focuses on perceptual and loco-motor development, rhythm, balance and laterality. The focus in the Foundation Phase is on games and some activities that will form the basis of participating in sports. Physical growth, development, recreation and play are emphasised. The immediate and most conspicuous challenge however is that PE, and by extension indigenous games, have some of the least amount of time in the curriculum. In the Foundation Phase, PE is allocated 2 hours per week while in the Intermediate it is allocated 1 hour per week (Department of Basic Education, 2011). This is hardly enough for learners to engage in significantly high amounts of traditional games due to other competing physical activities. Other potential factors could be the willingness and skill-levels of teachers to include indigenous games in their teaching. Mawere (2012) criticizes the unbalanced relationship between Western children games and African children's games in terms of the value accredited to them even in African institutions such as primary schools. The question that arises in the context of this work is: Can digitisation then play a role in the improved delivery of indigenous games in schools?

Table 3.3 Weekly subject time allocation in the CAPS Foundation Phase

Subject	Hours
Home language	6
First additional language	5
Mathematics	6
Natural sciences and technology	3.5
Social sciences	3

Life Skills	**4**
• **Creative Arts**	(1,5)
• **Physical Education**	**(2)**
• **Personal and Social Well-being**	(1,5)
Total	**27,5**

Table 3.3 Weekly Subject Time Allocation in the CAPS Intermediate Phase

Subject	**Hours**
Home language	6
First additional language	5
Mathematics	6
Natural sciences and technology	3.5
Social sciences	3
Life Skills	**4**
• **Creative Arts**	(1,5)
• **Physical Education**	**(1)**
• **Personal and Social Well-being**	(1,5)
Total	**27,5**

3.4.1 Decolonial implications for teaching indigenous games in a school context

As highlighted earlier, one of the key discussion points on indigenous games is the decolonisation and Africanisation of the curriculum. This section provides a possible framework within which indigenous games can be included in the curriculum. Digitisation can offer both indigenous and non-indigenous teachers and learners' visual representations and simulations of how to implement various indigenous games especially through such learning areas as Physical Education within existing pedagogic frameworks (Chukwuere, 2017). There might be no consensus on the systematic and contextual application in integrating these games, but using existing pedagogical frameworks in schools can be a key starting point. The main developmental outcomes of learning processes in schools involve the psychomotor, affective and cognitive development in children. The psychomotor domain involves the physical and motor skills necessary to execute physical tasks. The affective domain involves fostering the mastery of emotions, developing good attitudes and establishing healthy social relationships. The cognitive domain entails the intellectual grasping of concepts, tactics and the improvement of memory (Cleland-Donnelly, Mueller & Gallahue, 2017). The possible challenge which arises is that Africa has lots of cultures even within small geographic spaces, so implementing a uniform culturally responsive pedagogic structure on indigenous games can be untenable. What is possible is to implement a pedagogical strategy and curricular framework that leaves room for flexibility to accommodate different cultural expressions (Ejuu, 2015). According to (Nsamenang, 2013), indigenous games can be used as education activities to assign sequential cultural tasks in a child's learning developmental process. African pedagogies are typically participative and interactive, and these can be embedded in existing educational ideas to transfer holistic life skills to the next generation (Ejuu, 2019).

3.4.1.1 Pedagogic implications for the psychomotor domain

Teaching in the psychomotor domain in the human movement discourse is typically done along an ascending and incremental set of objectives in which lower order objectives focus on the acquisition of basic movement and perceptual abilities. The higher order objectives focus on fitness, skill and creativity in the use of these movements. These objectives are imitation, manipulation, precision, articulation and naturalisation (Wuest & Fisette, 2012). These stages and their implications for indigenous games are explained as follows:

Imitation

Imitation involves observing, patterning and modelling one's behaviour after someone else. It is the repetition action of another and executing it (Mishra, Barrans & Pislaru, 2009). In teaching children, indigenous games, an instructor may demonstrate a catching technique in a game such as *ncuva*. In order to promote social competence as highlighted by Nsamenang (2006), researchers must ensure that learners feed from their peer group to ensure that the imitation occurs in a communal and social spirit, as learners imitate from each other on how to master a technique.

Precision

This involves becoming more accurate in demonstrating the skills with limited obvious errors, as well as implementing a skill reliably and independent of help (Mishra *et al*. 2009). In the context of indigenous games, learners can communally and repeatedly practise their shared routines in a game such as *khadi* (skipping rope) until there is smooth execution of the techniques of either the leaps or the swinging of the rope (Wuest & Fisette, 2012).

Articulation

This aspect involves the ability to coordinate a sequence of actions in synchronisation and with internal consistency (Wuest & Fisette, 2012). Children can combine connected or related activities to develop methods that meet varying requirements (Mishra *et al*., 2009). They can adapt and integrate expertise to satisfy a non-standard objective (Wuest & Fisette, 2012). In the context of indigenous games, learners may be able to leap and sing at the same time to the game of *khadi* (skipping rope). As the learners become more proficient, the maintenance of interconnected in enacting one's roles in the game is of paramount importance (Nsamenang, 2006).

Naturalisation

This involves performing at high level without a need to think much about it (Wuest & Fisette, 2012). It is automated, unconscious mastery of the activity and related skills at strategic or tactical level (Mishra *et al*., 2009; Wuest & Fisette, 2012). During *khadi*, a child who is

naturalised can sing leap and even turn while effortlessly enjoying themselves in the activity. Such competency must be undergirded by interdependent and relational script in which those learners who are competent must assist their peers who may still need more assistance in gaining mastery of the game (Nsamenang, 2006).

3.4.1.2 Pedagogic implications for the affective domain

Learning in the affective domain is incrementally progressive and occurs in five stages which involve receiving, responding, valuing, organising and characterising by a value or complex (Wuest & Fisette, 2012). These stages and their implications for indigenous games are explained as follows:

Receiving

This is the sensitivity to the existence of certain events or stimuli, and the corresponding willingness to receive or attend to phenomena (Wuest & Fisette, 2012). Children can be self-centred and assume that everyone thinks the way they do (Gallahue & Cleland-Donnelly, 2003). In the context of indigenous games, receiving may be shown by the children listening to the teacher's instructions concerning an indigenous game. In principle, children should also be allowed to respond to stimuli on their own and discover various game nuances during participation (Nsamenang, 2006).

Responding

This refers to exhibiting active attention and the ability to react to stimuli beyond mere perception (Wuest & Fisette, 2012). It is the ability of children to act, interact, and react effectively with others (Gallahue & Cleland Donnelly, 2003). In indigenous games, this can be applied in cases where children can stop and listen in class every time they hear a whistle blown or when any other signal is given.

Valuing

This is assigning worth to stimuli by placing value and appreciating events. It is shown when children go beyond school activities and participate in indigenous games outside the scope of

the school curriculum to show their appreciation of physical activities (Wuest & Fisette, 2012). At this level learners, should also demonstrate responsible equipment handling or even the ability to improvise materials to be used for the games. As they engage with their peers, children create and transmit their own language, games, secret worlds, fantasies and another cultural knowledge. This creates a sense of creativity, freedom, responsibility, spontaneity (Tufekčić, 2016).

Organising

Organising involves internalising and organising values into a system. It involves accepting responsibility for one's behaviour (Wuest & Fisette, 2012). Indigenous games can help in promoting and developing self-monitoring skills. Children can learn social skills and account for their own behaviour (Vidoni & Ulman, 2012). In the context of indigenous games, children can adapt rules and play systems to ensure that everyone has a chance to participate, thereby demonstrating selflessness, empathy and a spirit of community.

Characterising by a value or complex

This involves acting in accordance with internalised values. It entails integrating values into one's personality. In physical activities, learners can collaborate with classmates as they strategize on how to complete a task (Wuest & Fisette, 2012). This can also involve giving compliments to fellow classmates (Holt & Hannon, 2006). It is common in African indigenous games for some to be singing and cheering while a teammate takes a turn to engage in an activity.

3.4.1.3 Pedagogic implications for the cognitive domain

The cognitive domain involves the attainment of intellectual knowledge and skills. In traditional Africa, the peer group plays a pivotal role in the development of cognition because, from toddlerhood, the child comes more under the purview of the peer culture than of the adult world (Nsamenang, 2006). The cognitive domain entails understanding learning objectives from a simple to a more complex level and the steps of learning involve grasping of facts, understanding, critical analysis, synthesis and evaluation (Wuest & Fisette, 2012). The learning objectives in the cognitive domain are knowledge transfer, comprehension, application,

analysis and synthesis. These stages and their implications for indigenous games are explained as follows:

Knowledge transfer

This is regarded as the lowest level of learning and it involves the ability to recall from memory and recall correct information (Wuest & Fisette, 2012). At this level, learning about concepts can produce behaviour change as learners grasp movement, fitness and activity skills' concepts on movement (Gallahue & Cleland-Donnelly, 2003). In indigenous games, a child can display this objective by recalling aspects of moving the pebbles in the game of *muravharavha.*

Comprehension

In comprehension, students learn to interpret information to understand meaning behind such information (Mishra *et a*l., 2009). It involves grasping the meaning without perceiving the implications. This level is above memory but is at a lower level of understanding. In indigenous games, it can involve knowing movement aspects of evading tagging in the game of *duvheke.*

Application

This is the ability to use information in new situations by applying rules, methods and concepts (Wuest & Fisette, 2012). This represents a higher level of understanding in which children can understand the game in real terms rather than in abstract notions. In a game, such as *duvheke* for example, a child who is at this level knows the best time and reason to make a run.

Analysis

This is the higher intellectual level in which the learner can break the material into component parts (Wuest & Fisette, 2012). It involves emphasis in developing the concepts of why, what, how and when in relation to one's movement (Gallahue & Cleland Donnelly, 2003). In indigenous games, if an opponent is constantly winning by adopting an offensive strategy, the child who is in the defence should adjust their play to increase chances of defending successfully (Wuest & Fisette, 2012).

Synthesis

This is the ability to put parts together to form a new whole. It involves combining analysis results to model a new or existing method (Mishra *et al*., 2009). It involves creatively putting new patterns, routines or structures. In a game, such as *duvheke*, players can change their defensive formation and rotate players to improve chances of defending successfully.

Evaluation

This is the ability to judge ideas and concepts based on definitive criteria. It is the highest learning outcome as it involves optimising skills and strategies (Mishra *et al*., 2009). In applying this objective to indigenous games, a player should be able to reflect on and explain the skills, strategies, competencies and tactics that an opponent might have used to win a game. This helps a child to improve on their game in the coming encounters.

Having explored on how indigenous games can be part of the curriculum, the next section explores in detail the intersection between physical activity movement components and childhood movement practices.

3.5 Childhood, physical activity and movement practices

Movement is one of the central and universal expressions of humanity's physical existence (Van Deventer, 2015). This study has children as its main focus. It is, therefore, critical from the outset to highlight some key issues on children's physical and movement activities. The development of a child is multifaceted and characterized by several dimensions including the physical, affective and cognitive domains. This development is strongly shaped by one's socio-cultural context. It is impossible to separate one's culture and context in fully explaining their development (Nsamenang, 2013). Movement is thus a socio-cultural product that is transferred and created through processes of socialisation, enculturation and acculturation (Roux, 2009). The United Nations Convention on the Rights of the Child (UNCRC) (2013) on Article 31 states that:

> 'Children reproduce, transform, create and transmit culture through their own imaginative play, songs, dance, animation, stories, painting, games, street theatre, puppetry, festivals, and so on. As they gain understanding of the cultural and artistic life around them from adult and peer relationships, they translate and adapt its meaning through their own generational experience. Through engagement with their

> peers, children create and transmit their own language, games, secret worlds, fantasies and other cultural knowledge.' (UNCRC, 2013: 5).

In African societies, movement activities are worth more than just passing time with. The activities are an important part of childhood and cultural tools of socialisation. Childhood development practices must be informed by cultural expectations to strengthen the relationship between childhood development and context (Kalinde, 2016). They are also a repository of native education that enhances cultural construction and perpetuation of societal values which shape the total being of the young as they grow into maturity (Amlor, 2016). This section will briefly explain the concepts of play and games.

3.5.1 Play

Playing plays an important role in orienting children to the core values, beliefs and practices of their societies (Diale *et al*., 2019). African peer cultures allow for free-spirited play settings which foster self-education, generative learning, peer mentoring, extensive child-to-child interactions and inter-stimulation (Nsamenang 2004). Play is a childhood instinct that is intrinsic to processes of childhood learning and development (Gleave & Cole-Hamilton, 2012). Play is the medium of expressing their experiences as well as their feelings. Play patterns are part of a cultural heritage that is socially constructed to symbolically reflect and communicate lived realities as both cause and consequence of the socialisation process (Roux, 2009). Children's play is behaviour, activity, or process that is initiated, controlled and structured by children themselves, and it takes place whenever and wherever opportunities arise. Play is distinctive in that it is culturally moulded and varies from one society to the other based on set of cultural variables that includes social organization, attitudes and values (Ahmadi & Sharbatian, 2017). The key characteristics of play as highlighted by Honeybourne (2004) are that play is freely engaged in, it is an end within and of itself, consists of informal rules as participants can agree on them and even change them during an activity and that play is uncertain as it has no formal ending.

In categorising play, Parten (1932) classified it in the following categories:

Solitary play - This is when a child plays alone with toys or props.
Parallel play - This is when children play side by side with little interaction but pleased and aware of the company of others.

Associative play – This is when pairs and groups of children play together and share materials but cooperation and negotiation is rare.

Cooperative play – This is when children engage in sustained play episodes in which they plan, negotiate, and share responsibility and leadership.

On the other hand, Piaget's (1995) categorisation of play involves:

Functional play – This is when children engage in sensory and motor exploration of toys and materials order to learn about them.

Constructive play – This is when children manipulate objects to create something else.

Games with rules – This is when children recognise and follow rules that conform to the expectations and goals of the game to sustain play.

3.5.2 Games

Games are recreational contests among rivals or teammates operating under constraints (rules and resources) for an objective which might involve winning, victory, prestige or status. A game activity usually involves competition or/and cooperation between individuals or teams who are competing against each other or together while jointly conquering circumstances or fighting the odds (Klabbers, 2006). Callois (2001:81) states the following about the classical enduring characteristic of games:

> 'The persistence of games is remarkable. Empires and institutions may disappear, but games survive with the same rules and sometimes even the same paraphernalia. The chief reason is that they are not important and possess the permanence of the insignificant. Herein lies a major mystery. In order to benefit from this kind of fluid and yet obstinate continuity, they must be like the leaves on the trees which survive from one season to the next and remain identical. Games must be ever similar to animal skins, the design on butterfly wings, and the spiral curves of shell fish which are transmitted unchanged from generation to generation. However, games do not have this hereditary sameness. They are innumerable and changeable. They are clad in thousands of unequally distributed shapes, just as vegetable species are, but infinitely more adaptable, spreading and acclimating themselves with disconcerting ease.'

From the above quote, games can easily be overlooked as insignificant and even inconspicuous, but they form a key and ubiquitous constituent of every society. Games are usually

characterised by playful competition whose outcome is determined by physical skill, strategy, or chance employed singly or in combination. Games are artificially created situations, defined by rules which are freely accepted, binding, and comprehended in such a way as to make the attainment of ends where luck often determines outcome (Vossen, 2004). Callois (2001) came up with four categories of classifying games. These are agon (competitive games), alea (games of chance), mimicry (games of simulation) as well as ilinx (pursuit of vertigo). Within the framework of these categories, Callois placed games along a continuum from paidia (spontaneous, exuberant play) to ludus (refined, disciplined activity).

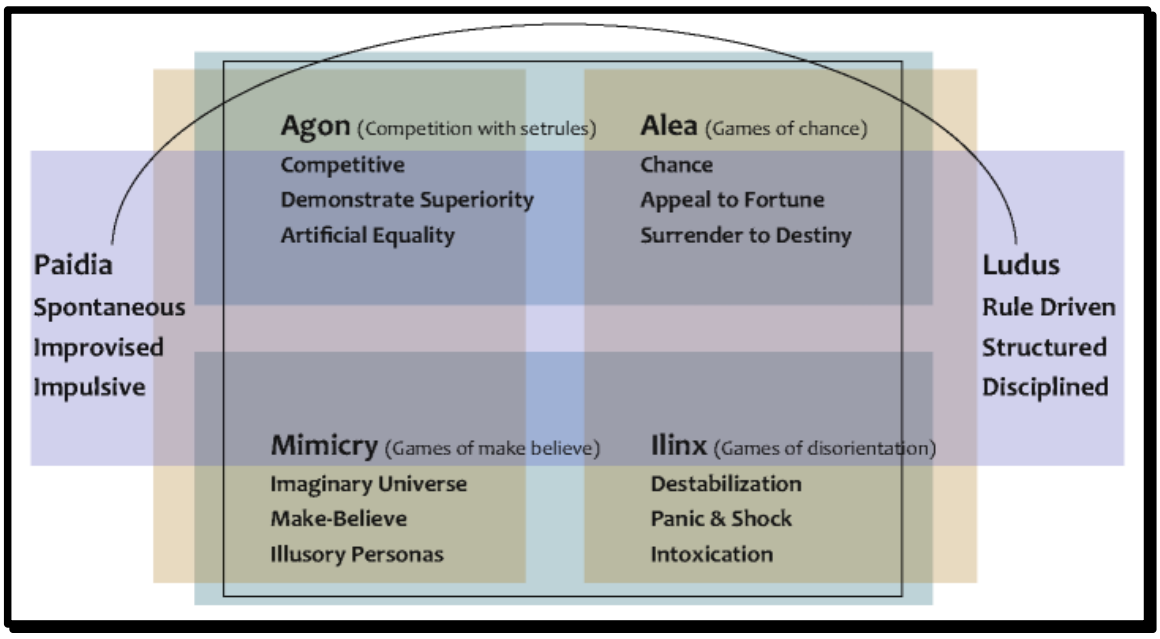


Fig 4: Classification of games adapted from Callois (2001)

The next section presents a synopsis on indigenous games.

3.6 Synopsis on indigenous games

Indigenous games are native recreational activities originating in characteristic of an area, people and domain (Sport and Recreation South Africa, 2018). This means that they are developed and exist around specific conditions of populations and communities indigenous to geographic locations (Mawere, 2012). As has been iterated in this review, a common phenomenon that characterised pre-colonial Africa was the predominance of indigenous games of varying types and every hue. These activities diffused among various African tribes at

different times where each of them signified a unique ideal to an ideal at the time. With the passage of time most of these games became scarce and if no effort is made to preserve them, they are in danger of extinction (Gathua & Wanderi, 2009). With the disappearance of these games, indigenous knowledge and humanistic values are also disappearing and there is a real risk that they will be replaced entirely by commercial, violent games and values (Goslin & Goslin, 2009). There should be efforts to trace the fast-disappearing African indigenous games with the hope of developing them for contemporary use (Wanderi, 2009). The sustainable revival of these games is dependent on its successful integration in the daily social fabric of communities. According to Goslin and Goslin (2010), any revival campaign of indigenous games must involve:

- Systematic mapping and analysis across ethnic and geographic borders.
- Active participation which should be facilitated on a regular basis.
- Infrastructure and skill development.
- Incorporation into local economic structures.

Indigenous games evolve as a reaction to the environment along the patterning of culture through processes of enculturation and acculturation. It is to be expected that their content may change in reaction to the context and changed social relations. In their preservation, the key challenge is to capture their evolving heritage and convey it with in-depth understanding of the original creators who metaphorically reflected on their social worlds while at the same time seeking enjoyment, challenge and an escape in the paradoxical seriousness of gaming (Burnett, 2009). Hence, despite the changing global dynamics in socio-cultural milieus, the preservation of indigenous games is paramount and should go beyond mere rhetoric. The UNESCO Concept Note on Traditional Sports and Games highlights that:

> ‘Safeguarding and promoting traditional sport and games (TSG) requires developing knowledge, sharing information and raising awareness on its intangible heritage. Traditional sports and games have, for decades, faced a paradox: there is a renewed interest in TSG at national, regional and international levels but this is not concordant with its apparent marginalization. The increased professionalization and commercialization of sports, the corresponding shift in values that they encompass the global preponderance of certain sporting activities and the neglect of physical education systems are important challenges contrasting with the status quo on the development of traditional sports and games. With this in mind, UNESCO’s work focuses on advocacy aiming to safeguard, promote and develop TSG, and to ensure that they

form an integral part of national and international cultural development' (UNESCO, 2017: 1).

3.6.1 Classifications of indigenous games

Indigenous games are not played in a haphazard manner but they follow a path of distinct and specific procedures to successfully play them (Mawere, 2012). The indigenous games can further be improved and regularly practiced in the same way as those other games that are showcased on the international scene. After all, those which are regarded as conventional games and sports today were also indigenous games which continue to pass on cultural heritage of communities that once practiced them. While the proliferation of Western sports is sometimes seen as development in African contexts, the reality is that they too worked hard to develop and market their games, notwithstanding their hegemonic imposition of African societies through colonialism (Ejuu, 2019). Within a broad anthropological paradigm, Cheska (1987) developed a typology of games based on their structural characteristics. Classification of these games is important in that it facilitates easy reference, comprehension and utilization of the games by anyone interested in using that information. Secondly, classification enhances comparative analyses of the games across different regions of the world.

Cheska classifies the games in the following categories:

- **Games of physical challenge –** In Tshivenda culture, children's indigenous games of physical challenge include *musangwe* or *mafeisi.*

- 

Fig. 5: A pictorial illustration of a game of physical challenge

- **Games of physical skill and strategy** - In Tshivenda culture, indigenous games of physical skill and strategy include *makotikoti* and *angushu.*

Fig 6: A pictorial illustration of a game of physical skill and strategy

- **Games of group interaction** - In Tshivenda culture, indigenous games of group interaction include the one underneath.

Fig 7: A pictorial illustration of a game of group interaction

- **Rhythmic and singing games -** In Tshivenda culture, indigenous games of group interaction include khadi.

Fig 8: A pictorial illustration of a rhythmic and singing game

- **Games of imagination –** In Tshivenda culture, indigenous games of imagination include *khube, dzhege pa* and *ndode dza mabofu.*

Fig 9: A pictorial illustration of a game of imagination

- **Mental games -** In Tshivenda culture, indigenous mental games include

- **Fig 10: A pictorial illustration of mental games**

- **Games of environmental context -** In Tshivenda culture, indigenous games of environmental context include *u bambela, tserere* and *mahundwane*.

Fig 11: A pictorial illustration of a game of environmental context

3.6.2 Common indigenous games in South Africa

The South African 2000/2001 Indigenous Games Project led by the then Rand Afrikaans University (now the University of Johannesburg) within the department of Sport and human Movement Studies spotlighted the relevance of indigenous games in improving children's PA participation (Nxumalo & Mcube, 2019). The project documented indigenous games mainly for ethnicities of Zulu, English, Afrikaner and Indian extraction (Burnett & Hollander, 2004). In the pursuit to advance these games, the Sport and Recreation South Africa (SRSA) standardised rules for the selected games. The Department of Sport and Recreation also hosts rotational provincial and national festivals for learners and community members to participate in indigenous games. The standardised games are *duvheke, diketo, drie stokkies, intonga, jukskei, khadi, kho-kho, muravharavha* and *ncuva (*Sport and Recreation South Africa, 2018). In the context of children's games, this is apparently not an exhaustive list as there are games such as hide and seek and role playing which are not included.

3.6.2.1 *Mufuvha*

Mufuvha is a game that was originally played by boys at the grazing fields. It is currently enjoyed by all genders. The aim of the game is to play until one player has lost all their "cows" (or pebbles) (Sport and Recreation South Africa, 2018). The equipment that is needed is a space to dig small holes into the ground, as well as pebbles for each hole. Each player only uses their side of the play area or "play board". On a turn, a player takes the contents of one of their holes, which must contain at least two stones, and distributes them, one by one, counter-clockwise into consecutive holes on their own side. If the last stone falls into a non-empty hole, its contents are distributed in another lap in the same direction. The move ends when the last stone is dropped into an empty hole. If the last stone falls into an empty hole of the inner row, and the opponent's opposite hole contains stones, these opponent's stones are "killed'. Additionally, the stones in the hole of the same file in the outer row are "captured". The killed or captured stones are removed. The player is then entitled to capture the contents of any other two enemy holes. When a player has only singletons, they are permitted to move them, but only in empty holes. The player who still has stones at the end of the game is declared the winner. It is a draw when the position repeats without anything being captured (Sport and Recreation South Africa, 2018).

Fig 12: Children playing *ncuva*

3.6.2.2 *Duvheke*

Duvheke is a multi-skill running ball game. According to oral history the name *duvheke* came after the game was already played, to describe the addictive nature of the sport to the youth, which played week-in week-out every day of the week. It is a competitive game, which demands physical prowess as well as intellectual wit from all players. The aim of the game is to score as many runs and points as possible. The game is played on a rectangular field. The main playing area is a strip where the attackers score their points. The defenders are scattered around this strip. The manner in which points are accrued is that you are out if the defenders tag you with the ball. The *duvheke* attackers kick the ball (a soccer ball) and defenders can use their hands to pass the ball to each other to tag the attackers. Once the ball is in play, the game is basically a challenge for the opposition to score as many points, up and down the strip, as possible. Once all the attackers are out, the defenders then get their turn to attack (Sport and Recreation South Africa, 2018).

Fig 13: Children playing *duvheke*

3.6.2.3 *Ndode*

Ndode was very popular among girls and still is. It was often played near the river or well when girls went to fetch water. It is played with small stones. The challenge is to pick or scoop up the allocated number of stones which require good hand-eye-coordination. It is played among all ethnic groups of South Africa. The aim of the game is to be the first to scoop out all the stones and then return them to the hole. Two players can play this game. They each need a *ghoen* or "taw" or big round stone. Each player also needs at least ten small marbles or stones. The playing space involves digging a small hole in the ground (or drawing a square on the ground) and to place the small stones in the hole. The first player throws the *ghoen* into the air and tries to scoop or push all the small stones out of the hole before catching it again (Sport and Recreation South Africa, 2018).

If the *ghoen* is not caught, the next player takes her turn. If the *ghoen* is caught, it is thrown in the air again. One of the stones is kept back and the others pushed back into the hole. The *ghoen* is thrown again. While in the air the nine stones are pushed out of the hole before the *ghoen* is caught again. Next throw, another stone is kept back and eight stones are pushed back. Continue in this way until ten stones are in possession. At this point, another round begins. All ten stones are put into the hole but this time two stones are retained after the second throw. In round three, three stones are retained, and so on. If at any time the *ghoen* is not caught, the other player has a turn. The winner is the player who has advanced the furthest in the game without making a mistake (Sport and Recreation South Africa, 2018).

Fig 14: Children playing a game of *ndode*

3.6.2.4 *Muravharavha*

This is a well-known traditional game and is played extensively throughout Africa. The aim of the game is to have your tokens cows lined up three in a row to take or shoot a token or cow from your opponent. This game is played by two players and can be played on a board or on a "ground" drawn with a stick on sand. Each player needs 12 tokens. These could be stones,

marbles or even bottle tops of the same or similar colour. Play can happen in a period of minutes or hours. Tokens are placed, one at a time, alternately, on a point of intersection with the aim of making the tokens form a line, three in a row. The opposing player can place their tokens anywhere to block the other player from getting three in row. When a player gets three tokens in a row, he has won that row and must remove one of the other player's tokens from the board. When all tokens are used, the game continues. Players can move their tokens to new intersections and keep trying to get each other's tokens. The game ends when one player has removed all their opponent's tokens (Sport and Recreation South Africa, 2018).

Fig 15: Game of *muravharavha*

3.6.2.5 *Khadi*

Khadi is a game in which player(s) jump over a swinging rope swung by two players. Traditionally it was played by young girls however it is currently played by either gender. It is a game which requires fitness, coordination and a decent singing voice. It requires a skipping

rope and a hard-even surface. The game is played with rhythm and rhyme and all players must join in the singing and support their teammates (Sport and Recreation South Africa, 2018).

Fig 16: Children playing the *khadi* game

3.6.3 Outcomes of children's participation in indigenous games

Participation in various types of indigenous games may result in the holistic development of children. Holistic development is all-round and balanced growth involving the combinations of acting (physical), feeling (affective), interactive (social) and thinking (intellectual) facet a child's growth (Stolz, 2013). Dudley (2015) summarises the holistic development components into:

3.6.3.1 Psychomotor development

This involves the mastery of movement competencies such as gross, fine and specialised movement skills. The tow broad categories of psychomotor development are health-related fitness and performance related fitness. Health-related fitness focuses on factors that promote

optimum health and prevent the onset of disease and problems associated with inactivity. Performance-related fitness components are factors that are motor related skills which enable a child to engage in physical activities optimally (Wuest & Fisette, 2012). Components of health-related fitness are:

- **Cardiovascular fitness**

Cardiovascular fitness is the ability of the heart (cardio) and circulatory system (vascular) to supply oxygen to the body muscles for an extended period (Wuest & Fisette, 2012). Cardiovascular is also called cardiorespiratory (lungs) fitness. Examples of Tshivenda indigenous games which develop cardiovascular fitness are *mugidimo*, *nzambo* and *tserere*.

- **Body composition**

Body composition is the ratio of body fat to lean body mass (including water, bone, muscle, and connective tissue). Having too much fat tissue is a risk factor for cardiovascular diseases, diabetes, cancer and arthritis. Examples of Tshivenda indigenous games which improve body composition are *khadi* and *tsimbe*.

- **Muscular endurance**

Muscular endurance is the ability of the muscles to work over an extended period without experiencing undue fatigue (Wuest & Fisette, 2012). Examples of Tshivenda indigenous games which develop muscular endurance are *musangwe*, *geimi* and *duvheke*.

Components of performance related fitness are:

- **Balance**

Balance refers to a person's ability to maintain their equilibrium when moving or when they are in a stationary position (Wuest & Fisette, 2012). Examples of Tshivenda indigenous games which improve balance are *mutsedu, makotikoti* and *mulenze.*

Coordination

Coordination refers to a person's ability to perform complex movements due to the working together of the nervous system and the muscles of the body. This is also referred to as a person's ability to do two things at the same time (Wuest & Fisette, 2012). Examples of Tshivenda indigenous games which improve coordination are *ndode* and *khadi*.

- **Agility**

Agility refers to a person's ability to move their body quickly and easily. This also includes their ability to quickly change their direction while maintaining their balance (Wuest & Fisette, 2012). Examples of Tshivenda indigenous games which improve agility are *khadi* and *tshidula tsha musingade.*

3.6.3.2 Affective development

The affective domain addresses attitudes, feelings and confidence levels that children develop have about being active in indigenous games. It consists of the motivational, behavioural, personal and social attributes of movement. Team work, cooperation and socialisation are promoted during these games and this improves their emotional and interactive intelligence. Participating in indigenous games can help children to understand the importance of being gracious in victory as well as being strong in moments of defeat (Wuest & Fisette, 2012). Most African indigenous games also involve singing and sharing. Skills of selfishness are systematically developed in children by encouraging them not to share playing materials and be inclusive of all children without discriminating. This is in keeping with the African spirit of Ubuntu. In these rural communities, a person is only a person because of other persons. Having something that you cannot share with others makes you a lesser person. Thus, most African cultures, and indeed indigenous games, emphasise communalism as opposed to maintenance of personal space (Ejuu, 2015). Examples of Tshivenda indigenous games which promote affective development include *shavha mbevha tshimange tshi aluma,* and *tshitari tsho musinela.*

3.6.3.3 Cognitive development

The cognitive domain involves development of intellectual skills, ability to recall from memory and to process information (Wuest & Fisette, 2012). Indigenous games which involve counting or strategizing can develop children cognitively to think and analyse situations to map out a winning strategy. Examples of Tshivenda indigenous games which improve cognitive development are *mbalembalembale, thunzi i a luma,* and *zwinoni zwitanu.*

3.7 Synopsis of Policy Frameworks promoting indigenous games

Indigenous games are a cardinal cultural expression of a society. Hence the frameworks selected expressly of impliedly for indigenous games to the extent that they recognise the importance and right for people to engage in their cultural activities, including indigenous games.

3.7.1 The Universal Declaration of Human Rights (Article 27)

Article 27 of the Universal Declaration of Human Rights states that:

> 'Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.'

It also states that:

> 'Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.' (United Nations General Assembly, 1948).

3.7.2 The Declaration on the rights of indigenous people

Article 11 states that:

> 'Indigenous peoples have the right to practise and revitalise their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their

> cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature.'

Article 15 states that

> 'Indigenous peoples have the right to the dignity and diversity of their cultures, traditions, histories and aspirations which shall be appropriately reflected in education and public information' (United Nations General Assembly, 2007).

Article 31 states that:

> 'Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.' (United Nations General Assembly, 2007).

3.7.3 The Universal Declaration on cultural diversity

Article 7 states that:

> 'Creation draws on the roots of cultural tradition, but flourishes in contact with other cultures. For this reason, heritage in all its forms must be preserved, enhanced and handed on to future generations as a record of human experience and aspirations, so as to foster creativity in all its diversity and to inspire genuine dialogue among cultures.' (UNESCO, 2001).

In the South African context, the legislative frameworks which can be regarded as catering for indigenous movement cultural expressions are:

3.7.4 The South African Constitution Act 108 of 1996

Section 30 of the South African Constitution provides that:

> 'Everyone has the right to use the language and to participate in the cultural life of their choice, but no one exercising these rights may do so in a manner inconsistent with any provision of the Bill of Rights.'

3.7.5 The National Heritage Resources Act 25 of 1999

Based on this act, indigenous games fall under living heritage, which refers to the intangible aspects of inherited culture alongside oral history, performances and rituals.

Sections 4 and 5 of the National Resources Act stipulates that:

> 'Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management. Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.'

Subsection 7 of section 5 of the Act provides a key list on the identification, assessment management of heritage as it must:

- Take account of all relevant cultural values and indigenous knowledge systems
- Take account of material or cultural heritage value and involve the least possible alteration or loss of it.
- Promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs.
- Contribute to social and economic development.
- Safeguard the options of present and future generations; and
- Be fully researched, documented and recorded.

3.7.6 The National Sport and Recreation Act 110 of 1998

Indigenous games are not only a heritage entity, but they are also a recreational activity. Section 9 of the Act stipulates that:

> 'The Sports Commission must from time to time, present national mass sport and recreation participation programmes.'

One of the flagship mass participation programmes that is hosted by the department of Sport and Recreation is the Indigenous games festival which is held at district, provincial and national level.

3.8 Digitising children's indigenous games: prospects, complexities and controversies

Digitisation is the conversion of the physical format of a material into electronic format. It involves the conversion of analogue information in any form (text, photographs, voice, etc.) to digital form with suitable electronic devices (such as scanners or specialised computer chips) so that the information can be processed, stored, and transmitted through digital circuits, equipment and networks (Enhuber, 2015). The rapid loss of indigenous knowledge within communities particularly in Africa is a cause for concern and calls for interventions to safeguard such knowledge (Sraku-Lartey, Acquah, Samar & Djagbletey, 2017). In modern times, from the moment modern children are born, they are greeted by a torrent of digital entertainment platforms (UNICEF, 2017). In the 2003 Convention for the Safeguarding of Intangible Heritage, UNESCO (2003) defined safeguarding as:

> '….measures aimed at ensuring the viability of intangible heritage, including the identification, documentation, research, preservation, protection, promotion, enhancement, transmission, particularly through formal and informal education and revitalisation of the various aspects of such heritage.'

Alivizatou-Barakou, Kitsikidis, Tsalakanidou, Dimitropoulos, Chantas, Nikolopoulos, Al Kork, Denby, Buchman, Adda-Decker, Pillot-Loiseau, Tillmane, Dupont, Picart, Pozzi, Ott, Yilmaz, Charisis, Hadjidimitriou, Hadjileontiadis, Cotescu, Volioti, Manitsaris, Manitsaris and Grammalidis (2017: 152) argue that:

> '…..new technologies can play an important part in areas of identification, documentation, preservation, promotion and education…..Audio-visual documentation, digital and multimedia resources from the areas of information and communication technologies can provide useful tools for recording and collecting information about expressions of intangible heritage. further advances in technologies for digitization (i.e. audio, visual and motion capture), e-documentation (3D modelling enriched with multimedia metadata and ontologies), e-preservation (standards), visualisation (virtual/augmented reality and gamification technologies) and re-use

> (e.g. applications for research and application) of intangible heritage are expected to exploit the full potential of intangible heritage and offer multiple benefits to the different stakeholders involved. So technology is no longer a threat to the survival of customs and traditions, but a tool for their sustained development in an increasingly global 21st century.'

Games that are in digital form have occupied a significant chunk of the entertainment space. They are presented in desktop computers, laptops, tablets, smart phones and even in cheap basic cellular phones (Walton & Pallitt, 2012). Digital technologies have thus ushered in new opportunities and threats to the cultural fabric of most societies. The cultural sector is presented with a challenge to find appropriate ways to navigate in this new reality as digital technology involves rendering certain practices obsolete while certain practices which were deemed impracticable and unviable have become the new normal (Uzelac, 2010). Lenzerini, (2011) laments that not only are certain diverse expressions of culture getting extinct, but also that the rich cultural variety of humanity is heading towards uniformity. In cultural terms, uniformity means not only loss of cultural diversity in terms of heritage, but also means the standardisation of the different peoples of the world and of their social and cultural identity into a few stereotyped ways of life, of thinking, and of perceiving the world. This is particularly true for modern sporting and play culture wherein Western modes of physical activity seem to be the key yardstick for ideal movement practices among children in Africa, at the expense of indigenous games. Digitisation opens opportunities for long-term preservation of the games, much easier access and wider dissemination (Sraku-Lartey *et al*., 2017). Tufekčić (2016: 39) says on the digitalisation and virtualisation of various traditional children's games:

> '…..we must think about ways to introduce structures, shapes and appearances, game modes and props of various traditional games through computers to children in class, since children cannot see traditional children's games in their natural environment in the contemporary society. The second aim, without which the first would not be sufficient, is related to motivating and encouraging children for "transmission" of traditional games from virtual world into real life. The idea of popularising traditional children's games through the information-communication technology is based on the intention of an intertwining of tradition and modernity.'

The rise of digital media in its multifaceted forms such as blogs, podcasts, virtual reality and online games presents new possibilities for the preservation of indigenous knowledge and heritage interactions (Pietrobruno, 2014). In modern societies, digital games have emerged

from being a fringe spare-time activity of a small societal group to occupying a central space in the recreation, leisure, entertainment and information technology discourse (Quandt, Van Looy, Vogelgesang, Elson, Ivory, Consalvo & Mäyrä, 2015). Indigenous games fall under the category of intangible heritage. Intangible heritage comprises of the non-material aspects of culture such as tales, narratives, games, songs, music and all the knowledge usually transmitted by oral or sound means. This intangible heritage is transmitted from generation to generation and is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity (UNESCO, 2003). It forms part of the traits that are peculiar to people and marks them out from other peoples or societies. These traits include the language, dressing, music, arts, religion and dancing. They also include a people's social norms, taboos and values. Indigenous games are a key expression of culture and embedded within them and lessons which are beneficial to the fabric of society (Idang, 2015). Civarello (2007: 1) presents a strong case for the preservation of intangible heritage by arguing that:

> 'This heritage is the basis where a human group finds its identity, its projects for the future, its memory, its history, its fears, its desires… When peoples lose this untouchable, fragile fragment of their culture – as it daily happens to aboriginal societies all around the world- they lose their reason for living, their past and their future…. Cultural heritage is not just limited to expressions of material nature. Non-palpable aspects of life – such as sounds, words, feelings, sensations, thoughts and beliefs- are considered to form the intangible cultural heritage, a group of manifestations belonging to the very spirit of a people.'

Economou (2015: 127) further highlights that as part of intangible heritage:

> '….interactive games can help diverse user groups, often with little or no prior knowledge of the subject, understand the interpretations of specialists. The combination of different digital media – from moving images to sound, graphic diagrams, and maps and programming tools – which place the user in an active role, can be very powerful in the learning process when used appropriately. By providing different types of interaction with heritage material, it is hoped that digital applications promote an understanding of heritage, as well as encouraging users to value and appreciate heritage. This is ultimately the best long-term investment for the preservation of heritage. In many cases, it is hoped that by using the power of the medium, you can attract users to the message, particularly younger ones. Thus, providing attractive digital

heritage applications that encourage understanding and appreciation of heritage will hopefully create citizens who will help preserve heritage and fight against its destruction.'

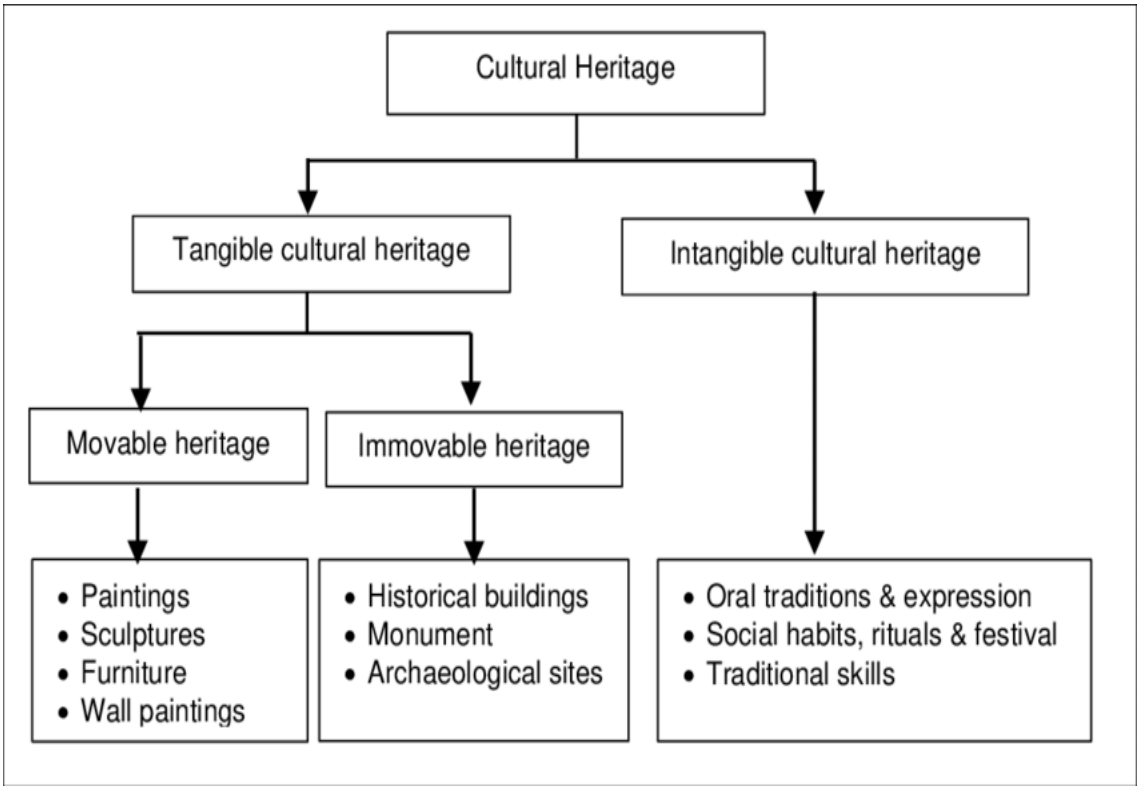


Fig 17: Tangible and intangible heritage classification

While the foregoing postulations paint a positive role that digitisation can play, some concerns also arise. Digitisation runs the risk of imposing Eurocentric concepts of modernity and development, while undermining the fact that indigenous peoples have always been innovators when it comes to tools of survival and play culture. For indigenous peoples, technology has often had unintended consequences by reinforcing and accelerating the dominance of Western-based modes of thought and culture. Computer games resulted in the exposure of indigenous children to non-indigenous cultural values (Resta, 2011). There is, therefore, an uneasy balance between the globalization effects that technology brings and the preservation of indigenous culture (Robbins, 2010).

This view is captured by Winter and Boudreau (2018:46) who argues that:

> 'Technological development in indigenous communities demands a more thoughtful, and oftentimes more uncomfortable, approach to reconciliation that looks to the past in order to look to the future. While brimming with potential as a pathway towards strength based technological development, can only truly do so if their project designs are informed by Indigenous worldviews and methodologies that draw on the strengths of Indigenous communities.'

3.8.1 The intangible heritage digitisation specifications and components

Audio-visual documentation, digital and multimedia resources from the areas of information and communication technologies (ICT) are very important in providing useful tools for recording and collecting information about expressions of intangible heritage such as indigenous games (Alivizatou-Barakou *et al*., 2017). Karavia and Georgopoulos (2013) present a succinct framework for digitising intangible heritage. The methods and equipment should be able to:

- Totally capture of all the elements which constitute the intangible heritage form.
- Produce data that is appropriate for unseen future use considering that intangible heritage is in danger of disappearance or degradation and that the general concern for such heritage nowadays seems small.
- Being appropriate for analysis and collection of the necessary metadata (Karavia & Georgopoulos, 2013).

In addition, the archival format should:

- Offer lossless compression, which allows the file to be rebuilt in its original format, without any loss of data.
- Be an open standard. An open standard is a specification whose description is freely available. An open standard archival format has best chances of being intelligible and understandable in the future.
- Be transparent. A transparent file can be accessed without recourse to special algorithms. Be supported by multiple vendors. Such file formats have higher chances of being accessible in the future. The archival formats should satisfy the specifications the stated specifications order to ensure the long-term access and preservation of digital recordings (Karavia & Georgopoulos, 2013).

Finally, the analysis scheme for each of the intangible heritage domains should:

- Identify the underlying human creativity, sentiment and spirit hidden in every intangible cultural heritage form.
- Extract and codify them in a computer readable format to be processed.
- Be cross-cultural. The analysis scheme should be able to describe and analyse every possible form of a specific intangible cultural heritage domain for every culture in the world (Karavia & Georgopoulos, 2013).

Arora (2009) observes that digital preservation is cost intensive continuous. It is critical, therefore, for any digitisation project or digital resource development project that we take up should have components for digital preservation built into it. The failure to address the digital preservation problems and strategies may result in loss of valuable digital data and may contribute to cultural and intellectual loss resulting in steep costs for recovery, that is, if the recovery is at all possible. Preuss (2016:2-3) highlights some key components for digitisation and these are:

- **Content Specification** - Apart from selecting or identifying which aspects of heritage should be digitised, content specification also focuses on determining if the original content can be digitized without being damaged or destroyed. It also focuses determining on legal limitations apply to the digitalization or digital presentation, publication and use
- **Digital Cataloguing** - Digital cataloguing refers to the creation of information about the digital content. This descriptive information is called metadata and includes, among other things, information about content, context and technical aspects.
- **Digitising** - Digitising refers to the creation of digital representations and forms to represent the original object (e.g., image, text or audio files).
- **Digital Presentation** - Digital presentation refers to the provision of access to digital content. Depending on the digital content, different tools for digital presentation are needed. For example, a multimedia player may be needed for audio and video files.
- **Digital Backup** - Digital backup is realized by securing the online database with adequate infrastructure and security mechanisms such as server capacity, bandwidth or backup.

- **Digital Preservation** - Digital preservation refers to the preservation of the significant properties of digital objects for the foreseeable future. It includes on-going measures to ensure technical and organizational endurance.

3.8.2 Implications for digitisation in the African context

The digitisation of cultural heritage such as indigenous games is a relatively new field of research which is won to present unique opportunities and challenges in an African context (Ognjanovic *et al*., 2019). Africa in general and rural South Africa is characterised by oral tradition, the humanistic philosophy of Ubuntu and closely knit social relationships (Van Stam, 2012). While digitisation is acknowledged to be the long-term solution for the survival, preservation, access and dissemination of cultural heritage, it should not replace the authenticity of that heritage in its original form (Fanea-Ivanovici, 2018). Consideration should be considered that indigenous knowledge should be not abstracted or lose its holistic oral and corpus form of medium as well as its connection to social context (Nakata & Langton, 2006). Apart from concerns to maintain the cultural integrity of indigenous games in the process of digitising, fundamental needs such as shelter, food, health, and education can trump some interest in ICT adoption. The digital devices and services that may be required for targeted end users may be unaffordable for many (Schelenz & Schopp, 2018).

3.8.2.1 Synopsis of challenges associated with digitising indigenous games

The positioning of technological challenges such as digitisation in Africa stems from the diametric difference between African indigenous and Western paradigms, as well as the realities in African contexts.

- **Affordability –** Most people in rural areas cannot afford the digital devices and gadgets that come with digitisation. Most digital initiatives are expensive and beyond the reach of most rural people. There costs of potentially subscribing to electronic databases that offer digital content can also be high, and this can transfer indigenous games from the communal cheap spirit of society to the inaccessible, expensive techno-sphere of those with money and means. A digital enterprise can produce an elitist culture where games that should be available to all are now only accessible to those who can afford the gadgets that go with them (Taylor & Gibson, 2017).

- **Skills sets –** People might need training in using the gadgets or contraptions that come with digitisation.
- **Obsolescence** - Digital software and hardware can get obsolete. There might be the need for updates and upgrades which might mean more costs for the users.
- **Short lifespan of digital media** – Most digital gadgets do not have a long lifespan. They require replacement within a few years which might mean new purchases or even loss of information.
- **Loss of creativity** – In actual indigenous games, children use their ingenuity by using clay, stones and nature to create equipment. In the case with digitisation, such imaginative ingenuity might be lost since the games come in a pre-packaged form. Machine dependency may result in children losing their agency in determining their play sphere. Additionally, the socialisation element can be lost particularly when the digital games promote individualism.
- **De-contextualisation of movement** – The role of society, especially elders and peers in teaching cultural practices to children is vital. It forms a key part in the social fabric of African societies. The sense of individuality that technology brings may go against the communal spirit of African people. The connection and sensitivity to nature is fostered in real games than in the digital sphere. Digitisation might mean 'putting a knife' to the ethos as children might be mentored by technology (Tufekčić, 2016). Certain traditions are tied to specific roles within a community, so questions of sensitivity, privacy, and ownership must be addressed. There can even be fears of killing the tradition through its levelling into disconnected media (Robbins, 2010). De-contextualisation also means that participants miss the real meaning of those games. Some of the psychomotor, affective and cognitive benefits associated with actual participation in indigenous games as opposed to virtual participation may be lost to digitisation. The rise of cases of obesity in South Africa due to sedentary lifestyles promoted by video games are classic example.
- **The digital divide** – This refers to digital inequality wherein there is a socio-economic gap between those with and without access to digital technology. This gap also includes awareness, adoption, knowledge, skill and ability to use digital technology. While the digital revolution continues to forge new ways to generate and preserve knowledge, educate people, and disseminate information, it is also characterized by the growing gap between those who are information-rich and those who are information-poor (Borrero, 2016). South Africa is one of the most unequal countries in the world, and therefore the digitisation of

games can also reflect such inequalities as some people groups may not be able to access or use technology (Rice & Pearce, 2015). The output of digitization projects, by their very nature, will be more accessible to technologically developed societies than to the underserved areas often producing the content (Robbins, 2010).

- **Intellectual property –** Indigenous games belong to the community. Legal issues might arise on ownership and copyrights when the games are digitised.
- **Commercialisation –** When digitisation occurs, games might be sold as companies recoup the expenses. Communities might have to buy activities and experiences which are free.

3.8.2.2 Africanising the digitising of indigenous games

In the African context, the potential dissemination of foreign values through technology as a symbol of modernisation and progress is a sensitive are which might be interpreted as a new form of colonialism. For a start, most digital platforms and pathways prioritise the English language as a primary medium of expression. For the digitisation of indigenous games to make headway, it must consider the Africans' way of life, and how the African child is raised and developed (Schelenz & Schopp, 2018). Tufekčić (2016) observes that:

> 'Children's games in the traditional culture were an important area of education and socialisation that were realised through the development of autonomy, creativity, freedom, responsibility, spontaneity and activity. Through these, children developed their own children's specific "moral code" that was not primarily imposed by adults, unlike many modern games that are designed by adults, where the structure, rules and all other characteristics, and often exclusively, are resulting images of the world that adults have rather than children. During the process children were specific innovators because games encouraged development of intellect, emotion and will but also stimulated creative activities and amateurism. All of this is emphasised in the traditional toys themselves. The most significant characteristic of traditional children's toys is that children made them on their own, or with the help of adults that, most of all, reflected in the support of development of active characteristics of will and character of a child, and from different materials from their own environment (wood, soil, stone, water, plants and other handy materials from everyday life). In that child's activity, creativity and spontaneity developed in a natural way.'

Van Stam (2012) argues that to overcome the digitisation challenges in Africa, focus should be on social innovation in which technology is spearheaded by Africans and for Africans so that it inherently involves Afro-centric characteristics of Ubuntu and relationships in its expression.

Robbins (2010) argues that seeing one's own indigenous culture represented in new technology can create a sense of ownership through which new pathways for developing new indigenous ideas can be created (Robbins, 2010). Schelenz Schopp (2018) observes that when technology has been developed elsewhere, it is not a neutral instrument but it comes value-laden with communication ethos and practices relevant to a foreign audience but problematic in the African context. The input of local communities and indigenous stakeholders from which the indigenous games are developed is vital to ensuring that the digitisation process is culturally sensitive and does not caricature, bastardise or desecrate the norms and customs that Africans hold dearly. The balancing act can be achieved by not denigrating existing social orders when implementing digitisation. Investment in digitisation should not be at a technological level only, but it must also be on a relational level wherein the knowledge of the context and culture is appreciated (Van Stam, 2012). The communities that practise intangible cultural heritage such as indigenous games are better placed than anyone else to identify and safeguard it (UNESCO, 2003).

This is summed up clearly by Economou (2015: 216) who opines that:

> 'Intangible heritage digitisation programs, like all heritage digitisation programs, are creating digital resources which are the building blocks of research, learning, management, cultural tourism, and the general understanding and appreciation of heritage. These digital resources are often used to create interpretative and "edutainment" applications related to heritage. However, it is not the tools or the digital assets themselves which are causing concerns, but rather the use that these are being put to. Who is producing them and towards what means? In what way are these being used and by whom? These are broader issues related to digital heritage that need to be carefully examined. In order for heritage organisations and custodians to maintain contact with diverse audiences and ensure that heritage remains relevant in a rapidly changing world, it is necessary to examine openly the questions that digital heritage brings up, and invite user communities to participate in this continuous process of reinterpretation and mutual exchange.'

This study, therefore, agrees and borrows from views by Hunter (2005) that for effective digitisation of children's indigenous games and the following must be put into consideration:

- There has to be a determination of the best process for selecting and prioritising indigenous games to be digitised. Consultation and input from the community elders and indigenous stakeholders is essential.

- There has to be a qualitative and quantitative determination for identifying the best or most successful technologies in terms of benefits and cost-effectiveness. Issues of relevance, usability and children's benefits should be considered. Additionally, there should be mechanisms for user feedback.
- There should be ways to identify practices and system components which are successful, those that appear to have failed and those that could be improved through.
- Barriers to success (technological, social, economic, etc.) should be identified as well as ways to overcome them.

Robbins (2010) also highlights some key points in digitising games and they are summarised as follows:

- Digital technology should be developed according to the modes and habits of different Indigenous cultures. This includes developing strategies to enable Indigenous people to utilize digital technology, creating digital toolsets that allow modification and customization for Indigenous content, and exploring the development of technology according to the goals and ways of thinking of Indigenous Peoples. As such, cultural preservation is not merely about documenting existing modes of expression. It involves finding ways for indigenous forms to play a role in emerging technology and contemporary modes of cultural expression. Van Stam (2012) in support of this view notes that the current technology hubs that are springing up in Africa are an encouraging development towards Africans producing technological packages whose configuration is relatable to the spirit and original intent of the indigenous games.
- Digital culture projects must ensure that preservation does not simply mean ossification, but must involve a meaningful and dynamic exploration and development of the ideas, goals, effects, and outputs of that cultural tradition.

A classical 3 phase strategy by Robbins (2010) for digital preservation entails:

a) **Straightforward documentation:** involving the creation of videos, animations, tutorials, booklets, and interactive websites that outline the histories, narratives, uses, roles and step-by-step instructions of the games. The primary goal of this phase is to ensure baseline, snapshot preservation of the traditions.

b) **Translation into emerging technology and contemporary cultural modes of expression:** In this phase, the games are presented according to the habits of today's children in mobile phones, Facebook apps and blogs involving discussions of how to create apps that allow multiple users and interactions so that the games are socially and culturally mediated.

c) **Applying the principles to develop new technologies:** Digital technology has been created largely within a Western paradigm. The software and concepts of much contemporary digital technology has come from Western countries and sometimes from Asia. African, customs, traditions and cultures something to offer to the concepts that produce digital technology. The goals and precepts of African traditions can inform digital technological developments to present an Afrocentric experience.

3.8.3 Digitisation and the role of schools

Schools can provide strategic centres for children's development. Children spend much of their time at school, meaning that including indigenous games in the curriculum provides opportunities and exposes children to learning them. Digitisation can produce materials for non-indigenous educators to impart knowledge of indigenous games in learners (Resta, 2011). Successful digitisation requires a multi-stakeholder approach and funding from both state and non-state actors. Ministries of Basic Education, Sport and Recreation, Arts and Culture and Information Technology can produce a framework within which digital technology is used in schools to promote the learning of indigenous games within an Afrocentric framework. Mawere (2015: 67) observes that:

> 'Indigenous knowledge, including intangible heritage, can contribute immensely to the learning process of the African people as long as value and a modicum of respect are accorded to them. In fact, the relevance of indigenous knowledge and intangible heritage to the learning process of the African child cannot be underestimated. Yet, the full realisation of indigenous knowledge can only be recognised if it is fully implemented in education curricula and if its importance is popularised… Therefore, as long as indigenous knowledge fails to find full recognition within and real integration into curricula and the mainstream knowledge discourse, the lofty pan-African ideals of

> collective self-reliance, self-sustaining development, and economic growth will remain an unrealised dream.'

In the context of indigenous games, the role of scholarship is to therefore provide intellectual support through formulation of models within which this can be possible. Effective participation in indigenous games and their preservation can contribute to some key outcomes of the Sustainable Development Goals. Models on the digitisation of children's indigenous games are rare in the South African context.

3.9 Chapter summary

This chapter presented key thematic and topical areas related to children's indigenous games and their digitisation. Effective preservation will require a multidisciplinary intellectual and technical invasion of technological spaces by Africans. The digitisation of indigenous games is fairly a new phenomenon in South Africa and warrants academic exploration. Schools, cultural experts, information technology specialists and recreation specialists are vital in helping create the bridge between African culture and modern trends to preserve, promote and disseminate children's indigenous games within an Afrocentric framework. The key variable that can actualise this dream is to foster promote development in African rural contexts to lower the wide digital divide as well as incorporate cultural experts, knowledge holders and community elders in developing culturally sensitive, culturally responsive and culturally centred digitisation programmes. The next chapter provides account of the study context and the methodological framework used in this study.

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter describes and explains the research methodology and design that were adopted in the current study. The chapter also provides the paradigmatic underpinning of the study. Other key aspects include the study's population, sampling procedures, validity, reliability, data analysis and ethical considerations.

4.2 Research paradigm

Every research endeavour has its thrust predicated upon certain philosophical assumptions in its adoption of methods that are considered valid for developing knowledge in a field of study and endeavour. This set of assumptions is called a paradigm. According to Nieuwenhuis (2010), a paradigm is a set of assumptions through which reality is viewed or interpreted, and therefore, an all-encompassing system of interrelated practice and thinking that define the nature of enquiry in research. The etymological root for the term paradigm emanates from the Greek word *paradeigma* which means pattern. It denotes a conceptual framework shared by a community of scientists which provided them with a convenient model for examining problems and finding solutions (Maree & Van der Westhuisen, 2010). All paradigms encompass the following common elements: axiology—beliefs about the role of values and morals in research; ontology—assumptions about the nature of reality; epistemology—assumptions about how we know the world, how we gain knowledge, the relationship between the knower and the known; methodology—shared understanding of best means for gaining knowledge about the world (Kaushik & Walsh, 2019). Although there are many paradigms that are used in research inquiries, this section only compares positivism, interpretivism and pragmatism to provide clarity on the basis for using interpretivism in the current study. In the context of this study, the interpretivist paradigm was used. Table 4.1 provides a summary of each and delves deeper on the usage of interpretivism in the current study.

Table 4.1 Comparison of study paradigms

	1. POSITIVIST PARADIGM	2. INTERPRETIVIST PARADIGM	3. PRAGMATIC PARADIGM
Ontology (Nature of reality)	Single reality	No single reality	Social real life issues
Epistemology (Nature of knowledge)	Observer is independent of that which is researched	Observer is dependent of that which is being researched	Combination of both
Axiology (Role of researcher)	Unbiased	Biased	Goal-oriented
Rhetoric	Researcher uses formalistic, impersonal and technical language	Researcher uses engaging style of literary narratives and may use first person pronoun	Researcher uses both formal and informal language
Methodology	Quantitative	Qualitative	Mixed-Methods
Data analysis	• Experiments • Quasi-experiments • Tests • Scales	• Interviews • Observations • Document reviews • Visual data analysis	Include tools from positivist and interpretivist paradigms, e.g. • Interviews • Observations • Questionnaires • Observations • Focus groups

Source: Adapted from Creswell (2007:15)

4.2.1 Positivism

The positivist paradigm adopts objectivism epistemology which is a methodological philosophy grounded in quantitative research. Under this paradigm, the understanding of phenomena must be measured and supported by evidence; hence positivism is usually associated with experiments and quantitative research. According to Bryman (2008), the main characteristics of positivism are:

- Phenomenalism – only knowledge confirmed by the sciences can genuinely be warranted as knowledge.
- Deductivism – the purpose of theory is to generate hypothesis that can be tested for laws to be proven or disproven.
- Objectivity – science must be conducted in a way that is value-free.
- Inductivism – knowledge is gained though gathering of facts that provide the basis for laws.

4.2.2 Pragmatism

As a research paradigm, pragmatism is based on the proposition that researchers should use the philosophical and/or methodological approach that works best for the research problem that is being investigated. It is often associated with mixed-methods or multiple-methods, where the focus is on the consequences of research and on the research questions rather than on the methods (Creswell & Plano-Clark 2011). Pragmatists believe that reality is not static—it changes at every turn of events. Similarly, the world is also not static—it is in a constant state of becoming. A major underpinning of pragmatist epistemology is that knowledge is always based on experience. One's perceptions of the world are influenced by our social experiences. Each person's knowledge is unique as it is created by her/his unique experiences (Kaushik & Walsh, 2019).

4.2.3 Interpretivism

Interpretivists adapt a relativist ontology in which a single phenomenon may have multiple interpretations rather than a truth that can be determined by a process of measurement. With the interpretivism perspective, researchers tend to gain a deeper understanding of the phenomenon and its complexity in its unique context instead of trying to generalise the base of understanding for the whole population (Creswell, 2007). The first advantage is that with the diversifying views to consider phenomena, interpretivist researchers can not only describe

objects, human or events, but also deeply understand them in social context. In addition, researchers also can conduct these types of research in natural setting via utilising key methodologies as grounded theory, ethnography, case study or life history to gain the insider's insights of research's objects to provide with more authentic information related to the object of research. Secondly, as leveraging key method of interactive interview which "allows researcher to investigate and prompt things that we cannot observe, researchers can probe an interviewee's thoughts, values, prejudices, perceptions, views, feelings and perspectives (Wellington & Szczerbinski, 2007). Despite the limitation of non-generalizability, the interpretivist paradigm will be applicable in this study by gaining information that is contextually relevant and values sensitive to the cultural beliefs and norms of the Vhavenda. Some of the key imperatives that the interpretive paradigm will map onto without much difficulty when compared to other studies include values, afro-centricity, Ubuntu, personal conduct and the use of language.

4.2.3.1 Afro-centricity

An Afro-centric orientation in simple terms holds that the researcher should approach and interact with participants in a manner that is sensitive to the norms and values of African societies. Studies on African systems of knowing such as the current one require a framing which is sensitive to African customs because they occur against the background of historically lengthy onslaught against African culture by mainly Western ethnologists who viewed African traditions as being backward, inferior and even immoral (Roux, 2009). For a long time, Africans were viewed as sub-human and this reflected in spurious findings by Western anthropologists who regarded African existence as being to eat, have sex, breed and die. Any customs were regarded as barbaric, and the African story was told through the lenses of a Westerner, and not an Africa. The current study examines African reality from the perspective of the African and places indigenous practices at the core of scholarly enquiry. It recognises the indigenous people's voice and confirms the centrality of cultural knowledge as the place to begin with an enquiring about the African experience (Mkabela 2005). Relating this to interpretivism, ontologically, the interpretivist paradigm in this study allows for the unravelling of multiple voices in understanding indigenous games from the voices of the participants by treating them as individuals with agency as opposed to the infantilization of the African which rendered him or her as a voiceless subject in Western scholarship. It also allows for a deeper understanding of heritage on indigenous games and how the digitisation of indigenous games

has implications on the authenticity of African indigenous games. It focuses on culturally derived and historically situated interpretations of the social life-world (Khupe, 2014). Axiologically, interpretivism allows the researcher to interact with the participants not as a distant and disconnected investigator, but as a genuine inquirer and seeker of knowledge who respects the role of African values and knowledge holders. Epistemologically, interpretivism allows the researcher to derive knowledge in ways and means that are flexible and relatable to African systems, as opposed to rigid traditional methodologies which may be inapplicable in African contexts. In terms of rhetoric, interpretivism allows for the researcher to reflect on personal experiences, possible prejudices, and practical considerations and how they influence the researcher on methods, theories and conclusions arrive at in the study. Methodologically, interpretivism allows for the use of researches approaches and tools that flexibly map onto African culture by recognising the multiplicity of reality and how it changes as opposed to conventional objectivism which suggests that reality is fixed and is not influenced by the acts of individuals. In this study, the agency of individuals in the digitisation of indigenous is central in the generation of an Afro-centric framework on children's games.

4.2.3.2 Decolonial orientation

A de-colonial orientation to research involves unlearning and deconstructing the hegemonic culture of dehumanisation brought about through colonisation (Odora-Hoppers, 2017). According to Ndlovu-Gatsheni (2020), colonisation resulted in 'epistemicide', loosely decrypted to mean the systematic killing of African systems of knowing. Research endeavours should therefore re-discover these knowledge systems. One of the greatest outcries among the 'researched' indigenous people is that some of the research practices or methodologies are systemically and interactively foreign to local communities by either being unduly intrusive or disconnected from the participants. Findings from such flawed methods usually receive little cooperation or generate inaccurate data thereby perpetuating negative stereotypes. Decolonizing research is a process for conducting research with indigenous communities that places indigenous voices and epistemologies at the centre of the research process (Smith, 1999). It critically examines the underlying assumptions that inform the research and challenges the widely accepted belief that Western methods and ways of knowing are the only ones which are objective and reflective of true science. Holding Western beliefs and methods as "the" true science condescendingly marginalizes indigenous methods and ways of knowing

by relegating them to the class of folklore or myth. In Smith's view of decolonizing research, the researcher should centre indigenous values and follow indigenous protocols. This does not mean researchers should reject all Western methods and theories, as they may be adapted if deemed appropriate and beneficial by the local community. However, researchers should use indigenous lenses in all phases of the project to examine the choice of theoretical frameworks and methodologies they use and how research findings can be translated into actions that promote social justice. In this study, the interpretivist paradigm provides an ontological basis for de-constructing the hegemonic singularity of Eurocentric epistemologies by foregrounding multiple and alternative ways of knowing beyond a restrictive framework proffered by positivism for example. The absence or limit of indigenous games in South African schools emanates from a knowledge construction system that de-legitimated African games while colonially inspired activities continue to flourish (Shehu, 2004). Axiologically, the interpretivist paradigm opens the researcher to diverse ways of what constitutes knowledge on indigenous beyond the socially constructed epistemic absolutes which have had a disregard for African knowledge systems on indigenous games. On rhetoric, interpretivism is largely inductive and allows for reflective narration using terms, nomenclature and reportage that is relatable to indigenous people, thereby buttressing the basis for decolonised theory formulation and knowledge construction. Methodologically, indigenous people in this study are the researchers and not merely the researched. Questions are framed differently; priorities are ranked differently and problems are defined differently in recognition of the communities' assets.

4.2.3.3 Ubuntu and personal conduct

Ubuntu is a lifestyle concept which is found amongst all Africans in their communities. The word Ubuntu is derived from a Nguni (isiZulu) aphorism, *umuntu ngumuntu ngabantu*, which can be translated as a person is a person because of or through others (Moloketi, 2009). Hospitality, sacred customs and generosity are some of the key elements that define Ubuntu. An African child in every community is expected to be proficient in all these elements. In the context of this study, the Vhavenḓa worldview encourages deep respect for elderly people and they are referred to as those who brought us into the world (Khorommbi, 1996). In research, humanity is one of the aspects that must be shown to the elders to get more information from them. Appreciating the participants through following culturally appropriate protocols means

a lot. The preceding statement can be supported by stating that there are some instances wherein one should show respect and appreciation by bringing a token or a gift. In Tshivenda, there is a saying which says *"phanda ha ndau a hu iwi u si na tshikuni"* loosely translated as 'one cannot approach a lion without a burning firewood'. Africans believe that all humankind is one species, shares basic values, feelings, hopes and desires. At the heart of Ubuntu is personal conduct, behaviour and etiquette. A person's behaviour is governed by an ability to reason and think within the community context (Maphisa, 1994). Rational behaviour thus focuses on positive human values, such as love, sympathy, kindness and sharing. A Western equivalent is the saying that goes 'character maketh the man'. In African tradition, more especially, when arriving or approaching where the elders or other community members are. In cases where a person is visiting the traditional leaders there are some protocols to be observed. In the Vhavenda context, *makhadzi* or *Vhavenda* is the one whom the researcher should talk to upon arrival at the royal house.

If a male person is arriving near the elders, he must remove the hat. Short trousers are also not allowed before the elders as a sign of respect. *U losha* (to bow or kneeling) is also a gesture to be practised while greeting the elders. Males are required to squat before the elders with their hands clasped together. In some instances, where the researchers are required to go to the chief's homestead, they will be required to have a gift called *nduvho*. In the case of a female researcher, she should not wear short or tight attire when visiting certain traditional communities. Even pants are not part of female acceptable attire. The greetings gesture for females should also be well presented in a culturally appropriate manner in line with stipulated decorum (Kugara, Matshidze, Mdhuli, Daswa & Ramavhunga, 2020).

4.2.3.6 Language

The issue of language plays a pivotal role in African research ethics. Most of the African researches are ethnographic in nature and as such pertinent communication skills should be applied. The ethnography of communication states that language should correspond with and be sensitive to the rules and values of a society that is being studied. It is also referred to as the ethnography of speaking (Hymes, 1974). The ethnography of communication is an approach of understanding language use. How a person introduces himself or herself determines the degree of responses that can be generated from the participants. As an investigator, it is a must

to present issues logically with a very good grasp of the native language of the participants. Every response that is given, whether right or wrong must be appreciated in a positive way and be interpreted based on the symbolisms and metaphors that underpin the language of the participants (Kugara *et al*., 2020). In this study, the Tshivenda language was used as the researcher, consistent with the tensest of interpretivism, self-immerses in the study to have a better grasp of the issues under investigation within a linguistic medium based of the participants.

4.2.3.7 Belief systems

According to Mashau (2007), the belief in the spirit world is a very integral part of the Vhavenda worldview. They believe in the world of the dead who, through their spirits, are in constant contact with the living. There are certain locations all over the Vhavenda area that are known to be inhabited by the spirits. In fact, every chief has or had a forest or mountain in which the spirits of his ancestors are supposed to abide. Accordingly, many of these places are the actual burial places of the chiefs. The spirits of dead chiefs were believed to live sacred groves, mountains, and pools or in streams. Due to these belief systems, researchers have to consider and respect these cultural practices when doing their research within the tribal authorities. The current study steered clear of games or movement activities that have cosmological significance so as not to offend the sacred belief systems of the participants.

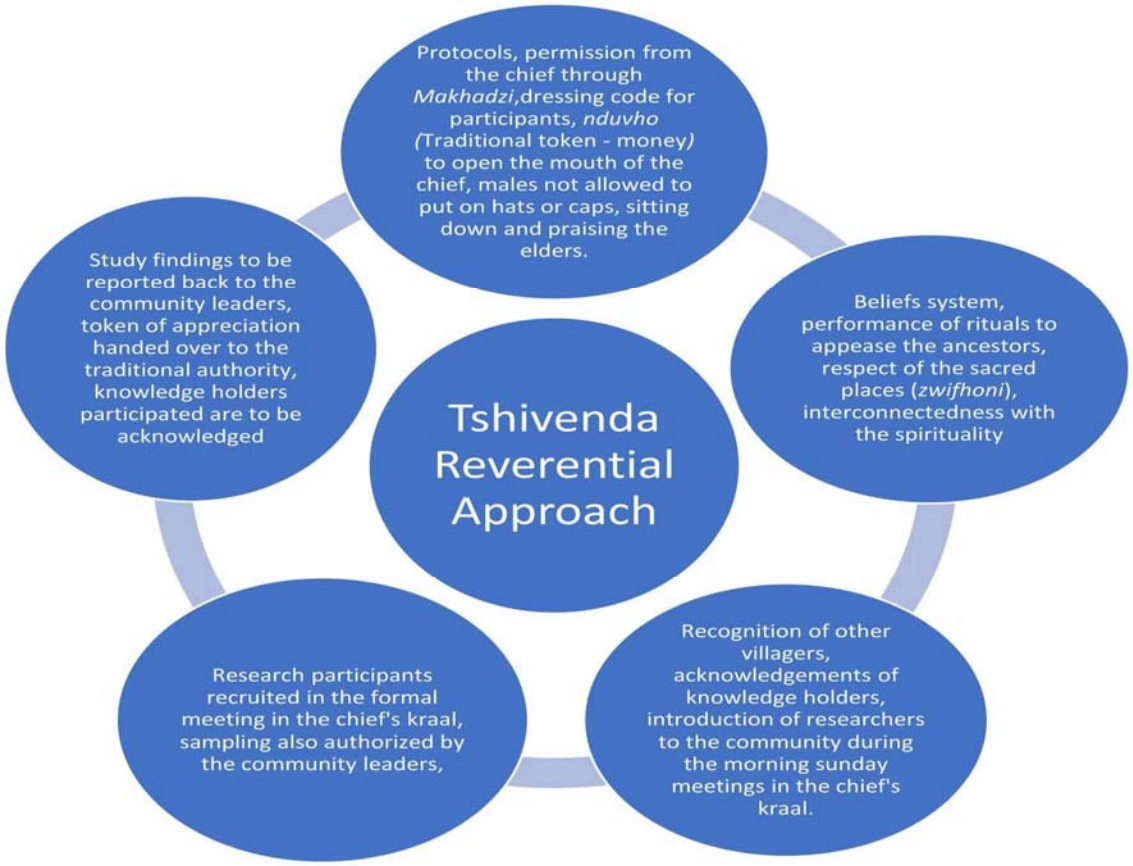


Figure 4.1: Proposed model on African ethics

4.3 Research methodology

This study used the qualitative research methodology. Qualitative research was chosen over other methodologies because this study is interpretivist in nature and does not require any enumeration or wider generalisation, but seeks to explore phenomenon based on a cultural and geographic milieu (De Vos, Strydom, Fouche & Delport, 2010). This approach enabled the researcher to visit the participants where they lived, gather information and then write a literary account of their experiences on traditional children's games. The advantage of using the qualitative research approach is that it allows for multiple meanings of individual experiences. Another advantage of qualitative research in this study was that the process of research data collection occurred within the participants' natural setting and this generated rich responses and interpretations with contextual relevance (De Vos *et al*., 2010). Qualitative research was

also advantageous in this study in that it enabled one to comprehensively understand participants' own experiences in relation to the study's central phenomenon.

4.4 Research design

The research design refers to the detailed plan of how a research is conducted. That is a plan for assembling, organising and integrating data (Nieuwenhuis, 2010). It also provides the framework for collecting data to investigate the research topic. According to De Vos *et al*. (2010), various designs used by qualitative researchers differ depending on the purpose of the study, the nature of the research questions, the skills and resources available to researchers. Hart (1998) suggests that the bulk of research in the social sciences is aimed at explaining, exploring or describing the occurrence (or non-occurrence) of some phenomenon. He also acknowledges that it is important to differentiate between these approaches. In this study, I employed the case study and the participatory action research (PAR). This study focused on the practical outcomes to empower participants and co-researchers to provide informed recommendations for the digitisation of children's indigenous games.

A case study research refers to an in-depth, detailed study of an individual or a small group of individuals. Such studies are typically qualitative in nature, resulting in a narrative description of behaviour or experience. Case study research is not used to determine cause and effect, nor is it used to discover generalisable truths or make predictions. Here, emphasis is placed on exploration and description of the phenomenon. The main characteristics of a case study research are that it is narrowly focused, provides a high level of detail, and can combine both objective and subjective data to achieve an in-depth understanding (De Vos *et al*., 2010). This study specifically selected a case study design for its first group of participants who are senior citizens and parents purposefully sampled in the Tshidzivhe Village. This is because this design is congruent with the research's philosophical assumptions (interpretivism), and most appropriate for generating the kind of data required by it to answer the research question(s) posed (Kugara *et al*., 2020). The case study design provided this study with multiple sources of information, simultaneously facilitating the process of explaining and describing phenomenon (De Vos *et al*., 2010). It also provided for the involvement and participation of children and youth in the traditional children games.

Nieuwenhuis (2010) posits that case studies offer a multi-perspective analyses in which the researcher considers not just the voice and perspective of one or two participants in a situation, but also the views of other relevant groups of actors and the interactions between them. It opens the possibility of giving a voice to the powerless and voiceless like children or marginalised groups. Niewenhuis (2010) further opines that case studies are essential for researchers to come to a deeper understanding of the dynamics of the situation, and this aspect is a salient feature of many case studies.

The above explanation of case studies fits in well with this study's aim and objectives, which are exploring the importance, prospects and challenges associated with the digital preservation of traditional children games. A case study design was very useful as it enabled this study to explore various ways of persevering and disseminating the knowledge, cultural values, belief systems and cultural norms communicated in the playing of traditional children games. These are poorly understood and not much is known about them (Leedy & Omrod, 2001). In addition, the case study's strategic value lies in its ability to draw attention to what can be learned from the single case. A case study design is advantageous to research as it provides a large amount of information and detail about the research topic, and allows the researcher to deal with a wide variety of raw data (Creswell, 2008). This implies that case studies such as this one provides effective data collection methods that result in plentiful data being collected during the research process, making them an effective research design qualitatively. The case study design thus helps provide the researcher with methods to collect both descriptive and explanatory data within the same study. This design creates room for original ideas to surface from vigilant and detailed observations. De Vos, *et al*., (2011) argue that since qualitative researchers are interested in the meaning that subjects give to their life experiences, they must use some form of case study to immerse themselves in the activities of a single person or small number of people to obtain an intimate familiarity with their social worlds and to look for patterns in the research participants' lives, words and actions in the context of the case.

A case study enables the researcher to interact with research participants to gain an understanding of their lived experiences vis-à-vis the phenomenon under study. In this case, the descriptive case study (also called intrinsic case study), strives to describe, analyse and interpret a phenomenon (Yin, 2013). In this context, this study used the descriptive case study to describe and explain the digitisation of indigenous games. Case studies have their own shortcomings. Case studies are known to be time consuming and the study might generate

quantities of data that the researcher might find hard to analyse (Wimmer & Dominick, 2000). This is not much of a disadvantage since case studies, by making use of data collection techniques such as interviews, have a self-checking mechanisms against accumulating unnecessary data (data saturation or sampling to redundancy) (De Vos *et al*., 2011). In fact, this supposed weakness reveals yet, strength of case studies, their ability to use multiple sources and techniques in the data collection process (Niewenhuis, 2010).

4.4.1 Participatory action research

This study also employed the participatory action research (PAR) design to actively engage with Information, Communication and Technology (ICT) students from the University of Venda. The study also constituted of students enrolled for the Bachelor of Indigenous Knowledge Systems degree at the University of Venda. This was done to engage in collaboration research given the trans-, inter- and multi-disciplinary nature of Indigenous Knowledge Systems. The difference with this research design is that participants form part of the research team and they are regarded as co researchers. Data collection methods are conventional (De Vos *et al*., 2010).

Participatory action research is a cyclical iterative process of action and reflection. The term "action research" relates to a group of research methodologies that normally claims to contribute to greater social justice for marginalised groups (Cardno, 2003). Participatory action research is a form of action inquiry that employs recognised research techniques to inform the action taken to improve practice, and I would add that the research techniques should meet the criteria common to other kinds of academic research (withstand peer-review of procedures, significance, originality, validity, etc.). There is no separation but integration of theory and practice, research and development. In this study, the aim is to preserve traditional children games through digitisation employing collaborative inquiry following a spiral of cycles of planning, acting, observing and reflecting, and to gain a better understanding of the change and development processes (Zuber-Skerritt, 2018). Such research is described as more systematic, rigorous, verifiable, always made public (e.g. in publications, oral or written reports) and grounded in a certain methodology and rigorous research methods of collecting, analysing and verifying data.

Participatory action research always entails critical reflection: learning from experience (action) through investigating and trying to understand (research) the change process, thinking critically about and conceptualizing what worked, what did not work, how or how not, and why or why not, and identifying what can be done better based on this learning. PAR requires relationship/team building for effective collaboration and sustainability. The approaches applied may include developmental research, practitioner research, participatory action, collaborative inquiry, emancipatory research, action science, classroom action, action learning and critical action research (Noffke, 1997). In this study, digital preservation is done for marginalised group of Vhavenda children. Characteristics of PAR, as noted by Kemmis and McTaggart (2005) include social processes, participatory engagements, practical examination, emancipatory outcomes, transformative analysis, critical reflection and non-hierarchical approach to theory and practice. This type of research might create more effective, sustainable, rational and genuine educational improvement processes. It offers enhanced accountability by identifying specific duties and duty-bearers of the indigenous people involved in the research process (Buntu, 2019).

In this study a group of students were asked to reflect on their personal practical experience on the development of prototypes and different engagements that they were exposed to. All the reflections were conducted using WhatsApp as a technique for collecting data. Due to the nature of the research, I divided the research process into three different cycles bearing in mind that it is cyclical iterative process of action. The first cycle involved appointing and coaching the research assistants (planning) and looking at the feasibility of the study. The second cycle involved visiting the community. For this, we had two visits to engage the elders and the third visit engaged the educators (evaluation). The third cycle involved the third group of participants who were the community of ICT, IKS and Media Studies students (This included the prototypes demonstration) implication)). The prototypes were demonstrated for the group of students and two parents who were educators. The group of elders in the community was still awaiting demonstration of the prototypes and the feedback of the project on the digital preservation of traditional children games.

4.4.2 Appointment and coaching of research assistants

Upon arrival in the study area, two (2) research assistants were appointed from the community for assistance with data collection. The research assistants were Media Studies Masters and Honours students at the University of Venda. They helped in the clarification of certain cultural practices and behaviours expressed during interviews. They were important in winning the trust of respondents and establishing rapport. They were subjected to a training session to orient them to the study. Whatever they did in the field was guided and coordinated by the main researcher who was the lead researcher of the whole project. They were also part of the team because PAR is about team work.

4.4.3 Community visits

In participatory action research, participants are also part of research and they are called co-researchers (Zuber-Skerritt, 2018). As a research team, we visited the community of Tshidzivhe and the visit was pre-arranged by the research assistants so that we could be initially hosted by the at the chief's kraal. On arrival, the elder of the family *(Vhakoma)* a female senior citizen organised a group of elderly women to come and engage us. After welcoming us, I introduced the research assistants and myself in the Tshivenda language. I started by explaining to them that the research was not for monetary gain but a study that was meant to benefit current and coming generations by safeguarding Tshivenda children's indigenous games. I also advised them that during the engagement, we would take photographs that would help us to reflect when we were back at the university. I asked them permission to put some of the pictures in the study document. They all consented to the taking of pictures and publishing them in the thesis. During the engagement, they were very happy to hear that the traditional games would end up being stored and portrayed in computers and phones for them to be preserved and shared.

Two elders in the group disclosed that they were requested by local schools to train learners in playing traditional children games, and that there would be cluster competitions at the local stadium. Such information came in handy to us and the elders in question referred us to the educators who were organisers of that event. We then proposed a visit which would include educators and learners who would participate in the games. We then made copies of the forms that were to be completed by parents and asked those elders who were also guest teachers in the field of teaching traditional children games to take them to schools. This process was to ask learners that were taking part in the games to give the forms to their parents so that we could

be allowed to take pictures of their children when they were in action. In the forms, parents were informed that the pictures of their children might be published in the thesis. In this visit we managed to meet the executive organising committee members of traditional children games for the Thohoyandou cluster. We introduced ourselves and told them about our mission. They welcomed us and introduced themselves, the positions they held in the committee and their duties. They further gave us a brief background on what made them to host the traditional children games competitions. We were then handed over to the two educators who were engaging with us and showed us different games that were taking place. Our research photographer took pictures and videos of the games while the players were in action. When we were done, we promised them that we were going to take those pictures to the computer scientists and ask them if there was something that they could do to digitally preserve the games. We also promised to give them feedback and update on every development.

4.4.4 Computer Science students

This was our last group of participants in the current study. The group comprised of 3 Computer Science students who were based at the University of Venda. At first, it was composed of ICT students who further referred us to the Computer Science students. What we captured and gathered from the research field was then taken to them for further analysis. The computer science students explored the captured traditional children games and then determined the applications and the software that could be used to digitise the games.

By analyzing the data which was presented to them, they promised that the digitisation process on traditional children games would occur in three different ways and in all the selected formats, there would be collaboration among game designers, artists and programmers. The participants also use gaming software that requires payment subscriptions in app development. Scanning, app and website creation was done. After the app development, a prototype was taken and demonstrated to the participants and they were happy about the feedback.

4.5 Study area

Limpopo Province of South Africa was the area selected for this study. It is one of South Africa's nine provinces. It comprises five districts, namely: Capricorn, Mopani, Sekhukhune, Vhembe and Waterberg. Within each district are local municipalities. The study was conducted

in the Vhembe district, within the Thulamela municipality. The Limpopo province forms the northern-most territory of South Africa. It shares its boundaries Zimbabwe, Botswana and Mozambique. It additionally is a neighbouring province with the provinces of Mpumalanga, Gauteng and North West. The capital city of the Limpopo province is Polokwane.

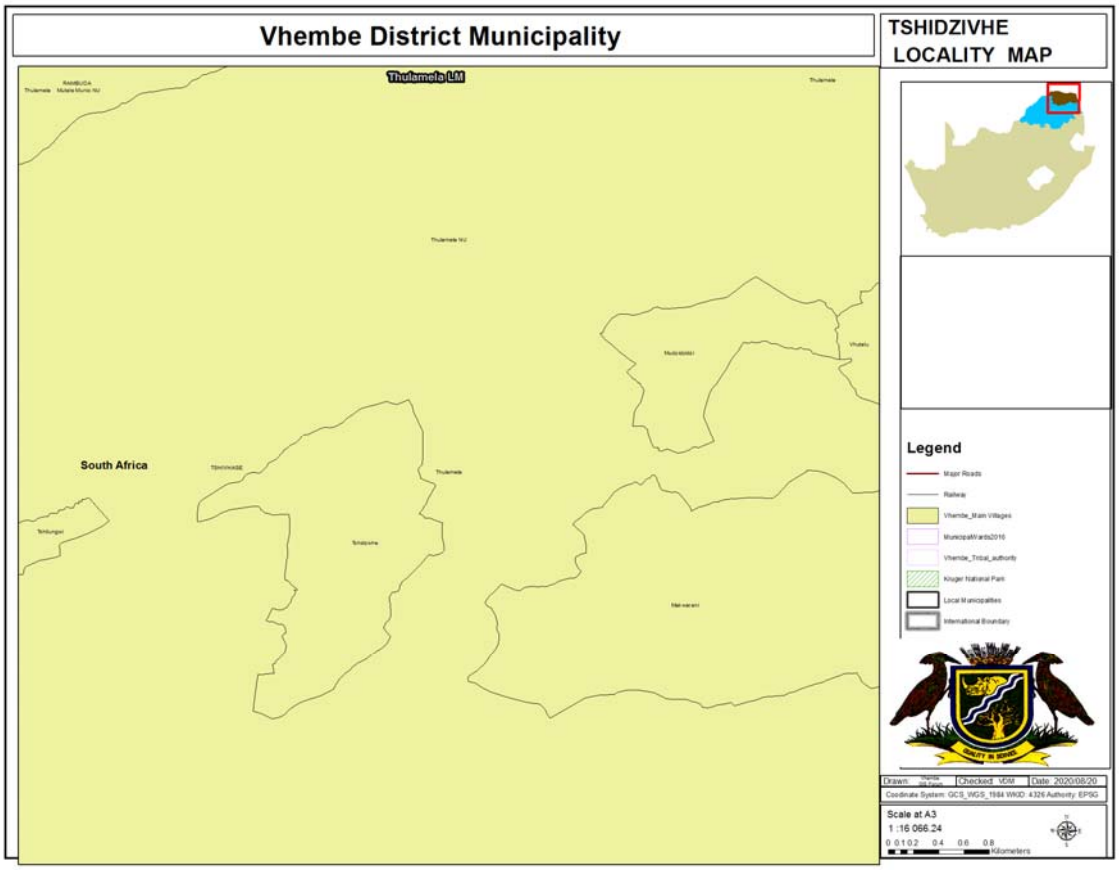


Fig 19: Map of the Vhembe District

The Vhembe district is well known for tourism, agriculture and forestry. The motivation for choosing Vhembe was on the basis that it is a place where the *Vhavenda* speaking people are mainly located and have knowledge holders who know and once participated in traditional children's games (TCGs). Vhembe comprises of local municipalities which are Makhado, Musina, Thulamela and Collins Chabane. However, for the purposes of this study, the Thulamela municipality was chosen. Thulamela municipality is the second largest municipality within Vhembe district. The municipality was chosen because it is where the University of Venda is situated and most of its inhabitants are Tshivenda speakers who abide by the Vhavenda traditions and cultural values. All participants in the current study were from the

Thulamela municipality. Anecdotally, in these places, few children were still participating in indigenous games.

4.6 Population of the study

The total from which the sampling elements or units are derived is called the population or universe (Sanders & Pinhey 1983). Simply put, a population can be defined as the entire group of persons or set of objects and events that the researcher wants to study. A population contains all the variables of interest to the researcher. In addition, Bless and Higson-Smith (1995: 85); Brink (2001) and De Vos *et al*. (2010) argue that a population is sometimes referred to as target population or universe. Similarly, Henning, Van Rensberg and Smit (2004) define the population of the research study as all conceivable elements, subjects or observations relating to a phenomenon of interests to the researcher. The population in this study consisted of members of the Vhavenda tribal group, elders and University of Venda students. Having chosen and pin-pointed the study population, the researcher moved on to consider its components for the study. In this study focus was mainly on traditional children games like *ndode*, *khadi*, *muravharavha* and *mufuvha*. I chose these games because they are registered in the Department of Arts and Culture as indigenous sporting codes. *Bune*, *mudzumbamo* and *tshidimela* were also mentioned as casual games and therefore did not form part of this study. Casual games in this study were mentioned for reference purposes. The following table shows the sampled participants.

Table 4.2 Sample of the participants

Groups	Number	Age	Reasons
Elderly people	2	65 and above	Custodians of culture and cultural practices. Took part in traditional children games.
BIKS Students	2	18-23	Active users of digitised materials
Parents	3	37-50	Have knowledge of traditional children

			games. Participated in these games during their childhood age.
I C T students / Computer Science Engineers students	6	22-24	Have knowledge of digitisation programmes and processes. They know the digital preservation formats. They are youth and have interest in games.

4.7 Sampling and sample size

4.7.1 Sampling

Payne and Payne (2004) refer to sampling as the process of selecting a subset of people or social phenomenon from a large universe to which they belong. Sampling is a selection of research participants from an entire population and involves decision about which people, settings, events, behaviour to be included in the study. A non-probability sampling technique was adopted for the study. Non-probability sampling is a process whereby the participants are chosen in a procedure that does not give everyone in the populace an equal chance to being chosen. In any type of research, genuine arbitrary testing is constantly hard to accomplish. As opposed to probability sampling testing, non-probability sampling is not a result of randomised choice procedures. The subjects in a non-probability sample are typically chosen on the premise of their openness or by the purposive individual judgment of the researcher.

With non-probability sampling, population components are chosen on the premise of their accessibility (e.g. since they volunteered), or due to the researcher's judgment that they are suitable for the study. This sort of testing is regularly utilised while showing that a specific quality exists in a population. It can likewise be utilised when randomisation is not possible. It can further be utilised when the researcher does not aim at generating results that are to be generalisable to whole population.

In purposive sampling, the researchers use their own judgment about which respondents to choose. In this study, purposive sampling was adopted together with the snowball sampling technique. In this study, the researcher selected 13 respondents: two (2) elders, seven (8) students, three (3) parents. The above-mentioned groups were targeted because they were deemed to be key participants in the digitisation of traditional children games (TCGs). The elderly respondents were senior citizens strictly above the age of 65 found in Tshidzivhe village. This was the group that was known as players of *ndode, khadi* and they then referred us to others who played *muravharavha* and *mufuvha*. The sampling methods used in the study are discussed in more detail below.

4.7.2 Purposive sampling

This technique starts with a purpose in mind and the sample is thus selected to include people of interest and excludes those who do not suit the purpose. Bless and Higson-Smith (1995) note that purposive or judgmental sampling is when the researcher selects a sample that can be judged to be representative of the total population. This judgment is made based on available information or the researcher's knowledge about the population. Gilbert (1993) notes that purposive sampling is commonly used in qualitative research and is entirely governed by the need to develop additional theories in social sciences.

In purposive sampling, the researcher samples because of a reason or purpose. The researcher often looks for at least one predefined group, and one of the principal things the researcher is probably going to do is to determine that the respondents meet the criteria for being in the sample. Purposive sampling can be exceptionally helpful in circumstances where the targeted samples need to be reached quickly and where proportionality is not of essential concern. In this study, the purposeful sampling technique was used based on the researcher's discretion. In that regard, the researcher ensured that the respondents with the information on traditional children games and those that once played them and those that have an idea of how best they can be digitised were selected to form part of the study.

4.7.3 Snow-balling sampling

Snowballing sampling involves approaching a single case that is involved in the phenomenon to be investigated to gain information on other similar persons. Initial cases refer the researcher

to another similar case and/or preferably more than one other case (Grinell, 2008). Alston and Bowels (2003) posit that snowballing is a process whereby the researcher approaches the desired participants and those participants who are approached act as informants and identify other potential participants. The nominated participants will then be contacted and interviewed, and the process will be repeated until the saturation of data is achieved. There were cases where it was not easy to collect data and the researcher depended on the snowballing technique. In snowball sampling, one starts by distinguishing somebody who meets the criteria for incorporation in one's study. One at that point requests that the chosen individual prescribe others who meet the criteria. Snowball examining is particularly helpful when one endeavours to achieve populaces that are difficult to reach or elusive. In any case, if one goes to a specific research territory and recognises maybe a couple people as tests, you may find that they know extremely well who other appropriate individuals might be in their region, and how to discover them.

This technique was used in a situation where it was difficult to locate members of the population. This technique was used by the researcher to collect data from few individuals who also helped the researcher to locate other individuals that they know. The nominated respondents were then contacted and interviewed, and the process was repeated until the saturation of data was achieved. To expedite this, the researcher identified ICT students who further identify computer science engineering students who could assist. It was also the same even in the selection of elders who have played traditional children games. The elder that I got at first referred us to others who were known for best performers in these games.

In this study, the researcher reached one elder who is likewise an expert in *ndode* and *khadi*. In talking to this elder, the researcher asked her to recommend the names of other elders who were known as experts in playing *muravharavha* who could likewise give the information required. This strategy was taken with all the participants who were interviewed. This was useful because there were participants who could have been difficult to reach. But since the referrals were made by those known to them, it turned out to be simple for the research team to secure arrangements for meetings.

4.8 Pilot study

In this section, the researcher explains on how the pilot study was conducted. It is imperative that the researcher explains in detail the procedures and outcomes of the pilot study because it had a direct influence on the actual study itself. In general, a pilot study is a "mini version of a full-scale study or a trial run done in preparation of the complete study". Other authors prefer calling it a 'feasibility' study. In that regard, the researcher adopted it specifically for pre-testing research instruments (Van Teijlingen & Hundley, 2002).

The pilot study is effective when one has a clear vision of the research topic and questions, the techniques and methods, which will be applied, and what the research schedule will look like. The researcher conducted the pilot study to ensure that all research techniques and methods which the researcher had in mind would work in practice or the main study. If need be, the researcher would adapt and modify the techniques accordingly. This importance of a pilot study was buttressed by Welman and Kruger (1999) who note that most novice researchers got disillusioned when they found out that the guidelines for research are only valid in an ideal environment, and not in the practical research environment where they conduct their actual research study. This was the main reason why the researcher opted for a pilot study. As for this pilot study, the researcher wanted to ensure the following are in order:

- I needed to detect possible flaws in my questions;
- I needed to check if my questions were clear;
- I needed to see if the questions suit the categories targeted;
- I needed to gauge if the questions can guide me to get the information I wanted; and
- I needed to assess if the non-verbal behaviour of participants in the pilot study may give important information about their feelings.

The pilot that the researcher carried out could give key pointers on the following:

- It gave me warning about where the main research project was going to fail;
- It indicated to me precise research indigenous protocols that I had to follow; and
- It identified practical problems in my research procedures.

4.8.1 Objectives

The purpose of pilot study was three-fold.

- To gain in-depth understanding of how, when and why traditional children's games were shared amongst generation to the other generation.
- To document the data and store it in technology platforms for access and use by the current generation of children and youth.
- To pilot test different data collection instruments.

4.8.1.1 Setting of the Pilot Study and Time

The pilot study was conducted in two phases: the first phase took place over a period of three (3) months; August, September, October 2017. The second phase then took place from February to – April 2018 (three-months).

4.8.1.2 Phiphidi Village

The pilot study was conducted in Phiphidi village in Thulamela municipality of Vhembe district in Limpopo province. The main reason for the selection of this place was that it has many similarities (beliefs, environment, etc.) with the place that the actual study was carried out. Moreover, this village was selected because of its practices of local knowledge and the traditional knowledge holders that it still has. This village has produced a long standing Non-Profit Organisation (NPO) consisting of a group of villagers who are standing against the extinction of indigenous knowledge which comprises of tangible and intangible heritage. The NPO, *Dzomo la Mupo,* has an international record of safeguarding the natural resources by recruiting and empowering community members to readopt their cultural practices, values, belief systems and norms. The community is supported by the traditional leadership had successfully accomplished their objectives of cultural heritage preservation through many projects that they are conducting for the betterment of tribal members. The following participants were targeted at Phiphidi.

Tale 4.3: Demographic characteristics of participants

Category	Number	Age
Elderly people	4	Over 65 years
Parents	3	Between 37 – 48 years

A total of seven participants were selected in the pilot study. The researcher went to the Phiphidi *musanda* (royal household) to ask for permission to conduct the study on traditional children's games preservation through digitization. Tshivenda traditional protocols were adhered to as we asked *Vho Makhadzi* to escort us to the royal house. During our arrangements for a visit she gave us a tip off that we should dress appropriately. Ladies should not wear pants because they would not be allowed to enter in the premises. We were also advised to have a token of appreciation for the chief (*nduvho*). On arrival, we found that the chief was not present, and we were referred to his mother (*Vhakoma*) even though the wife to the chief was present. We explained everything about our research to the *Vhakom*a and *Vho Makhadzi. Vhakoma* promised to take the matter to the chief and asked for our contact numbers for feedback purposes. When we bade them farewell, they refused to let us to go without eating the food they had prepared. We did not know that when we were busy talking to the elders of the family the wife to the chief was preparing food for us. The food prepared was a traditional cuisine consisting of sour pap and traditional vegetables called *dzaluma.* We ate the food to show our appreciation for their hospitality. The next day *Vhakoma* called and told us that the chief had allowed us to conduct our research study. We were told to come on a Sunday morning during their community meeting. Student participants who were part of my research team were from the University of Venda. In that visit I was with research assistants. The process went as indicated below:

4.8.2 Semi-structured interviews

Individual interviews also done with the *Vhakoma* who then referred us to other people whom she believed were knowledgeable in cultural practices, beliefs and values and indigenous knowledge systems of the Vhavenda traditional society. Semi-structured interviews were initially conducted with *Vhakoma*. *Vhakoma* is a member of *Dzomo la Mupo* organisation which rallies behind the empowerment of tribal members on how best culture can be prevented from eroding together with the, traditions, beliefs, and norms of the Vhavenda traditional

society at Phiphidi. Traditional children's games and dances form part of the cultural heritage that need preservation. The following questions were asked:

- Among the Vhavenda traditional society how were the traditional children's games shared?
- Who were the people assigned for that duty?
- Were they trained?
- Who trained them and for how long?
- Who were the audience when the sharing took place?
- When did this take place?
- Why do you think the process was properly done?

What emerged

The final formulated questions after the pilot were;

- Among the Vhavenda traditional society how were the traditional children's games shared?
- Who were the people assigned for that duty?
- Who were the audience when the sharing took place?
- Do you think the process is still relevant today?

These questions were subjected to probing for the collection of more data.

4.8.3 Focus group discussion

Data was collected through conducting focus group discussions with a group of elderly women who were knowledgeable at Phiphidi royal household (*musanda*). The focus group in this phase was organised with knowledge holders from Nemasera traditional dancers and it was at the suggestion of *Vhakoma* who is also regarded as the leader of the group. Focus group discussions were held in the ceremonial house (*tshivhambo*) right in the chief's kraal. FGD's took between one to two hours and participants were selected in the basis of age, gender and perceived knowledge level. The group was deliberately kept small to make it easier to facilitate open discussions. The purpose of the discussion was to explore the variety of perceptions regarding the digitisation of traditional children's games. The information gathered was essential in documenting data for feasibility testing of digitisation process.

Participants were told from the onset of the focus group discussion that; the purpose of the focus group was to gain in-depth knowledge of traditional games preservation since time-immemorial up to the current times. In terms of procedures, the focus group discussions normally started out with the question: "How were traditional children's games shared in the Vhavenda traditional society?" A thesis statement was a guide always for the sequence of the questions.

4.8.4 What emerged

What emerged here was that the word digitization sounded new to the elderly people and the researcher decided to refrain from asking this group of elderly participants question on the digitization of traditional games. The questions that suited them well were; what is the importance of traditional games and how relevant they are in the current era? The ones for digitization were shelved for the educators.

University of Venda

The Bachelor of Indigenous Knowledge Systems students were selected since their field of study is IK based. They opted to be researchers in the pilot study of traditional children's games preservation through digitization. The ICT's students and the computer and media studies students were recruited through snowballing and they were all from the University of Venda.

Table 4.4. Demographic characteristics of the participants

Category	**Number**	**Age**
BIKS students	2	19 – 23 years
ICT students	2	19 – 23 years

Semi-structured interviews

BIKS students

For IKS students, the key questions which guided the responses were:

- What is your perception on the digitization of traditional children's games?
- Which technology platforms do you aspire to see the digitization of traditional children's games?

ICT students

Given the data on how, when and why traditional children's games were shared and preserved since time immemorial:

- What is the technical feasibility of digitizing children's indigenous games?

What emerged

The BIKS students gathered data from some of the cleaners who work at the University of Venda and reside in the nearby village of Phiphidi. They gathered the information of a group game called *tshitari tsho musinela* and the rules thereof. After collecting that data, it was then shared with the ICT students. The ICT students scanned it and shared it on WhatsApp, facebook and other social media. The following is the process of the game:

How to play *tshitari*?

Players stand in a circle while the runner runs around the outer rim of the circle carrying the small branch on his/her hand. Those in the circle are not allowed to move their heads and necks or even to look behind. The one that will be running will be shouting TSHITARI!!!!! (LEAVES) and those in the circle will be responding by saying TSHO MUSINELA!!! (ROTING). With the likeness of the one who is running around, he/she drops the branch behind the legs of the one she likes or chooses. The one who is tagged will feel it at the back of his legs and he is supposed to leave the circle and run fast facing the opposite direction with the lead runner, the one who arrives first in the space where the branch is, becomes the winner. While these two will be competing by running faster those in the circle will be clapping hands, singing faster and applauding the runners. The one who fails to reach the branch first is

regarded the loser and he/she is required to take the branch and run around the circle tagging another one. The process will repeat itself until the players get tired.

The BIKS students were interested in documenting knowledge about traditional children's games to save them from total extinction. Apart from the present method of documentation, they were supporting the digital preservation of traditional children's games as they would add value in the storing and access of knowledge using modern technologies. To the ICT's students it was an interesting experience for them because they wanted to intertwine existing methods of preservation with technological preservation processes. They shared a lot of possible technological processes that could be utilised in the storing of traditional children's games for better access by the consumers. Scanning ended up as one of the most preferred method in digitising traditional children's games.

Overall Outcomes

I managed to establish the value of the pilot study because of the number of adaptations done on the proposed methodology. I noted the value of the pilot study in its practical application as well as for the procedures, semi-structured interviews done and focus group discussion. The value of a pilot study was clear at the end of the final intervention programme when the researcher could identify more factors that could possibly have had a negative influence on the quality of data. All in all, the pilot study had a definite contribution to the success of the study as the following issues were addressed:

- The conducted pilot on FGDs taught me to balance genders to avoid getting information related to a single gender only.
- I learned that some of the questions posed should be re-structured to obtain in-depth data needed for this study.

4.9 Data collection methods

This section focused on methods that were used to collect data during field work. It provides a clear understanding on how data was collected during the entire research process. It also clarifies why a method was used instead of others. In this study, method refers to the way qualitative data was collected or the techniques that were applied to collect data during the entire research process. In this study, the choice of methods had to be based on the theoretical

framework and the variables involved. That is, research methods are formulated based on a paradigmatic perspective underpinning that study. Each of these designs has its own perspective and procedure, the research process (methodology and methods) reflects the procedures of the chosen design (De Vos *et a*l., 2010). Data are the basic material with which researchers work with. Data emanate from observation and can take either one of the two forms, numbers (numeric/quantitative data) or language (words/qualitative data) (Terre-Blanche, Kelly & Durrheim 2006). A research study can therefore provide valid conclusions only if the researcher has sound data to analyse and interpret. Data should capture the meaning of what the researcher is observing. Data are collected either by interviews or by observing and recording human behaviour in the context of interaction. Qualitative data in this study were collected in this basic or generic type of qualitative design, by means of semi-structured interviews, in-depth focus group interviews and survey of primary and secondary sources (Henning *et al*., 2004).

4.9.1 Semi-structured interviews

This study used semi-structured interviews as one of its data collection techniques. Semi-structured interviews are a form of data gathering technique which enables the researcher to collect in-depth information from participants comprehensively. It is a unique form of conversation which provides the researcher with empirical data about the social world, simply by asking participants to speak about their lives (Holstein & Gubrium, 2003). This type of interview creates a relaxed atmosphere for the interviewee as it is mainly conducted within his/her natural setting, a situation that usually brings confidence to the storyteller.

Added to this, is the fact that the interview's structure is flexible as it has an insignificant number of restrictions, and it is often presented in the form of a guide rather than rules to be adhered to (Sarantakos, 2005). A semi-structured interview schedule basically defines the line of inquiry (Niewenhuis, 2010). With semi-structured interviews, the researcher has a set of predetermined questions on the schedule, but the interview is guided rather than dictated by the schedule (De Vos *et al*., 2010). A schedule of interview questions guides interviewees to focus on core areas or themes of research since they are designed for that purpose. Semi-structured interviews enable the researcher to gain in-depth information about his/her sample participants' beliefs, perceptions and their account of a phenomenon under study (Strauss, 1987). In short, semi-structured interviews are an in-depth tool of data gathering method.

Interviews are techniques that are designed especially to elicit a vivid, holistic and detailed picture of the interviewees' perspective on the study in question (Kvale, 1996). Participants are perceived as the experts on the subject and should be allowed maximum opportunity to tell their story. Semi-structured interviews played an important part in the data collection process during the fieldwork.

All interviews were audio-taped while handwritten notes were used to support the recordings. A voice recorder allows a much fuller record than notes taken during the interview. Audio recording allowed the researcher to concentrate on how the interview was proceeding. The researcher could give his undivided attention to the interview process to guide it accordingly. Observation notes were taken during the interviews. Such observations included non-verbal cues. This assisted the study during the transcription for analysis purposes. Recorded interviews were transcribed after which the texts were analysed (Maree, 2007).

Semi-structured interviews, however, have shortcomings. These are, *inter alia*, bad rapport with participants, coping with unanticipated problems and managing large volumes of data generated by relatively brief interviews (Charmaz, 2002). Another disadvantage is that of interviewer falsification. This is an intentional departure by the researcher from the designed interview schedule which results in the contamination of data (Monette, Sullivan & De Jong, 2005). The semi-structured interviews were employed to derive responses from the elders and the educators.

4.9.1.1 Semi-structured interviews fieldwork

The researcher went to the research sites together with the research assistants. On preparation, the researcher reminded her female research assistants not to wear pants as they are regarded a taboo in Vhavenda traditional society. The researcher also advised the assistants that they had to follow the Tshivenda Reverential Approach whenever they arrived in the research site. We went there in the late morning of Saturday. On arrival, *Vhakoma* welcomed us in *tshivhamboni* where there were chairs and mats were prepared. As female researchers, we sat on the mat because it is not allowed for women to sit on the chairs. We then introduced ourselves and explained to them the purpose of our visit, read the topic of research to the participants and explained it in their Tshivenda language. We told them of the consent forms that we had that they were supposed to sign if they would like to take part in the data sharing process. Some

were semi-literate, and others were illiterate. Those who were illiterate opted to put a cross where they were supposed to sign and asked us to write their names for them. Those who were semi-illiterate just said that they didn't know how to read but they could write their names because their grandchildren taught them (Refer to Appendix B).

Considering that it was semi-structured interview the first question was the same for all the participants, but the responses were different. As we probed further, we asked different follow-up questions. We managed to get more information on how knowledge on traditional children games was shared, their importance and their relevance in the current era. When we finished, we were advised not to leave before eating food. We did not know that there were some people who were preparing food for us, but we agreed to partake in the meal. They had prepared Tshivenda sour traditional porridge (*mutuku*) and a slimy vegetable called *delele* (okra). We appreciated the hospitality and cooperation, but we did not thank our hosts for the food as it is not allowed in Tshivenda culture.

4.9.2 Focus group discussions (FGDs)

Focus groups interviews are means of better understanding how people feel or think about a phenomenon. Participants are selected because they have certain characteristics in common that relate to the topic of a given study. The focus group is a carefully planned discussion session designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment (Krueger, 1998). Focus groups are research techniques that collect data through interaction on a topic determined by the researcher. What the participants say during the discussions constitutes the essential data in focus groups (Morgan, 2007). They are stimulus for group members to recall and enhance their memory of the topic at hand. The purpose of focus groups is to promote self-disclosure among participants (De Vos *et al*., 2010). This self-disclosure is effective if group members engage in a discussion that facilitates openness among group members where divergent thinking and tolerance are pillars of the discussions. Focus groups are useful when multi viewpoints are needed on a specific topic. Focus groups can generate complex information at low cost in a minimum amount of time (Kroll, Barbour & Harris, 2007). This, however, is dependent on whether group members are the relevant respondents. If group members do not gel, their discussions will not be vibrant, resulting in members losing interest and focus, thus becoming unproductive for data collection purposes. The right group composition would generate free-flowing discussions that contained

useful data (De Vos *et al*., 2010). The researcher created conditions for an easy, productive conversation, and ensured that while participants are comfortable talking to each other, they also served the goal of generating pertinent responses. The researcher's creativity matters a lot here as his/her ability to steer the discussions in the right direction might make or break the data collection process. Focus groups are usually determined or selected through the purposive sampling technique.

Focus group fieldwork

Participants were selected based on their organic knowledge of indigenous knowledge systems and the experience they had of traditional children games. This group was combined with several IKS students who were participating and collecting data as part of their study activity. The second group members were also selected purposefully by looking at their knowledge of digital preservation and this group was fully comprised of students and two parents who were educators. The educator members were observing the students and learning from what they were doing. The two focus groups had seven members each, purposively selected among the University of Venda students. Focus groups have normally between six and ten participants, and the FGD sizes in this study were in this range (Kroll *et al.*, 2007).

In this study, I did two FGDs of five hours each based on the understanding that these groups are said to generate more information than one-on-one interviews. Focus group interviews were recorded and transcribed and made ready for analysis. In addition, and as a back up to recordings, the researcher also used field notes. Field notes contained descriptions of the study's reflections regarding conversations, interviews, and moments of confusion, intuitions and the stimulation of new ideas during the study (Mayan, 2001).

4.9.3 Observations

After the directive that was given by the knowledge holders from the chief's kraal the day I had a meeting with them, they directed me to the educators at the nearby school who notified me about the competition which was to take place at the local stadium for indigenous games. This was done for two days as a means of observing the proceedings of different traditional games participated in by the primary and secondary local schools. The children who participated in some of the games were trained and coached by Vho Phophi and her team, some

of the surviving elderly people who played all known traditional games. Participant observation was unique because it enabled the study participants to be approached in their own environmental settings than the other way around. The general outlook is that the researcher tried to realise what life resembles for an "insider" while remaining an 'outsider'. While in these group settings, researchers made meticulous observations, wrote notes about what they saw, took recordings and perceptions as field notes in a field scratch pad. Casual discussions and associations with individuals from the sample were done.

Fruitful accumulation of ethnographic information required a nearby and managed perception of the examination respondents, which can be accomplished by cooperation in neighbourhood traditions. Coordinate perceptions were done to build up a logical, all-encompassing feelings of parts of the indigenous information and practices utilised for indigenous recreations. Perception was useful in the portrayal and clarification of traditional frameworks utilised for enculturation. The analyst's part in this investigation was essentially perception and talking. There are different occurrences where member perception was embraced, for instance, on Saturday mornings over the span of following how traditional children games recreations were played to watch how the procedures were unfurling. Consent to record and watch the procedures of the different traditional games were obtained. Consent was also obtained from parents and guardians of all the youths that were staged in the captured traditional games. Pictures were captured during this phase to enable the researcher to use the pictures as aids in analysing data.

Observation fieldwork

One day at a research site, the elders and other community members in the village were busy removing stalks from the fields and busy building the traditional children games houses and instructing on how the chosen participants were going to go about the game. The researcher participated in the activity and at the same time was busy observing and conducting interviews. A lot of information on traditional children's games was obtained that day, while the mood was quite relaxed, and the interview was conducted informally. During these activities, permission to take photographs of the homesteads and of some of the informants was sought and granted.

As has been indicated earlier, the researcher is a Muvenda by birth, tribe and upbringing. This placed her at an advantage point in terms of understanding not only the language, but also some conventions and norms within which the respondents aired their views and shaped their responses. This not only provided 'insider priviledge' but also increased chances of generating cogent responses. As an observer and a participant, the researcher expected to see through the eyes of the subjects. The researcher could have a top to bottom contact with the general population that shaped the subject of her investigation. There was no compelling reason to translate the language since the researcher and the assistants were Tshivenda speakers and knew the way of life and how individuals interfaced with each other. There were some things that individuals would not generally discuss, for instance, who were the supervisors of the game. By being in the study area more often, it built trust and some elderly individuals from the village started to believe the researcher and the research assistants. The time spent expanded the researcher's capacity to arrange activities within the participants' contexts. The researcher observed them when they were playing *khadi* and asked about their feelings. The researcher also asked them the most interesting things which they liked about the game. In *ndode,* the researcher observed them throwing and catching the *ghoen* and removing the pebbles from their hole. The researcher asked them what they were learning from *ndode* game. The researcher also observed her co-researchers when showing the scanning process for WhatsApp.

4.9.4 Documentary study: secondary and archival sources

Generally, qualitative research methodologies rely on observation and interviewing in data collection. This is done at the expense of archival documentary (De Vos *et al*., 2010). Document study is the study of existing documents, either to understand their substantive content or to illuminate deeper meanings which may be revealed by style and coverage (Ritchie & Lewis, 2003). Sources are classified on either a primary and secondary basis. Primary sources are original documents such as memos, reports, minutes of meetings, invoices and receipts, among others. Secondary sources consist of material derived from someone else as the original source (De Vos *et al*., 2010). Primary sources, by being original, have more weight than secondary sources in terms of information reliability. This implies that they are more reliable than secondary sources. Secondary sources are someone else's interpretation of primary sources. They should therefore be thoroughly scrutinised for accuracy (De Vos *et al*., 2010). That is, chances are high that secondary sources may contain misleading information, may be subjective or biased towards that author's beliefs or views. Secondary source

documents relevant to this study were studied to collect data and to complement data collected from interviews. The credibility of a document as evidence hinges on the truth and accuracy of its reference and how widely it represents the phenomenon the researcher is investigating (Jupp, 2006). This means that a secondary source document's validity as a reliable source that should be used for data collection lies more in how far and widely it engages with literature regarding the phenomena being studied. As this study engaged secondary source documents, questions of why, how and whose interest that document serves, were uppermost to collect valid, in-depth and relevant data used in this study. Documents on the digital preservation of cultural heritage materials, and policy on the digitisation process were studied and were reflected in the results of this study. The UNESCO documents on different conventions on the preservation of intangible heritage were also studied for data collection on the digital preservation of traditional children games.

4.9.5 WhatsApp interviews

Generally, it is common in qualitative study to employ telephonic interviews as a method of collecting data. In this study the researcher alternatively employed WhatsApp voice and WhatsApp texts to collect data from the students. This method was very convenient to them as they were used to electronic gadgets. It was also a very interesting process for them because it was setting a practical example of the possibility of traditional children games preservation through digitisation. Personal reflections of the study project were conducted using this social media platform and data was extremely saturated and useful.

WhatsApp interviews fieldwork

In this study the researcher created a WhatsApp group with the student participants where she was the group administrator. Interview questions were posed in the group and the participants provided their views on the questions asked. In some instances, others sent their voice notes when responding to the interview questions. The researcher transcribed what was in the WhatsApp voice. More information was gathered on the challenges that come with the digitisation of traditional children's games.

4.10 Data analysis

This study employed the thematic data analysis method. The researcher used the theme identification method to analyse data. According to Bernard (2013), theme identification is one of the most fundamental tasks in qualitative research. A theme can be described as an "umbrella" construct which is identified by the researcher before, after and during data collection. Within the ethnography tradition, Wolcott (1994) proposed that data could be transformed within a process that can be divided into description, analysis, and interpretation of the culture-sharing group. However, Wolcott (1994) cautioned that these three processes were not to be viewed as mutually exclusive. In the same vein, LeCompte and Schensul (1999) describes a recursive process of constant questioning which starts when the researcher decides what cultural group will be observed and continues throughout the research process as emerging formulations are continuously modified. Distinguishing between the three processes merely serves to vary the emphases placed on how data would be handled at the different stages of the research process (Wolcott, 1994).

The researcher identified all the data that were related to the above-mentioned pattern and entered the data appropriately. The researcher drew themes from the research objectives of the study. The researcher used this approach because it was standard and generally acceptable method for analysing qualitative data. To achieve this, the following steps were followed:

Step 1

In step 1, the researcher began by arranging and sorting out the transcripts and then recorded them thematically.

Step 2

In step 2, the researcher read through the transcripts to get the general picture of the data collected. I re-read the transcripts, keeping in mind that the end goal was to get nearer to the information (Richards & Morse, 2007). The favourable position the researcher had was that she accumulated the transcripts, a procedure that encouraged her deliberations. The researcher found exploring the information considerably less demanding. As she read through parts of the transcripts, she started to acknowledge area/divisions. She considered the transcripts, looking for repeated subjects and basic reactions (Richards & Morse, 2007). Reactions were viewed as basic in their relationship to the exploration inquiries in so far as they were shedding either positive or negative perspectives. Then the researcher started shading code sections of information and furthermore began to think about the implications and ramifications of the

content divisions. By shading codes, it was easy to decide informational collections that bolstered or negated each other regarding the topics that developed (Hramiak, 2005:88).

Step 3

In step 3, the researcher started to discover headings that suited these divisions. These headings were subjects that she appended to these divisions. As insinuated before, topics produced from the research which compare with the headings of the divisions of the meeting plan, were utilised as a part of showing information.

Step 4

Data was analysed thematically. Themes were developed from the participants' discussions and coded into sub and sub-sub themes. The main themes were developed from the objectives.

4.11 Ethical considerations

Ethics are defined as the branch of philosophy dealing with values that relate to human conduct, with respect to the right or wrong of specific actions, and to the good or bad of the motives and ends action (Chandler & Plano, 1988). Ethics are concerned not only with distinguishing right from wrong and good from bad, but also with the commitment to do what is right or acceptable. The following ethical considerations were addressed in this study:

4.11.1 Informed consent

Informed consent is a statement, usually written that explains aspects of a study to participants and for voluntary agreement to participate before the study begins (Neumann, 2014). The participants were fully informed about the procedures and risks involved in the study and they could give their informed consent. The researcher made sure that the participants were completely free to express their feelings. The researcher ensured that the research participants were not exposed to physical or psychological harm, and that they were not subjected to unusual stress, embarrassment or loss of self-esteem (Refer to Appendix B).

4.11.2 Anonymity

Anonymity is the ethical protection that participants remain nameless, their identities are protected from disclosure and remains unknown (Neumann. 2014). Anonymity is one important ethical consideration which encourages participants to give information freely. Anonymity is a good foundation for confidentiality where respondents know that the information given will not be misused. To achieve this, informants' identities such as their names were not used in the analysis. (Refer, Appendix B).

4.11.3 Confidentiality

Confidentiality is frequently discussed in the literature, especially in the context of research involving vulnerable groups. Although there are many definitions of vulnerability, in the context of research with humans, this term often indicates groups or individuals susceptible to harm or risk (Aldridge, 2014). This seems particularly important in situations where participants hide their membership in a stigmatised group or when they are critical of persons or institutions on which they depend. To achieve this, the researcher promised them that their information would not be misused (Refer to Appendix B).

4.12 Measures to ensure trustworthiness

Trustworthiness entails measures that should be taken to make sure that the research findings are worth paying attention to and taken into consideration (Lincon & Guba, 1985). Babbie and Mouton (2012) indicate that the principles of a good qualitative research are based on trustworthiness where a researcher persuades his or her participants that the findings of the investigation must be worth taking account of. The researcher applied measures to ensure trustworthiness by ensuring validity and reliability of the research. The following measures were applied: credibility, conformability, transferability and dependability.

Hofstee (2006:112) contends that all techniques have constraints. Like some other subjective request, issues of bias and generalisability rapidly go to the fore. Concerning bias, the contention is that individual encounters, convictions and esteem loaded accounts are one-sided and subjective. To that degree - no story can have more believability than some other; all stories are similarly substantial, being so approved by a group that lives by them. Nieuwenhuis (2010) argues that qualitative specialists acknowledge esteem loaded accounts as valid for the individuals who have survived the experiences.

4.12.1 Credibility

According to Shenton (2004), credibility is mainly concerned with the question of how congruent are the findings with the reality. On the other hand, Lincoln and Guba (1985) argue that ensuring credibility is one of the most important factors in establishing trustworthiness. The researcher was aware that some of the participants cannot read and write, but they are knowledge holders (KH) who are useful in the study. The researcher catered for these participants by simplifying the questions and/or by translating the questions to the local language. Also, the researcher ensured that translation is accurate by liaising with experts in the field of the language being translated.

4.12.2 Confirmability

According to Lincoln and Guba (1985), confirmability is a way of establishing efficacy of the research. In other words, it refers to the objectivity or neutrality of the data. Furthermore, objectivity and neutrality are sought to ensure that the checks and balances on the data are relevant and meaningful. The researcher ensured that the findings of the study are true reflections of the participants' responses during interviews. In addition, the researcher previewed the findings by replaying the recordings and reading responses with the participants to ensure that the findings were interpreted accurately.

4.12.3 Transferability

Babbie and Mouton (2012) indicate that in a qualitative study, transferability rests on those who will be willing to use it appropriately in other similar contexts. The researcher ensured that the findings are easy to be applied to related studies from similar environments. Furthermore, the researcher ensured that the data collected from the participants and recorded were analysed to the best of the researcher's ability. This was done to ensure that those who wished to use the findings for policy and other related uses would find it easy to do so.

4.12.4 Neutrality

The Oxford English Dictionary (2001) defines neutrality as not supporting either sides or being impartial (Pearsall & Hanks, 2001). It implies that the researcher will not take sides when conducting the research. The findings of the study were influenced by the participants and not by the researcher's bias, interest and motivation during an interviewing process. So, during the study and compilation of the findings, the researcher kept the duty of good faith and reported the findings without any attachments or the feelings.

4.12.4 Truth value

According to the Oxford English Dictionary (2001), truth value refers to the trait given to a proposition in respect of its truth (Pearsall & Hanks, 2001). The researcher did not interfere with the findings of the study to suit personal outcomes. The researcher applied all relevant methods to make the study speak for itself.

4.14 Chapter Summary

The digital preservation of traditional games seems to be an interesting phenomenon as it addresses the current methodology in knowledge preservation and dissemination. Youths of different ages seem to show interest in the use of technology, especially while accessing their traditional games that resemble their own identity. The next Chapter presents, discusses and analyses data as collected from the interviews and focus group discussions.

CHAPTER FIVE

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

5.1 Introduction

This chapter presents, analyses and interprets data collected through interviews, focus group discussions and observations. This study was conducted in Tshidzivhe, Makhuvha and the University of Venda in the Vhembe District. I reviewed the literature pertaining to indigenous games and indigenous knowledge systems, decolonisation discourse, decolonial education and indigenous education, traditional children's games and digitisation of indigenous knowledge systems. Also, in-depth individual and focus group interviews to gather data from the participants were conducted. Participants were varied, depending on the type of data sought from the concerned population group. The first group of participants were elderly people, the second were educators who were also parents in the same village, the third were youths who were students at the University of Venda studying different disciplines (that is, the IKS students, Media Studies students and Computer Science students).

These groups were asked questions that sought for their views on the digitisation of traditional children's games. This was done to establish the inter-disciplinary, multi-disciplinary and trans-disciplinary nature of Indigenous Knowledge Systems in this study. As this study is collaborative and descriptive in nature, it required me to employ the PAR with the third group of participants.

The first group of participants were indigenous knowledge holders. They were interviewed in the *Tshivenda* language, and the data was translated into English. I asked them why they thought it was relevant to preserve traditional children's games through digitisation. I also asked them about the importance of traditional children's games and how traditional children's games were categorised. These questions were specifically asked to this group of participants because they grew up playing traditional children's games which made them to have vast knowledge of these games. I also conducted a focus group with them in making a follow up on the data that was collected before. In the focus group discussion, the elders were joined by the IKS students because data collection was part of their research module which equipped them for their mini-dissertations.

For the second group, I asked the same questions, but in English because they understood the language as they were educators. The third group of participants were students from different disciplines. They were students doing indigenous knowledge systems, media studies, information and communication and computer science engineering. Throughout the study they were referred to as co-researchers and interviews with them were done in English because they were from different cultural backgrounds. I facilitated a focus group discussion and a later stage I made some interviews using WhatsApp voice recordings and text messages. Their data was themed, and the resultant themes served as the outline for presenting data. Data was presented in phases. The first phase presented data collected through semi-structured interviews, the second phase presented data that was collected through focus group discussions, and the third group provided data that were collected through observations.

Games like *ndonde, muravharavha* and *khadi* were captured because they were part of traditional games that were in the list of school competitions. I also recorded a list of games that were regarded as *mitambo ya makhulu* (grandma games). They were referred to as casual traditional children games and categorised according to times. For instance, games like *tshidimela haka maṱorokisi, mudzumbamo, bune, khube, mbalembale, tshiswaṱe* and *mahundwane.* The findings are organised and presented as follows: First, I discussed the importance of digitising traditional children's games, followed by the possibility of doing so, and end with challenges faced therein. Data presented was addressing the following research questions:

- What is the importance of preserving traditional children games through digitisation?
- What are the prospects of preserving traditional children games through digitisation?
- What are the challenges of preserving traditional children games digitally?

Table 5.1 Themes and sub-themes

THEME	SUB-THEME	SUB-SUB THEME
Importance of digitising traditional children games	Traditional children games are informative. Traditional children games practice Ubuntu.	Games promote physical and emotional wellness. Games promote leadership skills and collaboration.

	Traditional children games are informative, educative and recreational. Traditional children games teach coordination and causality. Traditional children games and heritage. Traditional children games promote social cohesion. Traditional children games are culturally significant.	
Possibilities of digitizing traditional children games	Traditional children games and art. Traditional children games as mainstream. Possible technologies aspired	Music Role-play Graphics Photography WhatsApp scanning Creation of APP Web development Reflections
Challenges of digitising traditional children games	Effects of traditional children games. Internet connectivity problem. Digital platforms limitations.	

5.2 Data presentation

5.2.1 The importance of digitising traditional children's games

I engaged with the elders and educators on their views about the relevance of preserving the traditional children's games through digitisation. This is what they said, starting with Vho Phophi:

> *'Tshe nda tou vha mu ngafha a thi thu ʱangana na heḽi ipfi ḽa didzhithazesheni fhedzi hezwi zwa mitambo ya sialala na mvelele ndi a zwi pfesesa. Mitambo heyi ro aluwa ngayo i tshi ri fhaṱa vhukuma. Ndi kha mitambo ya sialala hune vhana vha guda hone ʱhonifho, vhurangaphanḓa, mvelele na maitele oṱhe a ndavhuko. U ya nga he nda ni gavha ngaho ni tshi ʱalutshedza ndivho ya tsedzuluso dzanu ndo pfa u nga didzhithazesheni ndi u ʱangayisa mitambo ya mvelele na sialala nga mitshini uri i vhonale kule. Ndivho heyi ya hei mitambo i tshe na mushumo vhukuma na kha tshifhinga tsha zwino.'*

Translated into English, the above would read thus: 'Old as I am, it is my first time to hear this word in all my life, since you know that I didn't go to school. What pleases me now is that when you start to explain to me about what you want to do with the knowledge that you are asking from me, I am starting to have a small light of what is meant by digitisation. My little understanding is that digitisation is the taking of recorded and written information and putting it inside the machines that can show or represent that information after sometimes later.'

> *Vho-Phophi vhori vha tshi ya phanda vhari:*
> *"Nne sa nwana wa muvenda ndo aluwa ndi rengenyela dzi thai, ri tshi talutshedzwa dzingano, ri tshi funzwa mirero na maambele, lungano na midai ya Tshivenda. Zwothe hezwi zwo vha zwi tshi da nga tshi vhumbeo tsha mitambo ngeno hu na u pfukiseliwa ha ngudo dza vhutshilo musi ri tshi khou dzedza. Thai dzo ri gudisa u amba nga ndila ya u vhuvhisa i re na thonifho kha tshi tshavha. Tsumbo khei; thaii!!!! Tsha nkunda ndi lipo. Tsha nkunda ndi lipo zwi tshi amba damu la khaladzi. Pfunzo kha heyi thayi itshi kaidza vha thannga uri damu la khaladzi a li fariwi zwi a ila. Vhathannga na vhasidzana vha tshi aluwa vha aluwa na ndivho ya uri vhathu vha a thonifhana."*

Translated into English, the above would read thus: as a *muvenda* child ,I grew up listening to our elders teaching us folktales, adages, storytelling, proverbs and idioms. These oral traditions were transferred to us in a form of evening games while sitting around the fire.

Some stories, after narration would bring a serious agitation that makes us to fear walking during the night. This form of games taught us life skills that instil morals and respect to the elders and among ourselves as children. Example of an adage *tshankunda ndi lipo!* Means that, growing up as young man you must not flirt with your sister. Whether the sister is half sister or cousin, she must be respected, you must not touch her breast in a form of romance. Reiterated further she said:

Mitambo hei yo ri funza ngudo dza kutshilele na matshilisano kwao a vhu matshelo. Hezwi zwi tevhelaho rine ro zwi gudiswa nga u tamba mitambo ya sialala:

Vhutsila	Mitambo
Vhutsila ha u tshila tshi tshavhani	Mahundwane
Vhutsila ha u humbula	Muravharavha
Vhutsila ha zwipfi	Dzhege, pa
Vhutsila ha u dzhia tsheo	Geimi
Vhutsila ha u amba na u fhata vhushaka kha muthu nga muthu	Tshidimela haka matorokisi
Vhutsila ha u elekanya tshidele	Mufuvha

Translated into English, the above would thus said: traditional children's games taught us different life skills. The following are life skills education that we have learned through traditional children's games.

Skill	Game
Social skill	Mahundwane
Thinking skill	Muravharavha
Emotional skill	Jack and his father
Decision-making skill	Cricket-like game
Communication and inter-personal skill	Railing train
Creative thinking skill	Mufuvha board game

Vho-Masindi said the following in response to the question:

> *'Ngoho ṋamusi ndi khou pfa haya mafhungo a tshi tou vha tshiṱori tshiswa vhukuma. Mitambo ya sialala na mvelele ndi a i ḓivha*

vhukuma. Ndo vha mutambi wayo u bva vhuṱukuni na vhuswani hanga hoṱhe. Hezwi zwa u didzhithaiza a thi zwiḓivhi fhedzi kupfesesele kwanga ndi pfa u nga ndi u longa mitambo heyi kha thekhinolodzhi dza tshi zwino. Mushumo wone ndi vhona zwina mushumo vhukuma u vhulunga heyi mitambo nga nḓila ntswa ya mitshini. Riṋe a ri vhaṅwali vha dzibugu fhedzi heyi nḓivho ri nayo kha dzithoho dzashu. Vhaṅwe nga riṋe vhe ra tamba navho vho no ḓi lovha, vho ṱuwa na nḓivho yavho ya vhuṱhogwa. Kha riṋe ri ne ra kha ḓi vha hone ndi vhona uri ndi khwine ri thuse vheiwe vha dzi tsedzuluso uri nḓivho heyi i vhulungee. Vhunga mitambo iyi yo ri alusa nga nḓila kwayo ri a zwi tama na muraḓho uno na u ḓaho i tshi aluwa nga nḓila yavhuḓi. Pfunzo dze ra guda na mikhwa yo ri khwathelaho ri tshi khou aluwa yo ri ita uri ri vhe vhafumakadzi vha vhuḓifhinduleli kha mivhundu yashu,naho khau vhulunga ho vha hu tshi shuma ṱhalutshedzo dza u amba.'

The above is translated as: 'Digitisation of traditional children games to me is a new story. I know many traditional children games that I played while I was still young. I also know how to teach the young ones these types of games. These games generated morals to us when we were growing up and to be responsible women in our communities. Digitisation to me is a new concept but I heard you well when you said is a way of preserving knowledge, but in our times, knowledge was preserved through oral traditions, storytelling, proverbs, folklores and some rhymes that we used to sing while playing.'

Vho-Masindi vho isa phanda hafhu vhari:

"zwothe hezwi zwe nda zwibula, ndi itela uri ni pfesese uri lupfumo na vhuvha ha muvenda, ndi u dikukumusa nga luambo, maitele na mvelele yo di tikaho nga u talutshedza zwitori zwa tshivenda, dzingano, mitshino, dzi ngoma, zwidade na dzinyimbo dza tshivenda. Tshifhingani tshashu ri tshi khou aluwa, maitele a u gudisa pfunzo idzi o vha a tshi itwa nga vha aluwa vha tshi dededza vhatuku. Ndila yo leluwaho ya u pfukisela iyi ndivho ya mupo yo vha i ya mitambo ya sialala. Nga tshivenda ri "hu bikelwa vhunanga, vhutsila ri vhona nga mato". Hezwi zwi amba uri muthu u guda khwine nga u vhona a dovha a edzisela zwi no khou itwa."

Translated in English, the above would thus said:

All what I have shared with you is just to make you understand that the organic wealth and identity of *muvenda* is in the pride of language, norms and cultural values that are grounded in traditional education which is basically found in storytelling, rites of passage, folktales, rhymes, traditional dances and songs. The cultural tool expected for this activity was traditional children's games. There is a saying in Tshivenda which says "*traditional healers undergoes training but skills are found through observation"*. This statement is a motivation alluding that education in traditional games is acquired through observation and emulation.

Vho-Phophi: In response on the issue of digitisation she said:

> *'Shango ḽashu ḽi nga vha na vhudziki ha khwine arali mitambo heyi ya sialala na mvelele ya vhulungwa nga nḓila ya mitshini uri vha na vhana vha i gude. Na kale na kale ṅwana u guda nga u vhona na u ita, zwino zwi amba uri arali zwine vhana vha khou vhona zwi zwivhuya vha ḓo aluwa vho fhaṱea vha tshiita zwivhuya ha fhungudzea vhuḓifari vhu si havhuḓi vhu no nga u dzhia zwikambi na zwi dzidzivhadzi.'*

English translation: *'*Our country will have peace and tranquillity if traditional children games are digitally preserved, since time immemorial children learnt by seeing and doing. If what they are observing is good, they will grow up knowing how to live well, what to do and what not to do.' This will curb the social ills that lead to moral degeneration among the youth. This could reduce misbehaviour like drinking and using drugs.

Vho-Mudau said that:

> *'Looking at the rapid development of our country technology seems to be growing and applied everywhere. A very large percentage of our children are having smart phones. The gaming content that they access in their cellular phones are not of their culture and because of their foreign features they seem to promote some of the social ills like teenage pregnancies, alcohol, drug abuse and violence in schools and outside schools. Traditional children games teach Ubuntu as an act of love, so if*

> *those games are preserved, they would promote social cohesion. Children who are well groomed are blessing to the community.'*

Vho-Luvhone, in response to the question, this is what she said:

> *'Digital preservation of traditional children games is very relevant as we are living in the world of technology. Everywhere in the media houses we hear of the fourth Industrial Revolution (4IR). By digitally preserving traditional children games, we will be in line with what is needed by our country.'*

Given the above responses from the participants, I reckoned that all their explanations have an element of regarding traditional children games' digitisation as being useful. Nxumalo and Mncube (2019) reckon that through indigenous games and knowledge, children learn about their communities and this helps in the perpetuation of societal structures, laws, languages and values inherited from the past. Most of the participants showed that children nowadays lack morals due to acculturation. What children are learning in their day to day lives seems to be very Eurocentric than learning from their own culture. The participants' explanations were in support that traditional education communicated in the traditional children's games plays a pivotal role in the development of children as they grow up. This may be largely due the high use of technological gadgets. Thus, it plays into the calls for digitising children's traditional games. Subsequently, the above assertion by the participants, made me to recognise that traditional children's games also help children in moral regeneration as alluded to by Ladzani (2014) who states that the moral decay can be attributed to the death of traditional children's games within the African communities.

During the time when the traditional children games were played, morals were noted to have been observed (Lwoga, Ngulube & Stilwell, 2010). In this sense, the traditional children's games in South Africa bear witness to the Afro-centric nature of the isiZulu, Sesotho and Tshivenda speaking people which sought to impart morals and values whereas the Euro-centric and oriental knowledge bases reflect the culture of European, Asian and Indian descents respectively. Though digitisation in this study is a Eurocentric operational concept, in this study it alludes to the preservation of traditional children's games in the context of the fourth industrial revolution.

5.2.2 Traditional children games are informative

Despite Africa's rich history of indigenous games, a number of these games have gone extinct without having been documented in most historical and anthropological accounts of the indigenous people of Africa. Tufekčić (2016: 37) is even blunter by highlighting that: Traditional children's games (have) disappeared from the life of a modern child at large and today are unknown to children. They are not part of the everyday natural environment of a modern child any longer. One can even talk about disappearance of a large number of elements of children's sub-cultures in connection with games and playing that traditionally shaped the world of childhood and youth.' The preceding view does not paint a pleasant picture since indigenous games impact on a number of pertinent issues such as African identity, cultural diversity and accessibility of resources (Sport and Recreation South Africa (SRSA), 2018).

According to Vho-Phophi, though she did not have a clear understanding of digitisation, she had an idea that when children are playing traditional games the order that they have among each other creates an atmosphere of peace building, role of language and cultural belonging. If one lost, he/she understands that he or she must give a chance to each other. In every game, there are rules which govern those activities. The rules that govern play environments govern every player and are comparable to rules that govern wider social relationships. If children can obey the rules of the games it means that they will grow up being responsible citizens.

I, therefore, concur with them when they highlight that the practice of traditional children's games can mitigate the acts of violence among the communities. Their views concerning digital preservation are that traditional children's games convey respect, and leadership skills. Though Vho-Mudau mentioned about the negative influence of Eurocentric games that are played by most children, he encouraged the digital preservation of traditional children games. He is convinced that learners learn by observation and by doing what they observed. He further added that because games keep children busy, several children who play digital games preserved tradition children games and would reduce the number of those who are engaging in drugs as the statement was supported by Nevhutalu (2017) who posits that:

> *'Although there is value in children raised by their own families, evidence from her study shows that nyaope users prefer to stay away from home where they get freedom to use the drug without people who will discourage their use of it, and stigmatise them. In some cases, parents leave them with the houses out of fear. These impact their siblings and their parents, and other families, particularly those who ended up staying in their friends' homes.'*

This study of traditional children games preservation through digitisation will reduce acts of violence that come with cyber bulling in children. Cyber bullying seems to have been influenced by the content of what children view in their technological gadgets. Regarding digital traditional children games, the gaming content would be structured differently.

5.2 3 Traditional children games practice Ubuntu

Furthermore, on the issue of relevance, participants said many base on their own understanding of Ubuntu. Most of the participants pointed out that when children are playing together, especially traditional children games, they develop a spirit of Ubuntu. Vho-Mudau's definition of Ubuntu is that:

> *'Ubuntu is an African philosophy which describes that a person cannot be a stand-alone subject. It encourages sharing of the resources as a sign of love.'*

Sharing is caring. Traditional children games act as an institution which teaches good behaviour which come with respect and love of each other when they are playing together. In all African communities, Ubuntu is practiced as a cultural value and is very significant to society. This is because culture is not a fixed entity; it is a social construction, and this means it is a diverse and flexible concept (Salen & Zimmerman, 2003). It is also recognised that its definition is often a function of those who use it. Cultural significance is therefore highly subjective. It is often difficult to make decisions about what is culturally significant without the benefit of hindsight. However, cultural significance is also undoubtedly related to the individual's interpretation of culture. In turn, this has a considerable effect on their attitudes towards aspects of popular culture such as digital games (Barwick, Dearnley & Muir, 2011).

5.2.4 Traditional children's games are educative and recreational

Amukelani also participated in this discussion and he said that:

> *'Playing traditional children games in digital platforms is good for us we will be learning and connecting to our culture. The most serious problem that I have is the socialisation element that makes one to feel the game.'*

Taking into consideration of what Amukelani has said I was of the idea that traditional children games like any other game must carry the physical and socio-cultural aspects of sharing information teaching and entertaining at the same time. This is supported by Callois (2001) that games are meaningless distractions, trivial and unimportant and digital games are at best recreational and at worst desensitising and degenerate (Neiburger, 2007).

The negative perception of digital games is emphasised by attitudes in the popular press, which link game-play with violence and suggests that gaming has a negative influence on young people. Given the literature that portrays digital games as the source of violent behaviour in children, there are some of the positive aspects that promote learning and good behaviour in the digital games.

This starts within the family where the child is born, the daily activities that are done in the family and moreover, the communication and the socialisation by the family members. This process makes the child to feel accepted in the family and the feeling of acceptance flows as the child starts to interact with other community members outside the family structure. I am of an idea that the digital preservation of traditional children games can in some children affect them negatively due to the lack of guidance from parents and guardians. Based on what Vho-Mudau and Vho-Luvhone has said Amukelani's explanation is credible. Interpreting what the participants were arguing about the following were noted and discussed separately.

5.2.5 Traditional children's games teach coordination and causality

With regards to the development of a young child, the participants were of the view that the coordination of body parts in the young child is encouraged by the types of games that the child

play. The throwing up and catching of the *ghoen* in the traditional children game *ndode* is teaching the child eye hand coordination. The process of removing the small stones from the hole in multiples of 1,2,3,4,5 respectively, teaches the children subtraction in mathematics and the process of throwing up and catching of *ghoen* teaches children causality which is a concept in physical science.

Figure 20: An illustration of *ndode* as designed by Rannditsheni.

5.2.6 Games promotes physical and emotional wellness

Vho-Mudau who was also a member of the co-researchers' team established traditional children games as the pillar for determination and human health. He described that games like *muravharavha, mufuvha, mutoga, khube* involved the use and training of the mind.

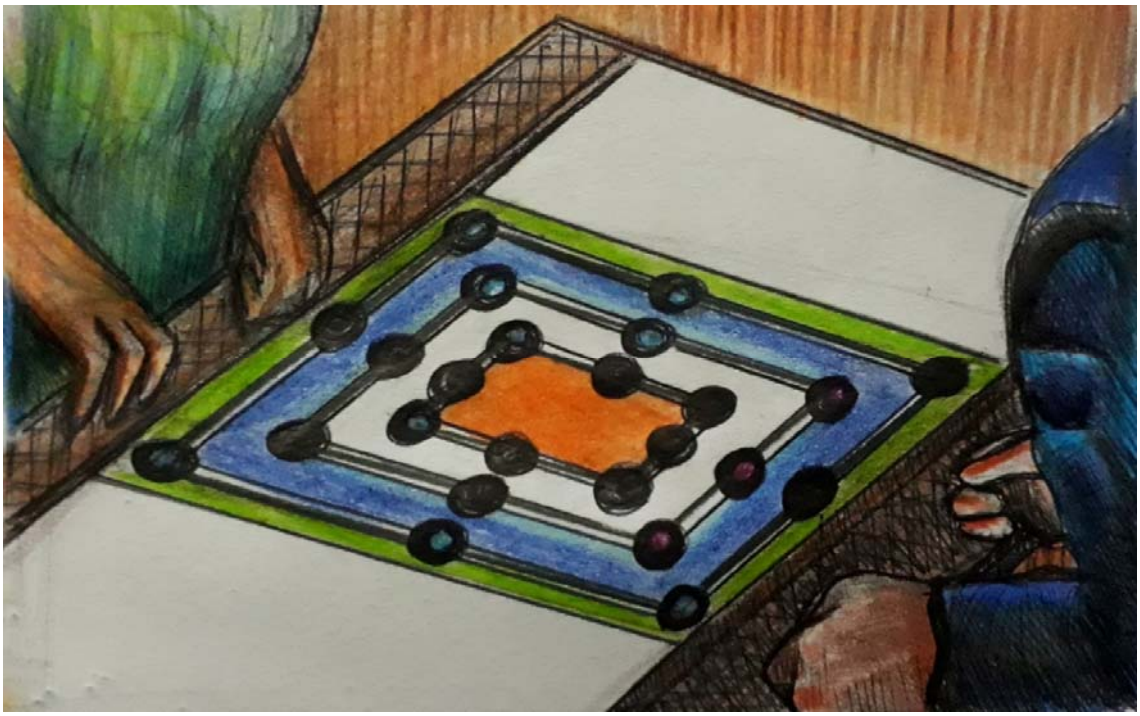


Figure 21: An illustration of *muravharavha* as designed by Ranndítsheni.

Games that involve chanting, singing running, dancing were regarded as games that develop the physical being of a person. Those were games like *doki, duvheke khadi, bune, nzambo na mugidimo* and *mbambe.*

Figure 22: An illustration of *khadi* as captured at Makhuvha stadium.

5.2.7 Leadership skills and collaboration

Traditional children's games taught children teamwork. In team work, there should be someone who directs and leads the group. When playing games, there is one who stands as a leader and directs the others to choose their teammates. No member of the group would be allowed to disrespect the leader or the instructor. Usually those who were a little bit older were the ones elected as leaders by their group members. An example of traditional children game below indicates that a train has a head and lot of coaches carrying people. Everyone in the train has confidence that the engineman will make them reach their destination. It is like that with the person who is driving the chain; he or she develops confidence of being a leader.

This is how the game is played: children will just hold each other by hands and make a long chain, walking and singing *tshidimela haka maṱorokisi*, two participants will be standing a distance away holding each other by all their hands. When the last person who is acting as a last coach of the train arrives the two opens their hands and will catch him or her and asks him or her what he or she likes between the two. The two can give themselves pseudo names like Zebra and Lion. The one caught has the freedom to choose what he or she likes. If he or she likes the lion, he or she will go behind the lion and if he or she chooses a zebra he or she will go behind the zebra and join it. The game will be like that until all the coaches of a train are finished. After that the game changes to become a tug of war. The line will be drawn between the two groups. The pulling game now will start and the group that will be pulled and crosses the line has lost the game. This is how children enjoy the traditional children's game *tshidimela haka maṱorokisi.*

5.3 Traditional children's games and heritage

In many of the interviews, traditional children's games and heritage were used to question the relevance of digital preservation of traditional children games. This relates to the United Nations definition of intangible cultural heritage. UNESCOs definition positions traditional children's games as intangible cultural heritage (UNESCO, 2003). Intangible cultural heritage refers to the practices, representations, expressions, knowledge and skills handed down from generation to generation. This heritage provides communities with a sense of identity and is continuously recreated in response to their environment. It is called intangible because its existence and recognition depend mainly on the human will, which is immaterial, and it is

transmitted by imitation and lived experiences. Intangible cultural heritage is also known as "living heritage" or "living culture" (UNESCO, 2003).

This is a useful way to look at traditional children games. Certainly, the Birmingham School would argue that cultural objects should not be viewed in isolation from other elements within culture and society (Barwick *et al*., 2011). Innovation methods had been used for the documentation of intangible heritage in Scotland. However, the UK Commission of UNESCO in partnership with the Scottish Arts Council sustained the programme. It was made up of an online archival of Scottish intangible heritage that is available to the community in the form of a wiki. It also included audio-visual and photographic documentations and used participating methodologies.

Other interviewees were conscious of the interconnectedness that traditional children games have regarding the relevance of digital preservation. From a broader perspective, Ramugondo (2009) shares the view that traditional children's games are a significant aspect of childhood and she refers to traditional children games as the first occupation of the child. Suzan suggested that traditional children's games and heritage must not be separated and this is what she said that Africans and from an African perspective, traditional children games in African communities encourage social cohesion because of the features they carry which is unity. Given these statements, I realised that when children play traditional children games, they embrace their cultural heritage. This was supported by Tiyani who said that:

> *'Our grandparents where the ones who used to gather us, sometimes during the day and sometimes at night to teach us these games and their importance to us as we grew up. Some were having myths in them but all the fears that were expressed to us as children were for our own good.'*

The above responses have clear similarities that were noted. Even though they show an indication of not speaking about preservation what they clearly meant by traditional games and heritage were of the same understanding. They were also showing the socio-cultural importance of the traditional children games. After thorough explanation of how digitisation works, they were all on the same page of promoting the digital preservation of the traditional children games. They all showed that traditional children games should be digitally preserved

for the children to access them. Moreover, others noted that the knowledge that will be accessed digitally would also prepare children to grow up responsibly, knowing how to peacefully interact with others in the community. In that regard, the researcher also noted that traditional children's games had different practices that are communicated and would be practised in different ways depending on the place if digitised.

5.4 Traditional children games promote social cohesion

I posed a question on the value of digitising traditional children's games to Vho-Phophi and Vho- Masindi and this is what they said respectively:

> *'Mitambo ya sialala ya vhana yo ri funza u vha fhethu huthihi sa vhadzulapo. Vhabebi vhashu vho ri funza u ḽa roṱhe, u tamba roṱhe, u farisana kha mishumo yoṱhe ine yavha yo ri livhana. Nga Tshivenḓa hupfi ṅwana wa muṅwe ndi ṅwana wau. Mubebi o vha a tshi wana ṅwana wa muṅwe a khou ita maitele a si avhuḓi a mukaidza sa ṅwana wawe hu si vhe na zwino dina. Mitambo heyi ndi musi ro ḓowela u i tamba ngaurali zwo ri fhaṱa uri mivhunduni yashu uri ri dzule nga mulalo, ḽi ḽa maladze ri vhathihi. Hafho hune na ya u ṅwala hone haya mafhungo ṅwananga, itani uri a si ngalangale vhaḓuhulu na zwikwenda vha a wane-vho.'*

Translated as follows: 'Traditional children games taught us communality as we were growing. Our parents taught us to play together, eat together and share everything that we had. There was a Tshivenda saying that: it takes a village to raise a child, meaning that no parent owns a child. If a child misbehaves it was the duty of the parent who saw him or her to reprimand him or her. Playing together that was encouraged by our parents led to the promotion of social cohesion that was found in our communities. Sometimes, when we were playing these traditional children games in the household where we had gathered, they would take out a heap of harvested mealies and give us to assist in removing the corns from the sticks. After finishing that job as children, we will be given some snacks or food to eat and continue playing again. In some cases, those corn sticks that were removed were also used as toys. Boys can use them to resemble cars and

girls can use them as dolls. This is the knowledge that I like you to take it and preserve it in machines before as we are dying no one will be found to tell you the story that I am telling you now.'

Vho-Phophi said this to show the value that would be added by the digital preservation of tradition children's games:

> *'Traditional children games are no longer played like during our times. Therefore, I saw it necessary to involve these new technologies to preserve them if you see it possible. I did not go to school like you who are still learning today. Here at the university every child that I meet on my way home and to work would be having the ropes that are tied on their ears. To my surprise, they don't even mind if you try to greet them. You can even recognise it that these children are in their own world. The same applies to when I reach home. I am from the village but what I have seen in my own village if I meet these children on the way they rather choose to bump on you if you don't give them a way. They are always on their phones playing with them. In my own house, I have my grandchildren, the youngest one is only five years and what he does I could not believe my eyes. I don't know how to operate my own cellular phone but every time I arrive home he would take my phone and said "granny, I want to play the game in your phone". I did not know that there are games in my phone. He is the one who told me so, calling them snake and ladder, candy crush and others.'*

Observing what the participants were saying about the use of technology in their day to day activities led us to the view that children also needed guidance on the use of these applications. Due to the available literature, it has been argued that traditional education is different from current education which is formalistic, and which examines one as a failure or an achiever (Nwonwu, 2008). Moreover, Sawamura and Sifuna (2008) point out that traditional education plays a very significant role in the formation of a child's character. In traditional schools, teachers make it a point to get to know their learners individually. Moral values in these schools

are instilled to children by the whole community (Hornberger & Chick, 2001). This is done through different types of schools in which children were supposed to attend. As Stayt (1931) and Van Warmelo (1960) indicated in their respective research studies, boys and girls were divided into categories and were expected to play different types of games and attend different types of schools amongst Vhavenḓa community.

In this context Stayt (1931) and Van Warmelo (1960) cannot be positively supported by other researchers because of gender exclusion which shows biasness of researchers about the inclusion of LGBTI and Q communities. This study would be open to anyone in every community to access the information of traditional children games digitally using the technologies which they like. The issue of diversity in players is also overlooked by the digitisation process due to the structure or context. Inequality is also catered for through the digital preservation because it is one's choice to play traditional children games using different applications. Furthermore, as opposed to Van Warmelo (1960), with digitally preserved traditional games, children are exposed to new knowledge than being forced to know through instilling that knowledge.

A good educational structure as seen from above should cater for the formal equipping of children as well as their norms. It is because of this that the researcher argues that the infusion of traditional children's games in the modern school sports structure with the digitisation of such games would address the challenge of children lacking morals and values when meeting or interacting with their elders or parents. This study promotes and honours the traditional knowledge and values in the traditional children games to be digitally preserved so that what children are listening and viewing in their gadgets must teach them morals of being responsible citizens in the communities. I further asked Vho-Masindi what she would want to see about her own cultural games, and she responded as thus:

> *'Considering what my grandchildren do together with other children in our community, there is a need to teach them our traditional games for them to know their cultural identity and practices. I used to gather this children way back on Saturdays and Sundays afternoon with the idea of teaching them traditional games these days is very difficult to find them. Every Saturday they go to schools, there is no weekend for them.*

> *Children in homes are no longer allowed by their parents to play outside for safety and security reasons. I have also encouraged my own grand children to play inside the house. The young ones always keep themselves busy by watching television channels that show them children's games and films. My elder grandchild will be in his own room with his computer or phone. Even during the night, I would find him covering himself in his blanket, but the light of the phone will be showing that he is busy playing with his cellular phone. To be honest with you my child, I don't like the stuff that these children are watching in their cellular phones, I just do not have power to change what is in there.'*

A publication by the American Academy of Paediatrics emphasised the role of play in supporting the wellness of the child in development and parent-child bonding (Ginsburg, 2006). The writers also observed that a decline in active free play for several children in the American society as an outcome of busy and pressured lifestyles, as well as an over-reliance on passive entertainment, for example, computer games and television.

Play is often used by psychologists, speech therapists, occupational therapists and social workers to evaluate and correct problems in the development, as well as social and emotional functioning of children. During the healing process with children, therapists come up with games and props into meetings that they feel will assist the child and foster engagement with the environment in the form of play. A question that could be asked is whether there are good and cooperative methods in which a child can be allowed to be involved in play, particularly when one reflects the role of cultural importance (Ramugondo, 2009). This was also supported by Denner and Cooper (1997) and their theories of structures that link culture with the context of the psychological development of the people in general. The family as the social structure is an agent of change and play a pivotal role in the socialisation of the child development as stated by Vygotsky (1978). In this regard, what children play and access through their electronic devices if is about their cultural practices like traditional children games, it will assist them to learn and share their cultural values, traditions, norms and belief systems that are attached to their identities.

I also captured this statement by Vho-Masindi as important when she said:

> *'It is a pity I did not go to school but I am glad I met you who are doing research. If what you are doing works please go and tell those people who are manufacturing the cellular phones to consider taking our own games, dances and other cultural practices and lifestyle inside their phone, computers and televisions. I would be glad if I could witness my own cultural games well prepared inside these machines. But even if I pass on this earth without witnessing it my grandchildren and great grandchildren will access their cultural games in computers worldwide.'*

I facilitated this question and on how should technological infusion be done because you said the games are less practiced in villages. Vho-Luvhone responded that:

> *'There is a call for schools to practice these games in their schools, so I see it better to take chance and keep the records of the games at schools. Some of the schools do invite elders in their schools to teach the learners traditional children games. As educators, we advise you as to when the learners are playing so that they would be recorded.'*

I asked some of the educators who oversaw the games at their schools to inform us of the competition dates. Because of this experience shared by the participants I found it clear that there is a need in research to document traditional children games as supported by Burnett and Hollander (2004) who argue that:

> *'The South African Sports Commission's efforts to promote traditional children games nationally are due to the recognition that South Africa as a nation has lost some of its traditional children games that are very indigenous to specific cultural groups and geographical areas.'*

Although this initiative by the Commission is important, it might be a premature exercise if there is no understanding of the functions that these games or plays have in general and in the different cultures, what the patterns of change are and are becoming over time, and what brings about such changes. When knowledge of such kind of traditional children games is documented, its value when digitised would help many. This will also cater for the educators who seem reluctant with what was thought to help the learners at their schools. Goslin and Goslin (2009) further support Burnet and Hollander (2004) when they were of a view that there is little documentation on South African traditional children games. This is consistent with an overall lack in the documentation of indigenous knowledge in the country (Burnett & Hollander, 2004). Thus, in 2000, the National Research Foundation established a research programme to support and promote research in Indigenous Knowledge Systems nationally. The South African Sports Commission also commenced with the development of a database on the traditional children games and resurrecting these as part of sporting events in all provinces.

5.5 Traditional children games determine cultural significance

Concerning knowledge sharing, cultural values and norms, Vho-Phophi explained that:

> *'Traditional children games were the pool of knowledge presented to the children by their ancestors. Traditional children games like mahundwane were having all the skills, teachings values and norms that a Muvenda child needed. Mahundwane traditional children game was displayed as an umbrella or core of all the traditional children games that were played by a traditional Muvenda child. Mahundwane was also having a solution of solving every problem that the Muvenda child has when he or she was growing.'*

As to the kind of game picked by Vho-Phophi, it was clear that most of the interviewees were very attentive when she was narrating. I further asked her to continue her narrative and this is what she has said:

> *'The mahundwane game used to cater for all age groups, gender and diversity. The nature of this game was to mimic family*

> *wherein the proper and complete family will be comprised of a mother, father children teenagers, adolescents and neighbours. Some of the mimicked positions in the family required members of the group to have undergone classes of the Vhavenda traditional schools. The role of a mother in this game requires one to have been attended and graduated in female initiation class called (vhusha). The role of a father in this game requires a young man who have graduated in (vhutamba vhutuka).'*

Regarding the cultural significance of the game every participant in the group was of the view that *mahundwane* is very relevant and this is what Vho Masindi said:

> *'This game is said to mainly and exclusively cater for children to learn the family setup and lifestyle management of households in the absence of parents.'*

It was through these responses that I asked the participants the activities and practices which are performed during *mahundwane* traditional children game. In addition, what were the lessons that the children were being taught or teaching each other? Vho-Luvhone responded that:

> *'During the mahundwane traditional children's game, children were placed in an environment where they were given responsibilities and taught to take care of the family. In that regard, children would divide themselves amongst the elderly children who will be governing mahundwane traditional children game to form different family units.'*

Vho- Mudau said that:

> *'It is in these new family units that they formed what they would learn from each other under the guidance of the elderly children, how to take care of the family. The children would do diverse activities that allowed them to learn the following: The girls*

> *would go in the fields and pick the remains of maize after harvest and vegetables. These were ground into maize meal and cooked as maize porridge with the vegetables. On the other hand, girls would be learning to be mothers as they take household chores such as cooking, cleaning, taking care of children, fetching water and firewood, and learning to interact with their neighbours.'*

The elderly children would be the ones who would be taking the lead and teaching the younger ones how food was prepared. It is alleged that most parents would not find time to teach their children some of the household chores, thus, it was done during the *mahundwane* traditional children's game. Also, this was an opportunity of them to teach others the right places and right trees to bring home for firewood. Vho-Mudau said that:

> *'It was through mahundwane where l was taught how to cook. I was embarrassed as my mother was most of the time too busy to teach me how to cook because we were from a polygamous family. My other stepsisters were good cooks. My exposure at mahundwane allowed me to ask why some other things were done when cooking.'*

This did not only help me, but it also helped other girls who were my sisters in our household. It is only me left in the society who could cook certain other dishes that we were taught while playing the *mahundwane* game. In my view, it was more than a school because what l learnt there, l never got anyone to teach me anywhere else. The current disruptions that are focusing on the fourth industrial revolution make me fear the loss of this knowledge which is relevant to our children. Vho-Phophi said that:

> *Zwine nda khou lingedza u ʱalutshedza ndi uri musi ʱhoduluso dza vheiwe nga ha u vhulunga mitambo iyi ngau i didzhithaiza zwo no fhela na riṋe ni songo ngo ri hangwa. Ni ḍi vhuya ni ri vhudze-vho uri zwithu zwo tshimbila hani. ni dovhe ni ambe uri ndi nṋe ndo ni fhaho dziṅwe ngeletshedzo kha ʱhoduluso dzaṋu.*

English translation goes as:

> *'I would like to see this valuable information that I am giving you to be stored where it would not be eaten by moths or locked were the next generations could not have accessed it. You must come back and tell us how things enfolded. You must also acknowledge me for giving you the information for your research.'*

Although some of the people were laughing at her while speaking, I grabbed the message that she was asking for a feedback after the completion of this project. I had further asked the significance of language usage in traditional children games. Vho-Masindi responded before I pointed at her. Vho-Masindi has this to say:

> *'Children in the Vhavenda communities were and are still regarded as a vulnerable group in the community. As such, strict customary rules were adhered to as a measure to ensure their safety.'*

It is because of this that I asked Vho -Masindi about the language that was preferred by the parents when the children were playing. This is what she has said:

> *'Mutani he ṅwana a bebwa hone ndi hone hune mudzi wa luambo wa lala hone. Riṋe ri tshi aluwa ro vha ri tshi pfi luambo lune ra luamba ndi lwa ḓamuni, zwi tshi amba uri ṅwana u khou amba luambo lwa mme.'*

The family as an agent of change has a pivotal role to play in the development of a child. The language spoken when traditional games were played was a blue print of the local community language. When traditional games were played, children speak, sing their own cultural rhymes, and chant or dance. This usually happened in games like *khadi* and this is an example of how they used language in expressing themselves:

I asked about language because of the cultural significance that it bears on children. Every community is determined by the language that the people of that community speak. One

cannot speak the language and when playing, play in another language. Vho-Masindi gave an example of *khadi* and this is how she described *khad*i:

> *'A minimum of three players is required, as two players will swing the rope while the third jumps over it. Any number of players can take part. Players can spontaneously join in the game, or one player may be selected to call out the names of the children who will then take turns to jump.'*

During spontaneous play, the players can jump over the rope in any order. However, they can also nominate a specific order for jumping. The game is played with rhythm and rhymes. The rhyme differs from area to area. One example is as follows:
Swing the rope around twice and say the rhyme as follows:

Toto!! Vhomme vho ya ngafhi?
Toto!!
Vho ya u fhonda mafula
Toto!!
Mafula ndi a mini?
Toto!!
Mafula ndi a u ḽa
Toto!!
A ḽiwa nga vha ngana?
Toto!!
A ḽiwa nga vha ḓana
Toto!!
Dzingidzingi mafula
Toto!!
Dzingidzingi mafula
Toto!!
Vho-Nyadenga vha ngavho
Toto!!
Vho bva na tshiṱringo
Toto!!

Tsha u pembela ngatsho
Toto!!
Tsha u pembela ngatsho
Totoo!!

Where the singers say toto!! The swingers do pause. The use of vulgar language was totally unacceptable during playtime. That was an offence that involved punishment by parents at home. This is supported by Manford's (1983: 23) assertion that:

> *'Music should not be taught in any form that will cause children to love less. Music teaching children should be linked with play, for children do not need a reason to play; they do it for intrinsic interest. Participation in music should therefore have the same quality as a play. It should be observed that every child should be given the opportunity to explore and develop his capabilities in music in such way as may bring him happiness and a sense of wellbeing; stimulates his imagination and stir his creative activities; and make him so responsive that he will cherish and seek to renew the aesthetic feelings induced by music.'*

Throughout the discussions we had, looking at all the sub-themes that we have engaged in with our participants it is clear that digitisation of traditional children's games is important and therefore should be implemented.

5.6 Possibilities of digitising traditional children games

Concerning the importance of the digital preservation of traditional children games, I asked the participants whether they thought it was possible to digitise traditional children's games. Vho-Phophi and Vho-Masindi were very much silent but stayed until we finished our discussions. They were silent because they had indicated earlier that they did not understand the concept so they could not shed light on it. Most of the participants showed interest and this is what Vho-Mudau said:

> *'Everything new when started it raises concerns. As educators in many ways the department keep on changing the curriculum. When the curriculum changes, educators do not change. The same educators have to adapt with the new curriculum and teach learners what is needed by the new curriculum.'*

Vho-Mudau's explanation seemed not clear as relating to the possibility of the digital preservation of traditional children games. I therefore further asked him to explain further, and he responded as thus:

> *'It is possible to digitally preserve these games because there are already existing digital games that are played by children in their electronic gadgets. If we can look at how those games were preserved, we can also use the same mechanism in traditional children games.'*

Vho-Luvhone responded that:

> *'I think it is possible to digitally preserve traditional children games. I have seen it in television when the children are watching games in children's television channels. If one can know the procedure, we can win in digital preservation.'*

Tiyani has this to say:

> *'Digital preservation is very possible but requires a certain skill. Not anyone like me can do it unless those who are trained to do it. People who studied information and technology, computer science engineering and gaming can make it possible to digitise traditional children games.'*

Given these responses, I picked that though some of the participants expressed unease towards route of digitising traditional children games, there are opportunities that are open for the digital

preservation of traditional children games. To attend to these possibilities, I had the following sub-themes that I further engaged the participants on.

5.6.1 Traditional children's games and arts

Since the beginning of our interviews we engaged several times in the understanding of traditional children games. It is evident that the participants were now familiar with these games. Regarding traditional children games and arts I asked them their understanding of arts. Vho-Mudau said that:

> *'Arts can be in the form of drawing, dance, drama, handwork, music and films. In arts, we can produce many things.'*

After Vho-Mudau's response, Vho-Mphephu gave his understanding of arts. He said that:

> *'What I remember is that at school there is a subject which is called creative arts. In lower levels, it is a chapter which is part of life orientation.'*

These two responses by Vho-Mudau and Vho-Mphephu made us to engage further to the meaning of traditional children games and art.

Suzan, Tiyani and Shaun were of the understanding that traditional children games can be digitally preserved in different ways that are interconnected with arts and this is how Suzan summarised this view:

> *'Traditional children's games are activities and practices that act as a connection of linking children of every age with their culture and traditions. Children gather together outdoors and socialise in the form of play. Traditionally this process used to happen on the streets and in the courtyards of some households where children used to meet and play as a form of entertainment. Usually children of the same age group built their own teams by choosing the playmates who were also their agemates. Regarding*

the digitisation of these games one participant indicated that digitisation to him seems like the technification of knowledge.'

5.6.1.1 Music

Music is closely connected with traditional children games. Since time immemorial indigenous people used music to entertain their babies. There were some rhymes that were sung when a baby was crying. When a baby heard a song, it stopped crying. The type of rhymes can be rehearsed and recorded. Through iPods, recorded music can be preserved and easily disseminated to the public. One can enjoy the music through headsets or connect the iPod to the speakers for volume. Music can also be preserved through an app called iTunes. In iTunes, can possibly link traditional children's music with games. An app can be downloaded anywhere by anyone who likes to listen to the cultural music that goes with traditional children's games.

5.6.1.2 Role play

Traditional children's games can also be digitally preserved as a role-play. These games if role-played, they can be filmed. Films can be watched in theatres through big screens. They can also be watched on television and in computers. Traditional children's games can also be video recorded and played as video games. Videos are accessed in all social media platforms that are popular and those that are not popular.

5.6.1.3 Graphics

Graphic design is another way of art that can be used to digitally preserve traditional children's games. Graphic design involves narrating stories through graphics. Regarding the digital preservation of traditional children games the graphics can be uploaded and be watched online and in videos. Graphic design is an art that involves drawings.

5.6.1.4 Photography

Photography is another form of art that that was suggested by the participants as a way of digitally preserving traditional children's games. Traditional children's games can be captured and scanned for preservation. They can be kept in digital museums and digital in archives.

5.6.2 Games as mainstreams

About games as mainstreams, I further listened to the participants as they unpacked their ideas. One of the participants said:

> *'Digitally preserved traditional children games will transform the whole image of their locality. Infusing technology in the preservation of knowledge transferred by traditional games is very clear to them that it is to technify games as in taxify. To technify is to take that which was in analogue form and put it in a certain technology format to represent that which was in analogue format. In taxify, the car which was meant for private use is then converted to be a taxi that transports public from one point to another.*

In that regard, the word seems to be very colloquial but showing to me that the participants clearly know the process that would happen in the traditional games digitisation for preservation purpose. In mainstreams games are accessed by people of different cultures and start to associate them with their own cultures. These games would serve as a vehicle of promoting cultures around the communities. This may happen when games were digitised in any way or format.'

Given the example on the transformation of the curriculum at school level by the Department of Education, it was clear from my co-researchers that there is a need to transform and change. This brings the view that there is a need to integrate traditional knowledge systems of education with Western knowledge as supported by Woolman (2001), who argues that traditional education integrated character building, intellectual training, manual activities and physical education. The content in his view included all the activities, rituals and skills required to sustain the culture and life of the family and the community. Woolman's (2001) argument, therefore, emphasises that traditional education

concentrates on the whole person to face all challenges in life. Woolman (2001) opines that there should be a relationship between theory and practice. When noting the importance of traditional community structures and training children with good morals and values, Mungazi (1996) also avers that one's place in society was determined more by the contribution to society's well-being. The individual had to be trained to remain sensitive to the needs of the community and others. Vho- Mudau said that which is supported by Woolman and Mungazi that there is a need to address and put focus on the traditional children games digital preservation.

5.6.3 Possible technologies aspired

The discussions I had above excluded Khathutshelo and his teammates Mulalo and Lufuno. In that regard I had engaged them here as co-researches because in participatory action research, research involves practical work the researchers put this into practice. I asked them if they had tangible examples of what could be the possible ways of digitally preserving traditional children's games. I engaged them so that they could implement the practical part of what they had learned in class. To them this experience was more of experiential learning and they were very eager to work in this project. This is what Khathutshelo said:

> *'Some games I remember well that we can digitise them and some of them yes, they can be manually documented and manage to digitally keep them in the archives. I think my colleagues here will assist me as we are working together in this department.'*

The co-researcher further added that it is possible that traditional games can be digitised in so many forms if there is time and money. Some of the digitising formats require a lot of money while there are some that require only intelligence which demands creativity. This was supported by Yu (2018) when he argues that ICT technologies are progressively turning into one of the supports of Cultural Heritage Education. Practical worlds are frequently used in Cultural Heritage education to extend the chance to acknowledge cultural components that are isolated in space and/or time. Although, they must be regarded as very supportive for expanding access to cultural elements, these requests, for instance, virtual museums frequently are not basically delightful and, occasionally, it can fail to support active education, by just offering chances to get information.

The researcher further engaged the co-researcher to suggest the forms of digital preservation that required only creative thinking. The participant maintained that social media platforms, scanning, web creation, socio-dramatic recording of some games hence knowing that creative thinking is fundamental qualification that qualifies a person to innovate or create something valuable.

There are a lot of factors to be considered when developing a game for digitisation purpose. Here at the university it is in the field of computer science and engineering. The development of online or digital games operates in four phases:

- Concept
- Pre-production
- Production
- Post-production

It is also made up of different activities such as: synopsis, background research, scriptwriting visualisation, concept art, level and interaction design, animation, programming, media editing, integration, testing, and publishing. Software genres have categories and development is characterised according to category which they fall under. The following are some of the categories or genre: action, shooters, fighting, racing, adventure, sports, role-playing, strategy, simulations, puzzles dance, and music.

Each genre has got its own requirements considered during the pre-production phase. Coupled with these reasons, software game development is considered a complex process that involves multidisciplinary collaborations and team efforts. This includes sound, art, artificial intelligence, control system and human factors to develop a creative product. Basically, game development is a sort of software development with a lot of social additional requirement like creative design, artistic works and visual presentations.

Participants further added that as students they depend on web resources when attempting to fulfil their own needs. All the students in the focus group had a daily routine of browsing website to build their knowledge and understanding of gaming industry. The following are

examples of some of the websites mentioned by the students; sony, wii, kotaku, polycount and gamasuku. To be a game developer one needs financial resources.

5.6.3.1 Social media platforms

Social media platforms are the most effective vehicle that can control the proper process of knowledge transfer from generations to generations. Social media that are very common are Facebook, Instagram and WhatsApp.

5.6.3.2 WhatsApp Scanning for gaming access

Scanning is one of the methods that are currently used to visualise games that are already loaded in a folder or captured videos that are in gallery. The games that are already captured and placed in the gallery of the phone can be transferred to the computer and be viewed through a bigger screen of the computer. This is how to scan a WhatsApp and move it from the cellular phone to the computer. This was applied with the intention of extending the screen to view content well. The same process can be applied when taking a manual documented traditional game and transferring it to be a soft copy that can be viewed in a computer.

Pairing your phone with WhatsApp Desktop

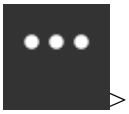
1. Open WhatsApp. You can either:

   - Click this link to download and install WhatsApp on your computer.
   - Open WhatsApp Web on your browser.

2. When prompted with a QR code, use the QR scanner within WhatsApp to scan it.

3. To do so, open WhatsApp on your phone.

   - On Android: in the **Chats** screen > **More options**  > **WhatsApp Web**.

- On iPhone: go to **Settings**  > **WhatsApp Web**  .
- On Windows Phone: in the **Chats** screen > go to **Menu**  > **WhatsApp web**.

4. Scan the QR code on your computer screen with your phone.

To log out of Desktop from WhatsApp

1. Go to WhatsApp on your phone > Go to **Settings** or **Menu**.
2. Tap **WhatsApp Web** > **Log out from all devices** > **Log out**.

If you believe someone has scanned your QR code and has access to your account via WhatsApp, use the instructions above to log out of all your active web sessions in WhatsApp on your mobile phone.

Note: If you're unable to scan the QR code, ensure that the main camera on your phone is functioning properly. If the camera is not able to auto-focus, blurry or is broken, you may not be able to scan the barcode. Currently, there's no other way of logging into WhatsApp on your desktop.

The following is another form digitising the existing manual document for preservation:

- Convenient to store and retrieve
- Save money on storage space

Here are 6 things to the points keep in mind if thinking of digitising your documents.

1) Identifying documents for digitisation

It is important to get an idea of what kind of documents you want to convert, and this will help you chose what method to use going digital. Different types of documents will require different expertise, for example, double side documents or colour documents must be treated differently.

2) Preparing your files

Making sure your documents are ready for digitising seems simple, but it is of paramount importance to make sure that your documents are clear of mundane office objects such as: paper clips, sticky notes, pins and spiral binds.

3) Scanning

There are a variety of apps and software that handmade document scanning on the go possible. Companies are now able to send documents for scanning directly from their mobile devices. Multifunction printers and flatbed scanners can provide affordable scanning services but neither desirable for high volume scanning. Scanning high volumes can lead to jamming, and a scanner that can deal with such high volumes is likely to be expensive to purchase and have high operating costs.

Outsourcing your documents for scanning eliminates some of the risks associated with in-house high volume scanning. At Secure Data Management, we provide low-cost document scanning services in London. One can scan records into a variety of different formats and offer a rapid turn-around, enabling you to share digital files in time during critical deadlines.

4) Transition into digital modes

You can store your digital documents as images or PDF files. Choosing between the two involves evaluating the document itself. For instance, if it is a handwritten document it might be more practical to store it as an image.

OCR (Optical Character Recognition) is used to convert scanned images into electronically encoded text. OCR allows to you to index your documents with detailed file names so that documents can be easily retrieved. Most scanners will have OCR software built in. OCR software can also be achieved online by uploading your scanned document to various websites. However, this method is only recommended for low volumes and can be incredibly inaccurate.

Files are typically converted into a PDF format, as most offices will have computers equipped with a PDF reader and PDF documents conveniently take up very little memory space.

5) Digital formats

Digitising your files is just the first step – managing and storing your digital files is a far more delicate process.

Digitised formats can be stored on a variety of different digital formats such as: USB drives, CDs/DVDs, hard drives, film reels and media tapes. Secure Data Management can deliver scanned documents in many file formats suited to your requirements and can provide online document management software.

For greater control over your digital documents a management system is recommended, as it makes file retrieval more efficient and means your files can better protected against viruses. Secure Data Management's EDMS (Electronic Document Management System) allows you to upload and view your digital archive on the go whilst simultaneously restricting access to certain files.

6) Storing digital documents

For optimal security and environment protection outsourcing your digital documents for storage is the best next step. Secure Data Management offers a data tape rotation service which includes a full audit of your digital files and the destruction of digital files in compliance with Data Protection legislation.

In line with the thrust and orientation of this study, if ever there are to be technological adoptions involved in preserving and promoting indigenous knowledge based activities such as indigenous games, there should be respect for African culture, and not a perpetuation of pejorative and negative stereotypes. That is, digitisation should not only preserve indigenous culture, but should possibly create new pathways for the development of indigenous ideas in contemporary and emerging technology while retaining the integrity and spirit of indigeneity (Robbins, 2010). To that end, one of the emerging fields and key perspective which warrants scholarly mention in this study is decolonisation.

5.6.3.3 Creation of an APP

The other way of digitising games is through the creation of APP. An APP is an application that when created can store information about the content which is related to traditional children games. There is a need of software that is used to simulate the original content of the game and represent it in a digital form. In this study the researchers found it possible that traditional children games can be digitally preserved. In the creation of App, we have managed to create an APP which is having *muravharavha* and *mufuvha*.

Traditionally these games are played in an open space such as a shade under a tree. The players must design the game on the floor of the courtyard. These days *muravharavha* is sold in shops readily designed. For the purpose of digital creation *muravharavha* falls under board games and software's are available on internet that is used to package such games on an app. Both these games are board games. The prototypes were based on creating indigenous games using java eclipse. The spiral model was used to test the prototypes. The developer built a simplified version of the proposed game and after it was given to different people to make evaluation on the game.

The *mufuvha* game was successfully built with no errors. The arrays were arranged correctly, and all stones moved in a correct and good speed to make good observations when a player wins. All steps of user-centred design were followed. This is the approach to software development where it focuses specifically on making products usable. The approach typically entails involving users in the design and testing of the system so that their feedback can be obtained.

UNESCO, (2018) illustrated its commitment on training university students to be APP creators of traditional children games in Kenya.It was an organized 3-day training for 25 young people from 25 to 27 April 2018 on development of mobile applications for traditional games in Kisumu County, Kenya.
The three days training aimed at providing young people with practical skills to develop mobile applications on local traditional games, how to preserve and disseminate information about the games and promote indigenous and local knowledge for learning, development and the rapprochement of cultures in Kenya.

Facilitated by Kenya Telecentres Network, the training saw presenters from the National Museums of Kenya showcase selected traditional games to participants and challenged them to create exciting mobile applications from the selected games for android platforms.

During the training, participants were divided into 5 teams were taken through practical technical sessions on how to design mobile applications prototypes for android applications, how to connect them to databases and how to publish and run them on an android phone. At the end of the training, participants created 5 mobile applications prototypes for android applications. Participants were upbeat about the idea of digitisation of traditional games and many agreed that if traditional games are not digitized and kept for future generations, they risk being lost. Aluju Nicole, a participant from Maseno University said:

> *'I had a very good experience been enlightened about traditional games, some of which I did not know existed. I developed a great interest in Android platforms too since I had never had an experience of developing applications for Android platforms. It was such a great learning and networking experience for me and I hope UNESCO will bring more related trainings to Kisumu in future.'*

Out of the 10 presented games by the National Museums of Kenya, the participants selected 5 games after consideration of their complexity and or ease of digitisation through mobile applications development. The selected games included;

a) Rope skipping

Young girls of between 8 to 14 years play this traditional game. Two (2) or more players play it at a time and in each of the sessions, respective competitors compete for the most successful number of skips. In this game, several competitors can simultaneously or in turns jump the rope that is held from both ends. If only two players are involved, a tree or a pole is used and the rope must be tied at the corresponding height of the player who is swinging it.

b) Bull fighting

Bull fighting is a popular traditional game among the Abaluyia in Western part of Kenya the sub-tribes of Idakho and Isukha. These two Luyia communities are inhabitants of the

Ikolomani, Khayega, Shinyalu, Lurambi, Kabras, and Malava sub counties of the larger Kakamega County.

c) Hide and Seek (Brikicho)

This is a game played by kids by way of hiding from each other in turns. When its ones turn to seek, the rest hide and signal the seeker to look around for those hiding. Whoever is found first takes a turn to seek others while the rest hide.

d) Bow and Arrow

This game was played in Kenya, specifically among the Kikuyu, Embu, Kamba, Taita, Miji Kenda and others. It is synonymous with modern day game of archery and principally a boys' game, though the bows and arrows were vital defensive equipment among some communities such as the Kamba of Kenya

.

e) Stick fight

This traditional game is played by older uncircumcised boys and morans (warriors) using sword-like or club-shaped sticks. It is mainly played before circumcision initiation rites among the Rendille and Samburu communities. In this game, the participants are organised in three (3) groups of association namely junior, middle and senior level. The game helps participants gain "advancement" to next level with age and practice. Stick fights are socially accepted forums for preparations to warrior hood. It is popular among pastoral communities namely the Rendille, Samburu, and Maasai. Other communities that played this game include; Meru, Embu and Kamba

Twenty-five (25) young people drawn from local universities Multimedia University, Technical University of Kenya, Jomo Kenyatta University of Agriculture and Technology, Maseno University, Catholic University, Kisii University, University of Nairobi and Lake Hub Academy attended the training in Kisumu County, Kenya.

The Open Digital Library on Traditional Games (ODLTG) is a repository of freely available resources about traditional games. The creation of an openly accessible digital library as a repository of Traditional Games also falls within UNESCO's mission of promoting innovative use of ICTs by young people for digital preservation, as well as for the development of crowd-sourced information for educational, scientific and cultural benefit in Kenya.

The training was organized within UNESCO's framework of the Memory of the World Programme, the Recommendation for the Safeguarding and Preservation of Moving Images and with the kind support from the Chinese IT leader TENCENT.

Some of the traditional games in this article are also available in Vhavenda, Vatsonga, Bapedi and AmaZulu cultures. This is a clear indication that there are possibilities in digital preservation of traditional children games. The article confirms that which was experimented by the researchers in this study as relevant as what the United Nations is thinking about in preserving African traditional children games through digitisation. An android APP that the students are learning to create in Kenya universities could be a benchmarking in our South African universities particularly the historical disadvantaged universities. The latter would be promoting social capital among the students for sustainable development.

5.6.3.4 Web development

Another format on the digitisation of traditional games is through the development of a website. The participants as co researchers managed to cluster all the games that are not included on the App and put them on the website. In the website, anyone can manage to go and access all the games for different purposes. Those who want to know more about the included games will learn how to play those games by reading and following the instructions. Games like *khadi, ndode* and *mahundwane* are included in the website. Over and all, this practical section took us almost six months to finish. After finishing we had the testing stage wherein, I facilitated a focus group discussion on what the researchers have observed throughout the digitisation process experiments. I asked all the youths to reflect on what they had observed throughout the research process especially the innovation part. I asked them to use WhatsApp text or voice to send back the reflections.

4.6.4 Reflections on the digital preservation of traditional games

Digitisation is the conversion of the physical format of a material into electronic format. It involves the conversion of analogue information in any form (text, photographs, voice, etc.) to digital form with suitable electronic devices (such as scanners or specialised computer chips) so that the information can be processed, stored, and transmitted through digital circuits,

equipment and networks (Enhuber, 2015). The rapid loss of indigenous knowledge within communities particularly in Africa is a cause for concern and calls for interventions to safeguard such knowledge (Sraku-Lartey, Acquah, Samar & Djagbletey, 2017).

Indigenous games strongly promote the sense of working together but focusing on having fun as well. Participation in various types of indigenous games may result in the holistic development of children. Holistic development is all-round and balanced growth involving the combines the acting (physical), feeling (affective), interactive (social) and thinking (intellectual) facets of a child's growth (Stolz, 2013). Now that we have entered the fourth industrial revolution globally, a lot of things are changing including the indigenous games which are no longer the centre core of most African people due to colonialism. It then came to a stage of question as to where and how could we still make these games relevant. Since in this era, digitisation is the most popular concept, it is the fashion of going about sending messages, interacting and making life easier.

This can be done by video recording these games. Scholarly knowledge researchers can engage with indigenous communities in procuring the knowledge about indigenous games, video records or voice recordings can be used as ways of making these games to be relevant at our days. By video recording these games, people will be recorded whist playing the games, this manner will make it easy for the games to be transferred to media platforms that will be viewed by many in the whole world this will also be an ideal way of preserving traditional children games. Preservation is very strong key with indigenous knowledge systems. Every form of knowledge can be preserved and utilised for the sustainability of the people as well as by the future generations.

Tape recording can be used as a way of digitising traditional children games. Scholars can use voice recordings as a tool of collecting data. In such cases information, might be displayed over voice recordings in museums or libraries as audio educating programmes. In this audio people, might be able to demonstrate and utilize the information in their very own indigenous communities. By doing this we will be practicing Afrocentricity theory in the fourth industrial revolution era. The integration of modern technologies with ancient indigenous knowledge systems will bring recognition and high relevance to the indigenous communities along with their cultural distinctive ways of doing things. Future generations will be able to learn through the media platforms about their various cultural identities. Having thorough observations on

the possibilities of digital preservation of traditional children games, as researchers we have discovered that digital preservation can be done in different art forms. It can be done through fine arts or creative arts. Possible different format of string and sharing traditional children games knowledge were also discovered. The rapid loss of indigenous knowledge within communities particularly in Africa is a cause for concern and calls for interventions to safeguard such knowledge (Sraku-Lartey, Acquah, Samar & Djagbletey, 2017). In modern times, from the moment modern children are born, they are greeted by a torrent of digital entertainment platforms (UNICEF, 2017).

Games that are in digital form have occupied a significant chunk of the entertainment space. They are presented in desktop computers, laptops, tablets, smart phones and even in cheap basic phones (Walton & Pallitt, 2012). Audio-visual documentation, digital and multimedia resources from the areas of information and communication technologies (ICT) are very important in providing useful tools for recording and collecting information about expressions of intangible heritage such as indigenous games (Alivizatou-Barakou *et al*., 2017). Karavia and Georgopoulos (2013) present a succinct framework for digitising intangible heritage. The methods and equipment should be able to:

- Totally capture of all the elements which constitute the intangible heritage form.
- Produce data that is appropriate for unseen future use considering that intangible heritage is in danger of disappearance or degradation and that the general concern for such heritage nowadays seems small.
- Being appropriate for analysis and collection of the necessary metadata (Karavia & Georgopoulos, 2013).

Finally, the analysis scheme for each of the intangible heritage domains should:

- Identify the underlying human creativity, sentiment and spirit hidden in every intangible cultural heritage form.
- Extract and codify them in a computer readable format in order to be processed.
- Be cross-cultural. The analysis scheme should be able to describe and analyse every possible form of a specific intangible cultural heritage domain for every culture in the world (Karavia & Georgopoulos, 2013).

5.7 Challenges of digitising traditional children games

On assessing the possibilities of traditional children's games digitisation I engaged co-researchers on the challenges that they think are barriers in traditional children games digitisation. To determine the challenges of digitising, I included the participation of IT students and staff in a participatory manner. Participants looked at two aspects which are the preservation face and in dissemination face. From what they have observed different themes have emerged as written below.

5.7.1 The effects of digital traditional children games

Looking at the possibilities of digitising traditional children games above, I further engaged with the students on what are the challenges that digitisation of traditional children games brings. Khathutshelo in his response said this:

> *'Digitised traditional children games clowns the original nature of the game, in addition it takes it to foreign context than local. In other words, digitisation makes our traditional children games to lose their traditional flavour.'*

Given Khathutshelo's response above, one can say that digitisation damages the traditional flavour of traditional children games. Digitisation is a western concept which involves the integration or infusion of technology in indigenous knowledge systems. Digitising traditional children games need collaboration of other disciplines. TCG are part of cultural practices in IKS. For this process to happen there should be an inclusion of photographers or media people, computer science, art and culture and ICT practitioners. Transporting information from one context to another can lead to the loss of some important knowledge on the way. The digitisation of cultural heritage such as indigenous games is a relatively new field of research which is wont to present unique opportunities and challenges in an African context (Ognjanovic *et al*., 2019). Africa in general and rural South Africa in particular is characterised by oral tradition, the humanistic philosophy of Ubuntu and closely knit social relationships (Van Stam, 2012). While digitisation is acknowledged to be the long-term solution for the survival,

preservation, access and dissemination of cultural heritage, it should not replace the authenticity of that heritage in its original form (Fanea-Ivanovici, 2018). Consideration should be taken into account that indigenous knowledge should be not abstracted or lose its holistic oral and corpus form of medium as well as its connection to social context (Nakata & Langton, 2006). Apart from concerns to maintain the cultural integrity of indigenous games in the process of digitising, fundamental needs such as shelter, food, health, and education can trump some interest in ICT adoption. The digital devices and services that may be required for targeted end users may be unaffordable for many (Schelenz & Schopp, 2018).

Although there is the element of losing flavour as said by Khathutshelo, there is also the other side of digital games preservation as presented in Barwick *et al*. (2011). Despite their negative image, they have grown significantly in popularity since their origins as becoming a mainstream entertainment form. They can be seen as being both a reflection and transformation of society.

As a reflection of culture, the popularity of certain types of games is an important indicator of cultural preferences and the development of new types of console is indicative of the technological progress of society. With the use of games to promote presidential campaigns and products and brands, they are also useful tools for the analysis of culture. At the same time, digital games are influencing other areas of culture and are having an impact on how these are experienced. They are a new art form, as well as changing how art is created. I am therefore, of an idea that the digital preservation of traditional children's games should impact much in the socio-cultural development of the community.

5.7.2 Affordability and connectivity

Engaging further with the participants Mulalo, a level 4 student of BIKS raised the issue of affordability of gadgets and connectivity in rural areas as a barrier that can affect access of digital preserved version of traditional children games and this is what she had said:

> *'The traditional children games seem to have originated from rural based communities. The rich knowledge and practice of traditional children games is sourced from rural areas because the custodian of culture and traditions are born and bred in rural areas. They were born there and share or transferred that*

> *knowledge through oral tradition from generation to generation. These mobile libraries are dying and leaving a void in the transfer of that important knowledge.'*

Mulalo said much about the lack of facilities in rural areas and what I understood from her discussion that there is a need to involve different stakeholders in the society if there is to be to be advocacy for the digital preservation of traditional children games. Barwick *et al*. (2011) supports this statement of stakeholders' involvement by saying that:

> *'The knowledge and expertise of institutional stakeholders should not be undervalued, and it is vital that they play a key role in the preservation of digital games. However, it is important to recognise that this will involve collaboration with people outside traditional heritage institutions, including the 'creators of digital materials.'*

Most people in rural areas cannot afford the digital devices and gadgets that come with digitisation. Most digital initiatives are expensive and beyond the reach of most rural people. There costs of potentially subscribing to electronic databases that offer digital content can also be high, and this can transfer indigenous games from the communal cheap spirit of society to the inaccessible, expensive techno-sphere of those with money and means. A digital enterprise can produce an elitist culture where games that should be available to all are now only accessible to those who can afford the gadgets that go with them (Taylor & Gibson, 2017).

In that regard with the internet connectivity the united nation has declared that internet connections in the communities must be treated as a basic need like water and electricity. It is a requirement, but this is still not employed in most developing countries like South Africa. A very large percentage of the community members depend on social grants and with hiking price of data people cannot be able to access the digitised traditional children games.

It is also a challenge in the society in rural areas to access smart phones. Those who own phones have that smaller ones for receiving calls only. In regard with this challenge not only the

internet connectivity but also poverty will affect the rural areas with digital access of games. Considering the fact of knowledge creation for sustainable development the digital factor of traditional children games can raise artists through traditional children games.

5.7.3 Traditional games promote teamwork

Most of the traditional children's games need physical activities. A game like *khadi* needs three or more participants involved. Two participants will be swinging *khadi* while one or two others will be jumping and ducking to avoid being touched by the rope. The interesting part of it is that the swingers and the divers would be singing traditional songs or rhymes. The hide and seek (*mudzumbamo*) game also is a team game. While others would be hiding, one will be seeking them until he or she finds them. Apart from the hide and seen there is a traditional children game called *bune*. Regarding bune, three or more children will be involved. One participant will be chasing others with a motive of touching them and it doesn't matter where you are touching them. You can touch the person physically or just touching the garment. After touching, the one who is touched will be his or her own turn of chasing the others.

All this processes needs to be exercised through teamwork. This process entices the players because of their expectations from the one seeking them, or the one chasing them and vice versa. Where two or three people are playing together and against each other there is teamwork. Teamwork is the peace-making process and in communities it encourages or promotes communality and communality brings along social cohesion. It is known that games are mostly meant for socialisation, learning and entertainment. When probing this discussion further it was clear from the participants that digitisation robs children of the feel or enticing part of the traditional children's games because there would be no socialisation process which only occurs during the physical practice of traditional children games. Looking over and above the digitisation process teamwork will be compromised but it only left us with no choice than to do it in order to safeguard or preserve the knowledge transferred through traditional children games. Video games development seems to minimise some of the problem associated with teamwork as it involves two or more people while playing. Play stations and Wii also involves many players playing together.

5.8 Chapter summary

This chapter provided the presentation, interpretation and analysis of the study. The aim of this study was to explore the digital preservation of traditional children games in that regard the data presented, interpreted and analysed was based on the following research questions: What is the importance in preserving traditional children games through digitisation? What are the prospects of preserving traditional children games through digitisation? Which are the challenges of preserving traditional children games through digitisation?

The chapter noted up that traditional children game preservation through digitisation is very relevant about the current status quo of the communities internationally, nationally, provisionally and in our districts and local levels. The importance, the value, the cultural values and traditions communicated by traditional children games give them credits of digital preservation. The prospects and challenges of digitisation of traditional children games were also addressed in this chapter. The views of the elders and youth in digital preservation of traditional children games were also outlined. The next chapter focuses on this study's findings, summary and recommendations.

CHAPTER SIX

EVALUATION, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This study explored and described why and how traditional children games should be preserved digitally. To discover the importance and possibilities of preserving traditional children games digitally, the study was guided by its main aim of exploring the feasibility of digital preservation of traditional children games. The importance, possibilities and challenges of digital preservation were also addressed. The selected games that were used for analysis were: *ndode, khadi, muravharavha, mufuvha* and *mahundwane*. Little has been done in literature on the digitisation of library materials regarding IKS, but nothing seems to have been done in digitisation of traditional children games. The summaries of key findings together with the study evaluation are presented in this chapter under objectives as follows:

- To establish the importance of preserving traditional children games through digitisation.
- To explore the prospects of preserving traditional children games through digitisation.
- To examine the challenges of preserving traditional children's games through digitisation.

Objective 1: To explore the importance of preserving traditional children games through digitisation

Based on the above objective, this study found out that rural women who participated in this study knew nothing about the digital preservation of traditional children's games. What they currently know was the preservation and sharing of traditional children games through the word of mouth. This study brought to their attention, their potential role in the community as per their profiles enables them to know about digital preservation of traditional children games. To the educators and youths who participated in the study, the study found that they were very familiar with the digitisation process.

Most of the participants highlighted that children nowadays are lacking morals due to acculturation. The environmental space where children are finding themselves is no longer like the past where grandparents and elders in the family were custodians of culture. The oral traditions that were passed from generations to generations are now extinct. However, the traditional children's games in some areas are still practiced though among some of the children it is seemingly no longer the case. In this regard, it was the interest of this study to digitise the little that is still available in traditional children games for advanced storage, access and utilisation for our revolutionised generation. What children are learning in their day to day life seems to be very Eurocentric other than based on their own culture. The suggested process of digital preservation would entice and acculturate the children when accessing traditional children games on their gadgets. The participants' explanations were in support of the fact that traditional knowledge communicated in the traditional children games play a pivotal role in the development of children as they grew up. Given the above assertion by the participants, I concur with them, and recognise that traditional children's games also help children in moral regeneration as alluded to by Ladzani (2014). She said that the moral decay can be attributed to the dearth of traditional children's games within the African communities.

- **Significance of traditional children's games**

  Before the advent of colonialism, children's participation in physical activities in Africa was engrained and embedded in the fabric of its diverse ethnic communities (Amusa & Toriola, 2010). Such indigenous education consisted of traditions and folklore as well as knowledge that were tied to tribal ceremonies and orally handed down across generations. Traditional education revered physical prowess and strength. Games united communities in activities such as harvest festivals and wedding ceremonies (Chepyator-Thomson, 2014). Such physical activities were the hallmark of recreational movement expression among African children (Mwisukha, Rintaugu, Kamenju & Mwangi, 2014). During the time when the traditional children games were practiced, morals were noted to have been observed (Lwoga, Ngulube & Stilwell, 2010). In this sense, the traditional children's games in South African bear witness to the Afro-centric nature of the isiZulu, Sesotho and Tshivenda speakers who seek to impart these morals and values whereas the Euro-centric and oriental knowledge bases will reflect the culture of European, Asian and Indian descents respectively. Through colonialism, an advancement of the colonialist enterprise of purportedly civilising Black children through the missionary schools system threw out most indigenous recreational and artistic physical activity

pursuits (Munchick, 2017). Despite the prolonged colonial enterprise to eradicate African systems of knowing, Ndlovu-Gatsheni (2020) notes that indigenous knowledges were merely subdued, but not necessarily or completely exterminated, hence the quest to revive such knowledges through the decolonisation framework.

Objective 2: To explore prospects of preserving traditional children's games through digitisation

Based on the above objective this study revealed that music, graphics, role-play and photography could be the best ways of integrating technology with traditional children games for preservation purpose. Participants in this study suggested some of the technologies that were to be used for the preservation of traditional children games. Social media platforms, apps, web-creation, were some of the identified and prototyped technologies. In that regard two games, *mufuvha* and *muravharavha* can practically be accessed in an app that was created and tested and seem working. *Ndonde* and *khadi* were also preserved in a website that was created for this study as part of experiential learning. Both innovations are awaiting an official launch after following the relevant processes like patent registration. In this regard the objective was met, and the research questions were answered as per expectation. However the following should be considered a point of departure:

- **Africanising the digitising of traditional children's games**-In the African context, the potential dissemination of foreign values through technology as a symbol of modernisation and progress is a sensitive are which might be interpreted as a new form of colonialism. For a start, most digital platforms and pathways prioritise the English language as a primary medium of expression. For the digitisation of indigenous games to make headway, it has to consider the Africans' way of life, and how the African child in particular is raised and developed (Schelenz & Schopp, 2018). Tufekčić (2016) observes that Children's games in the traditional culture were an important area of education and socialisation that were realised through the development of autonomy, creativity, freedom, responsibility, spontaneity and activity. Through these, children developed their own children's specific "moral code" that was not primarily imposed by adults, unlike many modern games that are designed by adults, where the structure, rules and all other characteristics, and often exclusively, are resulting images of the

world that adults have rather than children. During the process children were specific innovators because games encouraged development of intellect, emotion and will but also stimulated creative activities and amateurism. All of this is emphasised in the traditional toys themselves. The most significant characteristic of traditional children's toys is that children made them on their own, or with the help of adults that, most of all, reflected in the support of development of active characteristics of will and character of a child, and from different materials from their own environment (wood, soil, stone, water, plants and other handy materials from everyday life). In that child's activity, creativity and spontaneity developed in a natural way. Van Stam (2012) argues that to overcome the digitisation challenges in Africa, focus should be on social innovation in which technology is spearheaded by Africans and for Africans so that it inherently involves Afro-centric characteristics of Ubuntu and relationships in its expression.

Robbins (2010) also highlights some key points in digitising games and they are summarised as follows:

- Digital technology should be developed according to the modes and habits of different Indigenous cultures. This includes developing strategies to enable Indigenous people to utilize digital technology, creating digital toolsets that allow modification and customization for Indigenous content, and exploring the development of technology according to the goals and ways of thinking of Indigenous Peoples. As such, cultural preservation is not merely about documenting existing modes of expression. It involves finding ways for Indigenous forms to play a role in emerging technology and contemporary modes of cultural expression. Van Stam (2012) in support of this view notes that the current technology hubs that are springing up in Africa are an encouraging development towards Africans producing technological packages whose configuration is relatable to the spirit and original intent of the indigenous games.
- Digital culture projects must ensure that preservation does not simply mean ossification, but must involve a meaningful and dynamic exploration and development of the ideas, goals, effects, and outputs of that cultural tradition.

Objective 3: To examine challenges of digitising traditional children games

Based on the above objective, digitisation has been seen to be a barrier in two elements. In the preservation side, it was discovered that in some cases digitised games would lose flavour that children taste when physically playing together. In the sharing side, it was discovered that the lack of internet connectivity would prevent rural children to enjoy digitally preserved games. In this study, it was found that technologies like play stations can be utilised to address the barriers because two or more children can still play the game together using the television screen.

Different challenges had been identified as the barriers that can literally and practically affect the preservation process, and some might affect the dissemination process. For the digital preservation process, it was identified that following the inter, multi and trans- disciplinary nature of traditional children games, there should be collaboration of various stakeholders. Organic knowledge of arts and culture, formal school education, information, communication and technology and engineering in computer scientists were needed for the project. The journey of merging these ideas was not an easy one. In some practical cases, some of the software needed money and for us to explore the process we had to buy that software. About this challenge the study overcomes it. The following were identified as the major challenges:

- **De-contextualisation of movement**-The role of society, especially elders and peers in teaching cultural practices to children is vital. It forms a key part in the social fabric of African societies. The sense of individuality that technology brings may go against the communal spirit of African people. The connection and sensitivity to nature is fostered in real games than in the digital sphere. Digitisation might mean 'putting a knife' to the ethos as children might be mentored by technology (Tufekčić, 2016). Certain traditions are tied to specific roles within a community, so questions of sensitivity, privacy, and ownership must be addressed. There can even be fears of killing the tradition through its levelling into disconnected media (Robbins, 2010). De-contextualisation also means that participants miss the real meaning of those games. Some of the psychomotor, affective and cognitive benefits associated with actual participation in indigenous games as opposed to virtual participation may be lost to digitisation. The rise of cases of obesity in South Africa due to sedentary lifestyles promoted by video games is a classic example.

- **The digital divide** – This refers to digital inequality wherein there is a socio-economic gap between those with and without access to digital technology. This gap also includes awareness, adoption, knowledge, skill and ability to use digital technology. While the digital revolution continues to forge new ways to generate and preserve knowledge, educate people, and disseminate information, it is also characterized by the growing gap between those who are information-rich and those who are information-poor (Borrero, 2016). South Africa is one of the most unequal countries in the world, and therefore the digitisation of games can also reflect such inequalities as some people groups may not be able to access or sue technology (Rice & Pearce, 2015). The output of digitization projects, by their very nature, will be more accessible to technologically developed societies than to the underserved areas often producing the content (Robbins, 2010).

6.2 Implications of the study findings

The digitisation of cultural heritage such as traditional children's games is a relatively new field of research which is wont to present unique opportunities and challenges in an African context (Ognjanovic *et al*., 2019). Africa in general and rural South Africa in particular is characterised by oral tradition, the humanistic philosophy of Ubuntu and closely knit social relationships (Van Stam, 2012). While digitisation is acknowledged to be the long-term solution for the survival, preservation, access and dissemination of cultural heritage, it should not replace the authenticity of that heritage in its original form (Fanea-Ivanovici, 2018). Consideration should be taken into account that indigenous knowledge should be not abstracted or lose its holistic oral and corpus form of medium as well as its connection to social context (Nakata & Langton, 2006). Apart from concerns to maintain the cultural integrity of indigenous games in the process of digitising, fundamental needs such as shelter, food, health, and education can trump some interest in ICT adoption. The digital devices and services that may be required for targeted end users may be unaffordable for many (Schelenz & Schopp, 2018). The study supports the argument for a change in the preservation methods of traditional children games. This would suggest that digitisation may be an important factor in the preservation of traditional children,s games. The study reveals that the following should be

done: different technologies for preservation should be explored and traditional children games be popularised; Cultural significance communicated in traditional children's games would be strengthened and safeguarded in modern format; Different frameworks on digitizing the traditional children's games were explored considering the implications that the process could cause in compromising cultural practices; Decoloniality should be encourage while digitizing. De-contextualization of the games was not left out while considering the digital preservation.

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6.2.1 Explored technologies

6.2.1.1 Social Media Platforms

Findings indicated that social media platforms should be the preferred way of transferring knowledge on cultural values that are in traditional children games. It is due to its nature of accessibility. A large percentage of youths in the communities have gadgets where they can download games and play them on their gadgets. WhatsApp was one of the suggested platforms because it is easy to download from the Play store app.

6.2.1.2 App

An App is one of the aspired technologies suggested to store and access *muravharavha* and *mufuvha*. Though this activity seems to could suit children it can also suit adults who enjoy playing *muravharavha*. *Muravharavha* and *mufuvha* are traditional games that are also enjoyed by adults. Storing these games in an App would require the young ones to teach their parents on the utilisation of gadgets.

6.2.1.3 Website

This study also suggested the use of website to store *khadi, ndode* and *mahundwane* for easy access by the users. A website is like a learning corner where anyone who wants to learn just

visits the corner anytime anywhere, locally and globally. It also appears to be like that in all suggested technologies in this study.

This supports the argument for change in the preservation methods of traditional children games. The oral methods of transferring traditional children games from generation to generation seem no longer enticing to the children. However, those that are manually documented in print-works are kept in libraries where children cannot access them. Furthermore, the knowledge holders are also dying with their knowledge. This would suggest that social media platforms, applications, and websites may be important factors in the preservation space of *muravharavha, ndode*, *khadi* and *mufuvha.*

6.2.2 Popularising the games

This study suggests that policy makers at school level should focus on traditional children's games in the same way they focus on soccer and other sporting codes. Those who are policy makers in schools should introduce competitions on traditional children games as they do in other sports and games. During life-orientation classes, schools should also maintain corners were there would be computers for accessing traditional children games by the learners. This study suggests that the school is an agent of change and therefore it would popularise digital traditional children games. The play stations that the children utilised for soccer games can also be made available for traditional children games.

The suggested forms of digital preservation would bridge the gap between the young and the old because the knowledge that the elders share would now be accessed through the technological devices that the children are exposed to. The cultural values, education, norms and other traditional practices in traditional children games would be shared from generation to generations using technology. University students in this study created an app for *muravharavha* and *mufuvha*, and the former was tested and seems to work.

Though the study highlighted the barriers on the digital preservation of traditional children games, it was believed that the proposed method of preservation should follow the current state of readiness for the 4IR. The issue of internet connectivity in rural areas would be addressed by the United Nations as the global basic need to all communities. This study would provide key pointers towards the traditional children's games preservation through digitisation. This

would be useful for further research and for those making decisions about the future of traditional children's games.

6.3 Contribution to the body of knowledge

This study used a case study together with participatory action research. I combined WhatsApp, semi- structured interviews, observations and focus group discussions to bring dense data in this study. Participants were involved fully in this project as co-researchers. This study brought two new innovations, an app created for *muravharavha* and *mufuvha,* a website that is housing *ndonde*, *khadi* and *mahundwane*. The moment one speaks of digitisation, inherently implied in the same term are issues of affordability, electricity, technical know-how and other imperatives that are needed for its implementation to be effective, and yet they are scarce in marginalised segments of society, a fact which cannot be wished away or glossed over. The socio-politico-economic challenges and limitations around digitisation are a subject of scrutiny in scholarship as will be seen in the ensuing chapters. This study is a scholarly contribution to those challenges and that debate, and beyond that, optimistically envisaging a practicable Afro-centric framework for re-discovering, preserving, reviving and shaping culturally responsive discourses and praxes in the arena of children's indigenous games for current and future generations.

6.4 Recommendations

The following recommendations are provided. for this study on traditional children games preservation through digitisation:

6.4.1 Decolonisation Framework

This study recommends that there should be decolonisation framework that requires the creation of alternative knowledge systems to counter the epistemological hegemony of western and Eurocentric ways of knowing. The emphasis on foregrounding African thought and philosophy is not necessarily mere advocacy for a return to a romanticised pre-colonial past to rediscover old knowledge practices. The main trajectory centres around engaging with concepts rooted in Africa while taking into account present and future situations and contexts.

6.4.2 Africanising the digitisation process

This study recommends that if ever there are to be technological adoptions involved in preserving and promoting indigenous knowledge based activities such as indigenous games, there should be respect for African culture, and not a perpetuation of pejorative and negative stereotypes. That is, digitisation should not only preserve indigenous culture, but should possibly create new pathways for the development of indigenous ideas in contemporary and emerging technology while retaining the integrity and spirit of indigeneity.

6.4.3 Digital Awareness

This study recommends that stake holders in marginalised communities should address the digital inequality wherein there is a socio-economic gap between those with and without access to digital technology. This gap also includes awareness, adoption, knowledge, skill and ability to use digital technology.

6.4.4 Further studies

This study also recommends that future research on the digitisation of traditional children's games should focus on the traditional children games in other contexts. It can be traditional games in other African languages or cultural group. One avenue for further study would be research into specific traditional children's games that are meant for specific age groups. Without further research into traditional children's games digitisation, it would not be possible to transfer effective IKS practices, values and norms to the current generation of Robotics and Artificial Intelligence. It is important to investigate whether robots can be used to share knowledge on traditional children games.

6.5 Conclusion

The purpose of this study was to explore the preservation of traditional children's games using digitisation. The study findings show the importance of digitising traditional children's games to make them exciting and fit within the current revolution (4IR) and the possible ways of digital preservation of *ndode*, khadi, *muravharavha* and *mufuvha*. It was also revealed that the

current generation is immersed in the use of electronic gadgets. The digital preservation of traditional children games would assist them to know their cultural values and norms. However, the findings in this study do not imply that oral tradition, books and print-works should be totally discarded. Books should still be relevant for those who want to improve their reading and writing skills even though those books could be scanned and digitised for online access (eBooks).

The digital preservation of traditional children's games would engage the users in the promotion of African culture for the sake of identity. It was also shown as a way of addressing gender inequality because for one to access digital games, it does not require gender association. The digital preservation of traditional children is a way of showing cultural transformation regarding preservation strategies. Digitised materials are easily accessed globally by anyone who is interested in such materials. Therefore, it was the purpose of this study to explore the feasibility of traditional children games preservation through digitisation. The digitisation of traditional children games preservation could be summarised in fig 24.

Figure 24: Diagram presenting the summary of TCG preservation through digitisation.

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APPENDICES

APPENDIX A: INTERVIEW GUIDE

1. Why do you think it is important to digitise traditional children games?

Do you think it is possible to digitise traditional children games? How so?

What are the challenges in digitising traditional children games?

APPENDIX B CONSENT FORM

LETTER OF INFORMATION

Title of the Research Study: EXPLORING THE CULTURAL HERITAGE PRESERVATION THROUGH DIGITISATION. A CASE OF TRADITIONAL CHILDREN GAMES

Principal Investigator/s/ researcher: THIZWILONDI JOANBETH MADIMA, PhD in AFRICAN STUDIES

Co-Investigator/s/supervisor/s: DR PFARELO EVA MATSHIDZE / PROF VHONANI OLIVE NETSHANDAMA

Brief Introduction and Purpose of the Study: I am Thizwilondi Joanbeth Madima. I am studying for PhD in African Studies at the University of Venda. I am conducting a research on the preservation of traditional children games through digitisation. I am kindly inviting you to participate in this study. During your participation your voices will be recorded and where possible pictures on some of the demonstration will be captured.

Outline of the Procedure: I will be asking you questions and expecting you to respond to the question asked, in a case where I will be in need of more clarity I will asked further questions. Please feel free to respond in any way. Participation in this research is voluntarily and you have the right to withdraw participation at any time. You may be sometimes asked to answer questions that are in this interview guide or some may be probed from that. We will also have focus group discussion wherein you will also be asked to participate fully but voluntarily. In most cases our discussions and interviews may take one to two hours during our meetings. Every visit will be communicated in time for you to prepare yourself for availability. Follow-up visits will be there and will be communicated in time.

Risks or Discomforts to the Participant: if you feel uncomfortable about the continuation of this procedures you are allowed to withdraw from this research project.

Benefits: This research will benefit all the Vhavenda children who want to access traditional children games digitally in their electronic gadgets. Other researchers will benefit from this

method of preservation when they want literature on the digital preservation of traditional children games.

Reason/s why the Participant May Be Withdrawn from the Study: there would not be no reasons expected from the participant if he or she does not want to continue with the research.

Remuneration: No remuneration

Costs of the Study (*Will the participant be expected to cover any costs towards the study?) no*

Confidentiality: All information obtained in this research activities will be kept private and confidential and will only be used for the purpose of this study only. Pseudo names will be used instead of their real name.

Research-related Injury: (*What will happen should there be a research-related injury or adverse reaction? Will there be any compensation*?) No compensation reserved for the injury that is related to this research project.

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

Dr P.E Matshidze pfarelo.matshidze@univen.ac.za, Prof V.O Netshandama. Vhonani.netshandama@univen.ac.za . Please contact the researcher (0728673111), my supervisor (0159628131, 0159628801) or the University Research Ethics Committee Secretariat on 015 962 9058. Complaints can be reported to the Director: Research and Innovation, Prof GE Ekosse on 015 962 8313 or Georges Ivo.Ekosse@univen.ac.za

General:

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

CONSENT

Statement of Agreement to Participate in the Research Study:

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

- I have also received, read and understood the above written information (*Participant Letter of Information*) regarding the study.

- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.

- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.

- I may, at any stage, without prejudice, withdraw my consent and participation in the study.

- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant: …….…….. Date: ….. Time:

Signature: …….

I, (*Name of researcher*) herewith confirm that the above participant has been fully Informed about the nature, conduct and risks of the above study.

Full Name of Researcher: ……. Date:……. Signature:…….

Full Name of Witness (If applicable):……..Date:……. Signature:……

Full Name of Legal Guardian (If applicable):……Date:…… Signature:……..

Please note the following:

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

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

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

APPENDIX C: PARTICIPANTS'S BIOGRAPHIES

	Biographies
Vho- Phophi	An elderly woman and mother to the Chief of Tshidzivhe Village (Vhakoma). She convened and mentored young girls and boys who usually come to play with her grandchildren at her homestead. Vho-Phophi also works as a cleaner at the University of Venda. She is known in her community as an advocate of traditional children games. She also assists nearby schools in training learners traditional games for school competitions. She has five grandchildren.
Vho- Masindi	An elderly woman of 60 years who reside in Tshidzivhe. A cleaner in the University of Venda. Participated in traditional children games her entire childhood. She has two children.
Vho-Mudau	A 55-year educator at Tshidzivhe Primary School. He is a school sports convener. He has four children and one grandchild.
Vho – Luvhone	A 50-year educator of Thathe Secondary School. She is also a sports convener.
Vho-Mphephu	A 56-year educator in Tshidzivhe Primary School. He is in charge of Arts and Culture in the same school.
Aluwani	A photographer and student of media studies at the University of Venda.
Khathutshelo	ICT student at the University of Venda.
Mulalo	Computer Science student at the University of Venda.
Amukelani	Computer Science student at the University of Venda.
Shaun	Bachelor of Indigenous Knowledge Systems student at the University of Venda.
Suzan	Bachelor of Indigenous Knowledge Systems at the University of Venda.

Lutendo	ICT student at University of Venda.
Tiyani	Bachelor of Indigenous Knowledge Systems at University of Venda.