

# **Digital technology impact in the access, preservation and curation of indigenous artefacts at Mafikeng Museum**

NM Mogajane

 **[orcid.org/0000-0002-6661-3585](https://orcid.org/0000-0002-6661-3585)**

Dissertation accepted in fulfilment of the requirements for the  
degree [Master of Indigenous Knowledge Systems](#) at the  
North West University

Supervisor: Dr Motheo Koitsiwe

Graduation ceremony: July 2022

Student number: 23143339

## DECLARATION

I, Nkagisang Maria Mogajane hereby submit at the NWU, a dissertation titled: Digital technology impact in the access, preservation and curation of indigenous artefacts at Mafikeng Museum. I affirm that, this is my own work and it has not been submitted before at this or at another University. Sources used and quoted in this study have been fully acknowledged.

Signature

..........

## ACKNOWLEDGEMENTS

*'Black man you are on your own'*. I, did not quite grasp this quote by Steven Bantu Biko until I embarked on this journey. The long hours of searching relevant literature and sleepless nights, trying to make sense of philosophies and concepts. It was overwhelming at times, and at that particular moment, I realised that I needed to soldier on. If not for the support system and the courage I drew from the following persons, I would have not made it this far.

I am grateful to my academic mentor and supervisor, Dr Motheo Koitsiwe for the continuous support and guidance from the beginning of my research journey until the end. At times, I would constantly bother you with calls and emails, but you never got tired. You directed me to the right path because you realised my eagerness and determination to pursue this study. To my co-supervisor, Dr Zulumathabo Zulu and assistant supervisor Mr Monnaruri Diratsagae, I appreciate the support I received and the humanity you all showed me.

To Dr Roger Layton and Ras Mpho Molapisi, thank you for committing your time to assist me in shaping this study, it is heart-warming. To my funding institution and research participants, your valuable contribution in this work is notable, thank you. My deepest appreciation goes to my family for their unconditional love and support through this journey, it was not easy. You all have been there for me from the start and during my worst, when I wanted to give up, you assured me that nothing is impossible. Today, I am proud to say I did it! And the struggle still continues!

## **DEDICATION**

This study is dedicated to all traditional museums rooted in defining their role in the digital era. At the same time trying to stay relevant to their target audience as per the institutional aims and objectives, and meeting with the requirements of the new technologies, which come with their own challenges and prospects. The study is also dedicated to the Mafikeng Museum for granting me the permission to conduct the study within their institution. Furthermore, this work is dedicated to all participants of the study for their dedication and sharing knowledge.

## **ABBREVIATIONS**

ACSR :	Arts, Culture, Sports and Recreation
DAC :	Department of Arts and Culture
ICOM :	International Council of Museums
ICT :	Information Communication Technology
IK :	Indigenous Knowledge
IKS :	Indigenous Knowledge Systems
IKSDC:	Indigenous Knowledge Systems Development Centres
NWMC:	North West Museums Committee
NWU :	North West University
RIM :	Robben Island Museum
SAMA:	South African Museums Association

## ABSTRACT

The introduction of digital technology in our museums is challenging how traditional museums preserve, document, curate, and store artefacts. Museums are now faced with the dilemma of staying relevant to the society while adapting to the digital era, which is interesting to young people. The Mafikeng Museum recently introduced the use of ICT for the first time towards the end of 2019 as a tool for documentation, access, curation and preservation of museum artefacts, while other museums around the world have started with the provision of online and onsite digital museums services.

The researcher argues that this study is fundamental to find out the impact of the implemented digital technology on indigenous objects at the Mafikeng Museum. A qualitative inquiry was used, rooted in the cultural theory, new museology theory and the digital culture theory. Focus group discussions and semi-structured interviews were used to collect data from purposive sampled, museum professionals and IK holders. Responses were recorded using a voice recorder and note taking. Qualitative data was analysed thematically.

The investigation drew the following findings: (1) the Mafikeng Museum is guided by the national museums policy draft; (2) the museum does not have an independent museum board; (3) there is lack of digital preservation strategy; (4) inadequate human resources and funding to undertake the digitization; (5) there is non-existence of IK holder's intellectual property rights and that; (6) the participation and involvement of bearers of knowledge does exist at Mafikeng Museum though it is minimal.

It is against the above findings that the study make the following recommendations: (1) the museum should develop an internal approved museum policy and the relevant digital preservation strategy; (2) the development of an independent museum board; (3) the implementation of fundraising initiatives by the museum and entrance fee; (4) the encouragement of community volunteerism to assist the museum; (5) urgent attention to IK holders intellectual property rights; (6) proper consultations with bearers of knowledge when planning to implement projects that affects the community.

**Keywords:** Access, curation, digital technology, documentation, museum, preservation.

## LIST OF FIGURES

Figure 1: Indigenous artefacts and digital technology integration in a museum space (Mogajane, 2021).....	8
Figure 2: Mafikeng Museum, housed in the 1902 Town Hall (Mafikeng Museum, 1985).....	28
Figure 3: Old map of Mahikeng (Mafikeng Museum, 1985).....	29
Figure 4: Museum gallery before refurbishment (Mafikeng Museum, 2018) .....	35
Figure 5: New exhibitions (Mafikeng Museum, 2020).....	36
Figure 6: Educational programmes ( Mogajane, 2020).....	40
Figure 7: Outreach program (Mafikeng Museum, 2021).....	41
Figure 8: Digital screens (Mogajane, 2021).....	42
Figure 9: Screenshot of museum website (Mogajane, 2021) .....	46

# TABLE OF CONTENTS

<b>DECLARATION .....</b>	<b>I</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>II</b>
<b>DEDICATION.....</b>	<b>III</b>
<b>ABBREVIATIONS .....</b>	<b>IV</b>
<b>ABSTRACT .....</b>	<b>V</b>
<b>LIST OF FIGURES .....</b>	<b>VI</b>
<b>TABLE OF CONTENTS .....</b>	<b>VII</b>
<b>CHAPTER 1 .....</b>	<b>1</b>
<b>INTRODUCTION .....</b>	<b>1</b>
1.1 Background of the study .....	1
1.2 Problem statement.....	2
1.3 Aim of the study .....	3
1.4 Objectives of the study .....	3
1.5 Research questions .....	3
1.6 Rationale of the study.....	3
1.7 Significance of the study.....	4
1.8 Locating the researcher to the study .....	4
1.9 Division of Chapters .....	5
1.10 Conclusion .....	6
<b>CHAPTER TWO .....</b>	<b>7</b>
<b>LITERATURE REVIEW .....</b>	<b>7</b>
2.1 Introduction.....	7

<b>2.2</b>	<b>Conceptual framework of the study</b> .....	<b>8</b>
<b>2.3</b>	<b>Definitions of important concepts used in the study</b> .....	<b>8</b>
2.3.1	Access .....	8
2.3.2	Curation .....	9
2.3.3	Digital technology .....	9
2.3.4	Documentation .....	10
2.3.5	Museum .....	10
2.3.6	Preservation .....	10
<b>2.4</b>	<b>Defining indigenous people</b> .....	<b>11</b>
<b>2.5</b>	<b>Defining IK and systems</b> .....	<b>11</b>
<b>2.6</b>	<b>Defining the role of museums in society</b> .....	<b>12</b>
<b>2.7</b>	<b>Overview of museums in Africa</b> .....	<b>13</b>
2.7.1	The case of Robben Island Museum (RIM).....	13
<b>2.8</b>	<b>IKS and digital technology in the decolonization of museums</b> .....	<b>14</b>
2.8.1	The case of Iziko Museum.....	14
2.8.2	The case of Smithsonian’s National Museum of Natural History .....	15
<b>2.9</b>	<b>Indigenous Knowledge Systems Development Centres (IKSDC)</b> .....	<b>15</b>
<b>2.10</b>	<b>The importance of digital technology application in museum collections</b> .....	<b>16</b>
2.10.1	The case of Museum and House of Culture in Tanzania .....	16
<b>2.11</b>	<b>Policy frameworks underpinning the study</b> .....	<b>17</b>
2.11.1	Indigenous Knowledge Systems Policy (2004):.....	17
2.11.2	The South African IKS Act 6 of 2019:.....	18
2.11.3	White Paper on Arts, Culture and Heritage (1996): .....	18
2.11.4	National Museums Policy Draft (2014) .....	18
<b>2.12</b>	<b>Summary of gaps in the literature</b> .....	<b>19</b>
<b>2.13</b>	<b>Conclusion</b> .....	<b>20</b>
<b>CHAPTER THREE</b> .....		<b>21</b>
<b>PHILOSOPHICAL UNDERPINNINGS OF THE STUDY</b> .....		<b>21</b>
<b>3.1</b>	<b>Introduction</b> .....	<b>21</b>
<b>3.2</b>	<b>Cultural theory</b> .....	<b>21</b>
<b>3.3</b>	<b>New museology theory</b> .....	<b>22</b>
<b>3.4</b>	<b>Digital culture theory</b> .....	<b>23</b>

<b>3.5</b>	<b>The epistemological, ontological and axiological assumptions of the study .....</b>	<b>23</b>
3.5.1	Epistemological position of the study.....	24
3.5.2	Ontological position of the study.....	24
3.5.3	Axiological position of the study.....	24
<b>3.6</b>	<b>Conclusion .....</b>	<b>24</b>
<b>CHAPTER FOUR .....</b>		<b>26</b>
<b>RESEARCH METHODOLOGY .....</b>		<b>26</b>
<b>4.1</b>	<b>Introduction.....</b>	<b>26</b>
<b>4.2</b>	<b>Methodology .....</b>	<b>26</b>
<b>4.3</b>	<b>Research design .....</b>	<b>27</b>
<b>4.4</b>	<b>Population of the study.....</b>	<b>27</b>
<b>4.5</b>	<b>Brief discussion of the study.....</b>	<b>28</b>
<b>4.6</b>	<b>Data collection .....</b>	<b>29</b>
4.6.1	Semi structured interviews .....	29
4.6.2	Focus group discussions .....	30
4.6.3	Document analysis.....	30
<b>4.7</b>	<b>Data analysis.....</b>	<b>30</b>
<b>4.8</b>	<b>Pilot study .....</b>	<b>31</b>
<b>4.9</b>	<b>Ethics considerations .....</b>	<b>31</b>
4.9.1	Indigenous research ethics .....	32
4.9.2	Permission .....	32
4.9.3	Informed consent .....	32
4.9.4	Joint venture with community .....	32
4.9.5	Reciprocity .....	32
4.9.6	Trustworthiness .....	32
<b>4.10</b>	<b>Conclusion .....</b>	<b>33</b>
<b>CHAPTER FIVE .....</b>		<b>34</b>
<b>THE DIGITAL TECHNOLOGY IMPLICATIONS .....</b>		<b>34</b>
<b>5.1</b>	<b>Introduction.....</b>	<b>34</b>
<b>Findings of the study.....</b>		<b>34</b>
<b>5.2</b>	<b>The impact of digital technology on indigenous artefacts at Mafikeng Museum .....</b>	<b>34</b>

5.2.1	Museum transformation.....	34
<b>5.3</b>	<b>The benefits available for the custodians and producers of the indigenous knowledge and their descendant, in the digitization of indigenous artefacts at Mafikeng Museum .....</b>	<b>36</b>
5.3.1	Bearers of knowledge involvement .....	36
5.3.2	Knowledge sharing and benefits.....	37
5.3.3	The protection of knowledge holders’ intellectual property rights .....	38
<b>5.4</b>	<b>The relevance of information communication technology to the delivery of service at Mafikeng Museum.....</b>	<b>39</b>
5.4.1	Museum space .....	39
5.4.2	Education and outreach programs .....	39
<b>5.5</b>	<b>Digital tools and methods used for documentation and storage of indigenous artefacts. ....</b>	<b>41</b>
5.5.1	Digital tools and methods .....	41
5.5.2	Documentation of indigenous artefacts .....	42
<b>5.6</b>	<b>Conclusion .....</b>	<b>43</b>
<b>CHAPTER SIX .....</b>		<b>44</b>
<b>DIGITAL TECHNOLOGY PROSPECTS AND CHALLENGES.....</b>		<b>44</b>
<b>6.1</b>	<b>Introduction.....</b>	<b>44</b>
<b>Findings of the study.....</b>		<b>45</b>
<b>6.2</b>	<b>Prospects of digital technology at Mafikeng Museum .....</b>	<b>45</b>
6.2.1	Access to information .....	45
6.2.2	Research and education .....	45
<b>6.3</b>	<b>Challenges of digital technology at Mafikeng Museum .....</b>	<b>46</b>
6.3.1	Internet connectivity .....	46
6.3.2	Digital preservation strategy.....	47
6.3.3	Policy implementation.....	47
6.3.4	Museum governance and management.....	48
<b>6.4</b>	<b>Discussions on the findings of the study .....</b>	<b>49</b>
6.4.1	Limitation of the study .....	51
6.4.2	Lessons learned from the study .....	51
6.4.3	Gaps identified in the findings.....	51
<b>CHAPTER SEVEN .....</b>		<b>53</b>
<b>RECOMMENDATIONS AND CONCLUSION .....</b>		<b>53</b>
<b>7.1</b>	<b>Introduction.....</b>	<b>53</b>
<b>7.2</b>	<b>Recommendations of the study .....</b>	<b>53</b>

<b>7.3 Conclusion .....</b>	<b>55</b>
<b>BIBLIOGRAPHY.....</b>	<b>56</b>
<b>ANNEXURES.....</b>	<b>66</b>

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the study

Museums were considered for very long time as mausoleums in which artefacts are protected from deterioration and from access by society in general (Witcomb, 2003:142). Bautista (2013:1) argues that initially, museums were not focusing so much on education about the original history of their objects, but they focused more on cultural values and ethics and of a good society. Museums became more than repositories of precious objects; they were bastions of authority and tradition that represented social norms, cultural capital to be acquired by all citizens, memories to be preserved for future generations and public displays, demonstrating what society valued most.

Witcomb (2003:24) further asserts that in the nineteenth century, the museum was seen as part of governmental programmes to clean the city and these programmes did not always respect the space of culture. In some cases, museums were treated like any other urban space, becoming a part of the new urban fabric being developed in the nineteenth century and open to the behaviour of the general public. Kayombo (2005) states that today, museums are regarded as educational, research, cultural, developmental institutions and information centres. The museum's dissemination of information on collections and the housing of artefacts is unique and the approach also differs from one museum to the other, depending on the aims of that particular museum.

The introduction of the ICT in museums is challenging and changing traditional museums in various ways. It changes the museum relations with other institutions and the society, the traditional collection management methods, practices and access thereof (Van den Akker & Legêne, 2017). Papadopoulou (2016) supports Van den Akker and Legêne (2017) by augmenting the point that the old-style image, where people stroll in the museum hall, viewing exhibitions and analysing the labels, is currently confronted by digital technology. The use of ICT in our museums is also challenging how museums preserve, document, curate, and store artefacts.

This technology requires the use of digital devices for onsite and online access to artefacts and the delivery of other museum services. Fred and Nawe (2017) further assert that the use of ICT encourages visitors - users to escape the physical barriers of traditional museums, which are based on manual systems. Bautista (2013:5) argues that the incorporation of technology by museums raises new questions about how museums are considering the notion of their community and how they are serving that community.

Therefore, the indigenous community as custodians of knowledge and owners of indigenous collections, which are donated to the museum, should be involved in the digitization projects. Museums on the other hand, need to develop strategies on how indigenous objects and information should be portrayed and used, while protecting the intellectual property rights of custodians of collections to prevent online misuse and theft.

Bello and Mohamed (2018:46) support Bautista (2013)'s argument that the culture of a community is an original creation, which manifests itself in every dimension of life, the everyday activities and periodic events involving the use of ordinary objects as well as the most sophisticated productions. Therefore, for the traditional method to have a long term survival there is need to integrate it with digital technology, through paying careful attention to the digital preservation policies and protection of indigenous objects and information against pirating and misuse, while creating adequate access to collections.

The Mafikeng Museum, as the case study recently introduced ICT for the first time towards the end of 2019, for access, preservation and curation of museum indigenous artefacts, while other museums around the world have started with the provision of online and onsite digital museums services. Therefore, the study investigated and unpacked the impact of digital technology in the preservation and curation of indigenous artefacts at Mafikeng Museum, and further explored both the positive and negative impacts of the technology implemented.

The following objectives guided the study: to investigate and unpack the impact of the implemented digital technology on indigenous artefacts at Mafikeng Museum; to find out the benefits of the custodians and producers of IK and their descendants, regarding the digitization of museum indigenous artefacts; to explore the link between ICT and the delivery of service in Mafikeng Museum; to determine relevant digital tools and methods in the documentation and storage of indigenous artefacts; and lastly, to analyse prospects and challenges of digital technology in the access, preservation and curation of indigenous artefacts at Mafikeng Museum.

## **1.2 Problem statement**

The problem statement of the study emanated from the fact that technology is challenging and changing how traditional museums work, in relation to collection management methods, practices and access thereof. The study investigated the impact of digital technology in the access, preservation, and curation of indigenous artefacts at the Mafikeng Museum. Furthermore, the study explored how the digitization of indigenous artefacts is contributing to the delivery of museum services. Hence, this technology was introduced for the first time at the Mafikeng Museum in 2019 as a tool for documentation, preservation and storing of museum artefacts.

Museums are challenged by a new imperative to expand beyond their physical boundaries and connect with the public through digital media displays and activities (Giannini & Bowen, 2019:172). Geismar (2018) asserts that, we need to explore the impact of digital technologies in our museums and ask the following questions: what kind of world the digital produce, what kind of artefacts will the digital turn into and what lessons these technologies provides? The researcher argued that Geismar (2018) concerns should be explored to find out the impact of the implemented digital technology on the indigenous objects at the Mafikeng Museum, and the beneficiation of the custodians and producers of these artefacts and their descendants.

This study further asks: Are there active involvements of IK holders in the digital projects of the indigenous collections in our museums? Are they (the bearers of knowledge) even aware of the digital projects undertaken in their museums? These questions are of importance, as stated by

Gibson (2019:19) during field work at Iziko Museum, the researcher discovered that there was lack of involvement of IK holders in the documentation. The study propose that the transformation on the status of IK holders, the recognition and protection of IKS by museums, society and the current government should be explored, drawn from Gibson's statement.

### **1.3 Aim of the study**

The study explored and unpacked the impact of digital technology in the access, preservation and curation of museum indigenous artefacts at Mafikeng Museum. To achieve this aim, the study applied the following objectives.

### **1.4 Objectives of the study**

- To investigate and unpack the impact of the implemented digital technology on indigenous artefacts at Mafikeng Museum.
- To find out the benefits of the custodians and producers of IK and their descendants, regarding the digitization of museum indigenous artefacts.
- To explore the link between ICT and the delivery of service in Mafikeng Museum.
- To determine relevant digital tools and methods in the documentation and storage of indigenous artefacts.
- To analyse prospects and challenges of digital technology in the access, preservation and curation of indigenous artefacts at Mafikeng Museum.

### **1.5 Research questions**

How does the implemented digital technology impact on indigenous artefacts?

- *Are there benefits available for the custodians and producers of the IK and their descendants, in the digitization of indigenous artefacts at Mafikeng Museum?*
- *How is ICT relevant to the delivery of service in Mafikeng Museum?*
- *Which digital tools and methods are relevant for documentation and storage of indigenous artefacts?*
- *What are the prospects and challenges in digital technology in the access preservation and curation of indigenous artefacts at Mafikeng Museum?*

### **1.6 Rationale of the study**

The study focused mainly on the introduction of the use of ICT in our museums, which is changing and challenging how traditional museums preserve, document, curate, and store artefacts. Museums are traditionally known for the acquisition, preservation, research, education and display of collections of historic and traditional importance for public access (Bello & Mohamed, 2018:42). Giannini and Bowen (2019:179) argue that museums are entering the digital future and are transforming with the altered states of being and a new sense of identity.

One other rationale of the study: digital technology was introduced at Mafikeng Museum to preserve, curate and provide access to indigenous artefacts for the first time in 2019. The study investigated the strategies that the museum has put in place for the management and preservation

of digitized artefacts. As Bello and Mohamed (2018) assert that there are disadvantages in digital access and storage, it can only provide easy access and storage of electronic information, yet it does not offer a long term solution. The researcher argued Bello and Mohamed (2018) statement by pointing out that digital technology can provide a long term solution beyond physical artefacts, only if a museum implements the digital preservation strategy that is relevant to that particular institution.

Giannini and Bowen (2019:179) allude that although the digital shift represents major challenges to the museum, meeting these challenges will depend on how museums integrate into the digital ecosystem and use emerging technologies whilst recognising the power of digital culture to transform human identity, behaviour, states of being, digital seeing, art and aesthetics. Therefore, this study necessarily unpacked the impact of digital technology in relation to the Mafikeng Museum indigenous artefacts to expose both the positive and negative impacts of the digital technology the museum introduced.

### **1.7 Significance of the study**

The study suggested ideas to digital technology for access, preservation and curation of indigenous artefacts, based on the increasing use of ICTs by people around the world. Geismar (2018) poses this question: what kinds of lessons will these digital technologies provide? Therefore, the study explored Geismar (2018)'s idea to unpack the educational implications of the technology implemented by the museum for preservation, curation and accessibility provision to indigenous artefacts. From an educational perspective, the study explored the applied digital technology for preservation and access of museum indigenous artefacts relevance to the delivery of museum services, and how this contributes to the passing of knowledge.

The local community knowledge holders formed part of the population of the study. Their participation ensured representation of the community, including adherence to the respect of cultural value and beliefs. The study also suggest the notion of participatory culture of the community knowledge holders in museum digital projects to guarantee validity of the digitized information and the identity of that community. This approach contribute positively to the mutual benefit of the community, the protection of cultural and IK to build bridges between the museum and the community.

This study also proposed the use of relevant digital devices for cataloguing, storing, preserving and disseminating information for onsite and online access of indigenous artefacts. The study will ensure non-monetary benefit directly to the Mafikeng Museum, participants and the community, in the form of a report. The report suggested ways the museum should implement such as fundraising initiatives, developing strategies and digital tools to ensure the sustainability of digitized information for preservation for the future generation.

### **1.8 Locating the researcher to the study**

The researcher is a practitioner in the museums and heritage sector. Conducting this study has positioned the researcher out of the comfort zone in museology, to deal with the complexities of

IKS phenomenon. The researcher had to apply critical thinking in social issues affecting the world today and technology is one burning issue, its impact in our daily lives is huge, especially among the indigenous people. The researcher is a believer of diversity and change, acknowledges that museums need to transform and adapt to the use of ICT to cater for diverse people from anywhere in the world.

Museums should also contribute to the idea of a radically transformed society. Tata Rolihlahla Nelson Mandela, once said, “It always seems impossible until its done”. The researcher is motivated by these words of a true cultural and historical activist, who selflessly sacrificed his youthful years and fought for a better South Africa. Therefore, it is upon us, the youth, through positive thinking, to take a lead and bring creativity, hope and change to better our society, and the world for a sustainable future.

The purposes of this study:

- To suggest the identification of the relevant digital tools for access, preservation, and curation of museum indigenous artefacts,
- To encourage museums to be creative, innovative and adapt to the fundamentals of digital technologies for museum service delivery and promotion in the 21<sup>st</sup> century, and
- To ensure careful consideration on issues of indigenous community participation and recognition, education, intellectual property rights and museum policy implications.

## **1.9 Division of Chapters**

**Chapter One:** The introduction, which provides the background to the study, the problem statement, aim and objectives of research, form part of this chapter. The chapter also determines the rationale and significance of research to provide an understanding of why the study was conducted.

**Chapter Two:** Literature review relevant to the study is discussed. The chapter provided identified gaps in the literature of the study and ways to address them. Key concepts and the conceptual framework relevant to the study are clarified.

**Chapter Three:** Philosophical underpinnings of the study are discussed. The study applied the interpretive and indigenist epistemologies, to understand the various viewpoints of the IK holders and the Mafikeng Museum professionals on the impact of the introduction of digital technology for access, preservation, and curation of indigenous artefacts at Mafikeng Museum. The theoretical frameworks of the study are rooted in the cultural theory, the new museology and the digital culture theory and they are discussed in this chapter.

**Chapter Four:** Research methodology of the study is provided; the research design, study population, data collection methods, brief history of the study area, analysis of data and indigenous research ethics relevant to this study.

**Chapter Five:** Findings of the study are discussed; emanating from the implications of digital technology at Mafikeng Museum.

**Chapter Six:** The chapter discusses the prospects and challenges of the technology implemented at Mafikeng Museum.

**Chapter Seven:** This is the final chapter of the study; it consists of the recommendations and conclusions resulting from the study.

### **1.10 Conclusion**

The section introduced the investigation and revealed that in the past, museums were regarded as mausoleums, where artefacts are put away for storage and not accessible to the public. Today, museums are open to the public and serve as educational centres and cultural hubs. The chapter further provided a background into the introduction of digital technology in museums and concerns of traditional museum methods.

The chapter provided a viewpoint that the introduction of digital technology in museums is changing and challenging how traditional museums work. Therefore, the study explored implications on museum strategies and policies, community benefits, prospects and challenges arising from the digital technology implemented at Mafikeng Museum. The provided divisions of chapters show a layout on the contents of the entire investigation.

# CHAPTER TWO

## LITERATURE REVIEW

### **2.1 Introduction**

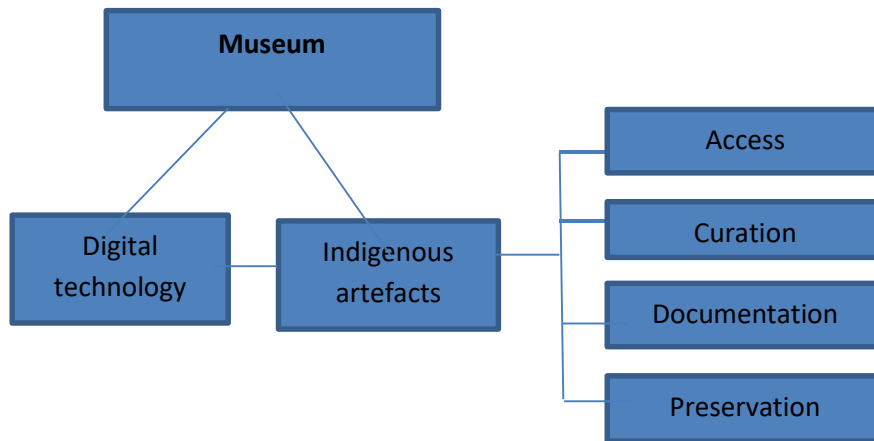
The study focused mainly on the use of digital technology and the impact it has on the access, curation, documentation and preservation of indigenous museum artefacts, in the case of Mafikeng Museum, as well as to form a foundation for museums in decision-making when it comes to the introduction of digital technology in the creation of adequate access, curation, documentation and preservation of indigenous artefacts.

The study did not include the Mafikeng Museum visitor perceptions, the aim was to collect data from implementers of the digital technology at the museum and also to get viewpoint of custodians of knowledge, whose collections are housed at Mafikeng Museum. Four critical museology concepts at the centre of discussions: access, curation, documentation and preservation, which collectively formed the framework of the investigation. The developed framework show how concepts relate to one another and connect to the core of the discussions to form a relevant conceptual framework. This framework clearly discussed concepts and links them with indigenous artefacts and the integration of digital technology in a museum environment.

Concepts are further discussed in Chapters Five and Six; these chapters are findings of the investigation on the implementation of digital technology for access, curation, documentation and preservation of indigenous artefacts. Furthermore, to find out the beneficence of the custodians and producers of the IK; and prospects and challenges of digital technology tools and methods used at Mafikeng Museum. The intention was to form a comprehensive investigation of the study. This chapter further explores the relevant literature to discuss and define indigenous people, IKS, and the critical role of museums in society and overview of museums in Africa.

The literature also discussed the importance of digital technology application in museum artefacts and the decolonisation of South African museums through digital technology and the IKS. Reviews are drawn from various philosophers and academics. Throughout the research, the researcher ensured that credible sources and works are used properly, critiqued and acknowledged to substantiate statements and facts.

## 2.2 Conceptual framework of the study



**Figure 1:** Indigenous artefacts and digital technology integration in a museum space (Mogajane, 2021)

Conceptual framework is a link of connected concepts that together provide a complete understanding of an occurrence. Conceptual frameworks are not simply groups of ideas but, concepts in which each idea plays a vital role (Jabareen, 2009). Access, curation, documentation and preservation are four critical paradigms in the conceptual framework of the study. This model put the indigenous artefacts and the digital technology at the core of the discussions and thus forms a relevant conceptual framework for the study.

The Mafikeng Museum; the main contributor to how each concept work in relation to one another, this process rest with Mafikeng Museum as the knowledge centre. The institution need to ensure availability of human and skills capacity, funding, necessary precautionary measures and strategies to ensure smooth running of the whole process. Leshem and Trafford (2007) emphasise that the conceptual framework is a bridge between paradigms, which explain the research issue and practice of investigating that issue.

The conceptual framework of Mafikeng Museum indigenous artefacts and the integration of digital technology, discussed as follows: The introduction of the use of digital technology in the museum environment contribute to virtual access, curation, documentation and preservation of digitised artefacts. Therefore, digital technology at Mafikeng Museum play a fundamental role in the process of digitizing indigenous artefacts for easy access to digital objects and information; at the same time, providing digital curation and documentation to ensure the preservation of original objects to reduce wear and tear.

## 2.3 Definitions of important concepts used in the study

Access, curation, digital technology, documentation, museum and preservation are concepts of the study and are argued and clarified in this section.

### 2.3.1 Access

Access, participation, enjoyment of the arts, cultural expression, and the preservation of one's heritage are basic human rights, they are not luxuries nor are they privileges (Department of Arts and Culture, 1996). Access is a broad concept. Ribot and Peluso (2003:153) argue that access is

the ability to benefit from things. Accessibility to services is a basic societal requirement (Constitutional Assembly, 1996a).

There are many barriers to access, affecting the exercise of access rights, including financial and economic access, transport and opening hours, physical and sensory access, cognitive access (including different learning styles) and linguistic access. As circumstances differ from museum to museum, it is strongly advised that each museum develops their own institutional policies on promoting access (Department of Arts and Culture, 2014).

Providing access to digital resources will reduce the threat of loss through excessive handling of these items and will reduce the potential damage to fragile items. The future of access in a digital world requires that serious consideration is given to “virtual collections” which may be physically located and managed in different places and represent resources provided by a variety of institutions (Department of Arts and Culture, 2011).

### **2.3.2 Curation**

Lopes (2020:127) assert that curation in a museum includes a complete interpretive interplay between visitors, museological space and curatorial discourses that chain to allow visitors to make meaning. Bhaskar (2016) argues that curation is a broader and deeper term than what it used to be. Sabharwal (2015) adds to the definition of curation that there is digital and social curation. Digital curation includes the protection, promotion, and access to digital collection of traditional nature, information, and publication. Social curation involves public and community feedback through using various social media platforms aimed to add meaning to collections and enriching public discourse on collections or exhibition themes (Sabharwal, 2015).

Digital curation is also concerned with actively managing data for as long as it continues to be of scholarly, scientific research and administrative importance/relevance (Gillian & Ross, 2016:9). Lopes (2020:130) concludes that the extensive use of the internet, mobile devices and currently available technology, has changed museum curation not only in the museum’s physical space but also in the museum’s digital space.

### **2.3.3 Digital technology**

Digital technology refers to ICT, which is all technologies used for processing information and communication (Voogt & Knezek, 2008). Crawford (2013) asserts that ICT is a powerful tool as it significantly extends people’s abilities, and as a learning tool, it is particularly effective. Digital technology is important in encouraging the notion of participatory culture; where a museum visitor can interact with the exhibitions in their own pace.

Digital technologies have drastically transformed the way modern society deals with data and communication and feature widely in the methods utilized by modern society to produce and appreciate communication flows (Bello & Mohamed, 2018). This technology also creates a new way of educating and entertaining visitors, which reduces the work pressure from tour guides from having to repeat the museum tour for different audiences over and over again.

Digital technologies are commonly pointed to as media designed to offer an interactive educational approach to traditional passive content in the museum space and to heighten the learning,

visualisation and perception of objects on display (Lopes, 2020). Therefore, museums should pay careful attention in terms of what digital tools and methods are relevant to the museum when it comes to long term preservation and reliable storage media.

#### **2.3.4 Documentation**

IK documentation was also seen as a tool in socializing the new generation to feel proud of their background, master their mother language and keep alive the traditional bonds between territory and identity (Williams *et al.*, 2009). In a museum environment, documentation involves the collecting and archiving of all types of material including historical, technical, graphic and audio-visual information, and plans, registration and inventory of the cultural assets in the collections, and making information for the kinds of data and fields available on the internet (Department of Arts and Culture, 2014).

Knowledge documentation is the only way a traditional society can prove original relations to land for native title rights or to prove earlier traditional innovation of biodiversity-related knowledge and practice on which scientists or others make claim (Nakata, 2007). Documentation of IK is not limited to isolated areas in which old-style buildings or practices are still noticeable. IK is also being documented and used in various sectors and environment departments to assist with the management of resources (Nakata & Langton, 2005).

#### **2.3.5 Museum**

Museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment (International Council of Museums, 2007). Sandahl (2019) suggests that the museum definition should recognise with taking into account the diverse world views, situations and ethnicities in which museums operate across the world.

The National Museums Policy Draft points out that the ICOM definition emphasises generic functions and governance systems. It does not address the role and purpose of museums within a cultural and social context, nor does it address the diversity of formats that museums can take (Department of Arts and Culture, 2014). The Department of Arts and Culture (2014) further proposed the following definition for museums within the South African landscape: a South African museum is a formally constituted institution that promotes the development of society through research, collection, conservation, communication and exhibition of natural and cultural heritage in ways that reflect the diversity and values of a democratic society.

#### **2.3.6 Preservation**

Harvey and Mahard (2014) define preservation as an aggregate care of collections, and they further allude that traditionally, preservation was intended only to gathering and providing adequate storage for material items. Department of Arts and Culture (2014) refers to preservation as the most important aspect of the museum functions. It refers to the maintenance and protection of collections in perpetuity. It includes the acquisition of collections and their conservation and management. Preservation permits the connections of the olden days with the current and future (Cloonan, 2001).

Erturk (2020:102) points out that conservation of tangible, intangible and digital cultural heritage is still one of the major topics in the museums agenda. Conservation practices in museums include active conservation, preventive conservation, disaster management and risk management (Erturk, 2020). Preservation of objects and information will not be realised if digital content is not structured and not consistent enough to be available beyond a specific period (Nakata, 2007:104).

#### **2.4 Defining indigenous people**

The current definition of indigenous people mostly accepted in the international framework includes parts or all of the following elements: self-identification as indigenous, descent from the occupants of a territory prior to an act of conquest, possession of a common history, language, and culture regulated by customary laws that are distinct from national cultures, possession of a common land, exclusion or marginalization from political decision-making, and claims for collective and sovereign rights that are unrecognized by the dominating and governing group(s) of the state (Mauro & Hardison, 2000:1264).

Department of Science and Technology (2014) argues that the struggle for people to come to agreement on what and who is indigenous can worsen; because of forming a publicly and socially recognised authorisations of what constitutes the indigenous groupings within a given country or region. The struggle can vary from groups that wish to be acknowledged as indigenous to groups that find protective offense in that identification.

Indigenous people have constantly demanded that they have vital rights to original knowledge, because it is necessary for their traditional survival and being acknowledged in the international regulation (Mauro & Hardison, 2000:1263). Department of Science and Technology (2014) emphasises the point that due to its traditional nature, IKS is transparent, open to be accessed and shared for the benefit of communities. Therefore, the recognition of indigenous people's contribution to IK is vital and should be made known, but at the same time, everyone has right to access this knowledge for research, experience and learning purposes, not for profit gains or exploitation.

#### **2.5 Defining IK and systems**

IKS is a process to identify, collect, experience, understand and document IK in a holistic manner. IKS includes not only the knowledge itself but also the philosophical basis for this knowledge, the epistemological questions of how and why we create knowledge and what informs this process. IKS is naturally cultural, embedded in and arising from the original communities. IK is also complex, it consists of systems that are rooted in indigenous nature. Oral forms of IK that are passed from generation to generation are under threat of extinction due to Westernization and technological development (Department of Science and Technology, 2004).

Langill (1999:3) states that IK is restricted within African systems established over extended periods and are grounded on IKS communicated in indigenous languages. Department of Science and Technology (2014) further alludes that the oral tradition is strong in IKS, most of the knowledge is being passed on orally and through mimicry and practical application. In general, IK

can be considered as the cultural and technological product, or knowledge product from a society or cultural interaction and engagement with daily living. IK possess systems of knowledge management, which are not the same as Westernized knowledge management (Nakata, 2007:103). Similar to culture, IK is not static, it changes as is required and in response to the various stressors that a community faces, including environmental, social, public health and safety. IKS is also informed through external interchanges and interactions that any community undergoes through trade, exchange and other cross-boundary type interactions (Department of Science and Technology, 2014).

IK theorist, Raphesu (2010) asserts that IK plays a significant role in various aspects of life like poverty alleviation, medicinal treatment, conservation of natural resources and it is also helpful in decision-making (Raphesu, 2010). During the current COVID-19 pandemic discourse, more local people are now resorting to traditional healing by considering the use of various indigenous medicinal herbs to assist in the fight to cure the COVID-19 virus.

## **2.6 Defining the role of museums in society**

Many museums are stagnant; they kept to the ancient methods of showcasing (e.g. dusty objects hidden in glass cases) regardless of the transformation requirements of the African people that they currently represent (Abungu, 2002:29). Henning (2005) asserts that museums traditionally prioritize objects and tended towards permanence, monumental and uniqueness rather than ephemeral reproduction. Bautista (2013:1) argues that early museums were socially reformist in providing not so much an education about the denotative history of their objects, but more the values and morals of proper society.

Museums have become organisations that nurture reconciliation, encourage the principles of equality and transparency in authorities within their societies; they are part of the bigger communities that they serve through education and outreach programs (Bello & Mohamed, 2018:47). Museums exist to serve the community, their operations became more than repositories of precious objects, they were bastions of authority and tradition that represented social norms, cultural capital to be acquired by all citizens, memories to be preserved for future generations and public displays, demonstrating what society valued most (Bautista, 2013:1). Therefore, museums should have inclusive participatory engagements with the communities they serve.

Papadopoulou (2016:24) emphasises the point that visitors are the heart of museums and without them, there is no reason for their existence. That is why museums are using different ways to reach out to society and attract new visitors or bring back the old ones, something that is important for their survival. There is a need for museums to redefine their contribution to society and to show the importance of their role not only in the education and knowledge, but also in entertainment and fun (Papadopoulou, 2016).

Bello and Mohamed (2018) argue that museums promote unity in the society by using their resources to ensure understanding and appreciation for the various groups and cultures that exist in that society because peace is essential for happiness and joy in the family, in the community, in the society, in the nation and in the world (Bello & Mohamed, 2018:48). (Llamazares de Prado &

Arias Gago, 2021:6) support Fred and Nawe (2017) by pointing out that, museums have to be an image of the community, to achieve this, they must have a culturally diverse society and recognise people living with disability.

Fred and Nawe (2017:121) conclude that the introduction of ICT applications in museums has resulted in a wider accessibility and presentation of museum information in different formats for different people, and has enhanced the general appreciation of the role of the museum in the societies.

## **2.7 Overview of museums in Africa**

Museums in many African countries were constructed during the times of colonialism and shaped on Western institutions. Therefore, it was logic because museums were formed by the colonialists (Abungu, 2002). Fred and Nawe (2017) assert that the development of museums in Central and Southern Africa can be traced back to the twentieth century. During that era, museums as centres of knowledge were colonised and very traditional.

Years later, African countries experienced a social political change and are no longer led by the colonial supremacies; visitors to museums are not just the privileged of society. This socio-political shift and the emergence of new ICTs in many African countries are however, not yet sufficiently mirrored in museums (Abungu, 2002). In South Africa, we saw a shift during the dawn of democracy in 1994, as the country moved from the apartheid system to constitutionalism, and transformation slowly unfolded within the South African museums landscape.

Abungu (2002) argues that despite limits in finances and human resources, African museums are determined to be pertinent to the society. They are progressively implementing ICTs; adjusting them to the requirements of the society to provide them with better access to their culture and traditions. In South Africa, this has been evident during the SAMA conference of 2007, where various museums in South Africa shared experiences and strategies on how they are adapting to the challenging technological era, regardless of the little resources they have at their disposal for the benefit of the society and the future of our museums (South African Museums Association, 2007).

### **2.7.1 The case of Robben Island Museum (RIM)**

The National Heritage Resources Act of 1999 takes into consideration the immaterial cultural values and living heritage (Deacon, 2004). This legislation came into practice only after Nelson Mandela's speech during the national heritage day celebration at Robben Island on 24 September 1997. The speech was motivated by the state of museums in South Africa in the democratic dispensation, which still held onto the apartheid and colonial administration in which buildings and monuments were recognised as white heritage (Deacon, 2004) .

The day also marked the opening of the RIM. Nelson Mandela criticized museums for degrading, excluding and marginalising black people and for continuing to portray blacks as lesser human beings (South African History Online, 1997). Gibson (2019:14) asserts that from that day museums in the country has made vital changes in the transformation of the sector, by supporting

community-based museums. Currently, these institutions are trying to adopt digital technologies to pave a way for the transformational agenda (Gibson, 2019:14).

Deacon (2004:2) argues that the acknowledgement of the significance of Robben Island's immaterial heritage did not provide clarity of the connection between the allegedly representation of the site, other forms of heritage importance and safeguarding of historical material. This presented a numeral of challenging encounters for the preservation development team (Deacon, 2004).

Currently, RIM provides more than encompassing the terrors of apartheid in memories of the past. The independent victory of South Africa needs a tragic past to persevere, not basically as a historical point but as a decisive authority at work in the stories of the present. The physical space of Robben Island may no longer house political prisoners, but still embraces the impacts and recollections of the past (Marback, 2004).

## **2.8 IKS and digital technology in the decolonization of museums**

Decolonizing knowledge will not be achieved without changing the mind-sets of the society (Bernal, 2021:43). We should acknowledge and respect other cultural beliefs, including traditional pyramids and other systematic versions. Displaying and telling other cultures within the museum environment should be determined by systems of certainty and technologies of classifying other global societies and spaces (Tolia-Kelly & Raymond, 2020:3).

To document a culture of a certain community, one must directly involve that community as sources of knowledge, to guard against false assumptions and narratives in museum catalogues. Turner (2015:20) asserts that information about objects in early ethnographic research excluded, through a variety of ways, the validity of the knowledge of those who produced them. Even in collaborative, inclusive atmospheres, museum catalogues are often the last places to see change (Turner, 2015:19).

### **2.8.1 The case of Iziko Museum**

Gibson (2019:18) posed this crucial question in her thesis: In what way can technology play a significant role in the course of decolonizing information creation in South African museums? This question was triggered amongst others, by the discrepancies the researcher found in the information of the Zulu culture catalogue cards, in the Iziko Museum, which disregarded indigenous holders and the communities as bears of the knowledge (Gibson, 2019:19).

This study further asks: Is there adequate involvement of IK holders in the digital projects of the IK currently in our museums? Are the bearers of knowledge even aware of the digital projects undertaken in their local museums? Gibson (2019:20) suggests that, if perceived in collaboration with indigenous people, digital technologies have the capacity to provide opportunities to yield other collections that concurrently uncover the created environment of all knowledge while accepting various descriptions. Gibson concludes that technology alone does not have the ability to solve the colonization inheritance of this country (Gibson, 2019:20).

The researcher suggests that two knowledge systems: IK and museums can be used together with digital technology, to deal with the injustice and create an inclusive environment for the previously marginalised people. IKSDCs mostly present knowledge in methods that disregard the minority. These centres constantly misinterpret how indigenous peoples wish to define and pursue their heritage (Turner, 2015:21). Therefore, IKS cannot be excluded from the colonized theory.

Firstly, due to the fact that most museums as curators of knowledge, fail to adequately involve the indigenous community as bearers of knowledge. This is a call for South African museums to create a participatory environment and work closely with the community knowledge holders in the digitization of IK to assist in shaping the role of museums. Greene (2015:5) emphasise that the engagement with members of source communities, descendants of the people among whom many museum objects originated, has stimulated an interest in exploring the influence of indigenous people in the assembly of collections.

Secondly, under apartheid IK in South Africa as well as practitioners within such systems, were marginalized, suppressed and subjected to ridicule. This had profound negative effects on the development of South Africa's economy and society, resulting in the distortion of the social, cultural and economic development of the vast majority of its people (Department of Science and Technology, 2004).

### **2.8.2 The case of Smithsonian's National Museum of Natural History**

In the mid-19<sup>th</sup> and early 20<sup>th</sup> centuries, material heritage was collected for Smithsonian museum, from indigenous people. The knowledge within those communities was often measured against Eurocentric preferences that saw IK as the object of quantifiable culture research, rather than a contributor to it (Turner, 2015). The criteria in object narratives involved assumptions that have caused lack of IK in museum records, because IK was disregarded due to its alleged untrustworthiness; it was matched against Eurocentric research, where the investigator was authoritative. Today, the above constitute a violation of the indigenous research ethics.

Museums have become sensitive and even unsafe spaces for indigenous people; information about objects in ethnographic research excluded, through a variety of ways, the validity of the knowledge of those who produced them. This was done to functionally organize the growing collection of objects but it also represents the epistemological tendencies that situated the knowledge of indigenous peoples outside of the official record.

A decolonization of ethnographic documentation approach calls into investigation the constant and consistent museum classifications and proper information arrangement and preservation. Access to information in museums for source communities is currently progressively available. These regulated practices currently existing in museums records systems should be investigated to know if and how they can be transformed.

### **2.9 Indigenous Knowledge Systems Development Centres (IKSDC)**

IKSDCs communicate IK concerns within their plans and events. These centres emphasis on accepting and running natural assets and delicate ecosystems (Nakata & Langton, 2005:12). The

importance of these centres is that the communities are included; they can decide how their knowledge can be used. Pilot (2005:38) further points out that the whole community can decide what their IK centre becomes to the community (Pilot, 2005). These IKSDCs includes our libraries, archives, museums and community cultural villages.

The core purpose of IKSDCs is to provide access to awareness and data through centralised archive and data services, including language learning and information knowledge projects. These centres enable the acquirement and safeguarding of indigenous knowledge. They offer teaching and backing to public participants involved in attaining and conserving information and offer adequate accessibility to recreational events for all within the community (Nakata & Langton, 2005).

## **2.10 The importance of digital technology application in museum collections**

Museums have a history of several centuries. They are institutions that keep knowledge alive for all of us. On this long journey, many things have changed and museums could not remain unaffected. The evolution of technology creates high expectations for all of us. Is it possible for the museums to remain unaffected by these changes? And what does this mean for their survival? It means that in order for a museum to meet these increasing demands due to digital technologies, it should become more creative and innovative (Papadopoulou, 2016:11).

Bello and Mohamed (2018) argue that the use of digital storage media in museum collection (artefacts) has many benefits and limitations. Bello and Mohamed (2018) further acknowledge the vital contribution of technology in conserving and safeguarding museum collection, which are: easy record accessibility, recovery, safeguard of objects against stealing, fire, damage, temperature, humidity and the creation of revenue.

The researcher suggest the use of digital technology in museums, during the current COVID-19 pandemic, enabled people to access museum services safely from the comfort of their homes. The pandemic has taught us that digital technology is currently the new normal and fits with the initiatives for the Fourth Industrial Revolution (4IR). The pandemic response requires us to keep a physical social distance and therefore, online access to museums and other social activities is the way to go while this pandemic still persists.

### **2.10.1 The case of Museum and House of Culture in Tanzania**

The introduction and usage of ICT in Museum and House of Culture started in the year 2000, when the museum archive was created. ICTs use in museum was precisely focused to high-ranking supervisors and other staff were not provided with the chance for experience to computer technology; computers were kept in a special room and were password-protected so that only allocated staff could utilise them (Fred & Nawe, 2017).

The researcher argue that the approach to restrict employees in the usage of ICT tools create an unhealthy environment, which hinders public service delivery. This measure also raises questions of; how a national museum would operate in that manner in this day in age, where the technology is constantly emerging and challenges institutions and countries to be on par with its constant

changes and demands? The museum should train and be equipped with employees with necessary skills to manage and utilise digital tools for the purpose of personal career development of staff.

The Museum and House of Culture had major challenges of the management and updating of digital tools; the communication links are non-operational and mostly inactive. For example, the website had some outdated and inactive communication links (Fred & Nawe, 2017). The museum should improve museum information through using websites, audio visual materials and social networks media. The museum should also utilise reliable communication channels to interest its audience.

Fred and Nawe (2017) conclude by asserting that Museum and House of Culture should have had a clear staff development plan and manage the information movement in all museum operations through developing a suitable internal information and ICT policy.

## **2.11 Policy frameworks underpinning the study**

The researcher identified the relevant policy frameworks that underpinned the research:

### **2.11.1 Indigenous Knowledge Systems Policy (2004):**

IKS policy is a qualifying guiding document to encourage and support the contribution of IK to socio-economic advance in South Africa (Department of Science and Technology, 2004). The IKS policy also seeks to address the key concerns of the country, namely to harness local resources for innovation through the safeguarding, promoting, improving and managing IKS.

#### *Purpose*

As stated by the Department of Science and Technology (2004), the purpose of the IKS policy is:

- To stimulate and strengthen the contribution of IKS to social and economic development in the country.
  - To recognize, affirm, develop, promote and protect IKS in South Africa.
- Interfacing IKS with other Knowledge Systems (Department of Science and Technology, 2014).

#### *Key components*

- Building institutional capacity.
- Mainstreaming IKS in Education and the national qualification framework.
- Integration of IKS in the national system of innovation.
- Research and development strategy (Department of Science and Technology, 2014).

The IKS policy is a powerful tool for the knowledge holders and the indigenous community, therefore, they should utilise it to fight the ridicule, marginalisation and the misuse of the IK that still exists amongst our society, and to educate our children because they are the future generation of society. Recently, in 2020, Mr Mahlangu, a Ndebele man, was publicly humiliated by manager of a shopping mall in Gauteng for wearing his Ndebele attire. It is clearly defined in the

constitution of the country that everyone has the right to express themselves in their own culture be it an attire, language or other forms as long as they are not infringing on other people's rights (Constitutional Assembly, 1996a). Ironically, the same manager admitted to being a Motswana on national TV news and it appears that he does not recognise, value and respect other people's cultures.

### **2.11.2 The South African IKS Act 6 of 2019:**

The purpose of this Act is: to provide for access and circumstances of access to information of ethnic people; to provide for the acknowledgement of prior learning; to provide for the enabling and management of IK-based invention and; to provide for issues related thereto (South African Government, 2019). This Act also gives provision for the IKS to be recognised academically.

It enables IK holders and custodians of this knowledge to learn about their rights to their knowledge. It also supports IK holders to understand how to apply for intellectual property for recognition of their work to protect it from misuse. Lastly, this Act provides ways in which, this knowledge can be rightfully accessed from the indigenous communities without infringement of their rights.

### **2.11.3 White Paper on Arts, Culture and Heritage (1996):**

The purpose of the White Paper is to encourage the arts, culture, heritage and literature in their own right, as important and treasured areas of social and human effort in themselves. It influences the organizational provisions necessary to apply a new idea in which they are established, experienced and celebrated among all our people, and it points the changes necessary for current organizations to provide assistance. It also deals with the rights of experts in these areas (Department of Arts and Culture, 1996).

For example, South Africa has never had a National Museum Policy. The National Museums Draft Policy was developed and introduced in 2014 by the DAC. Before then, all museums in South Africa lacked co-ordination and that had affected the provision of museum services at all levels. Community owned museums, which were not within the national framework still struggled to receive government funding, such museums depended only on donations to be able to operate. This resulted in museums collections being catered for particular cultures and being biased.

A lack of transparency resulted in people not having adequate access to museums. The human rights of the South African law, which is stipulated clearly in the White Paper of 1996 states that, access to, participation in, and enjoyment of the arts, cultural expression, and the preservation of one's heritage are basic human rights, they are not luxuries nor are they privileges (Department of Arts and Culture, 1996). Our culture is so diverse and it makes our country unique in the world. Therefore, it is important to have a cultural policy that encompasses all the components of a policy circle framework to assist in proper formulation of policies, in which challenges and problems can be identified.

### **2.11.4 National Museums Policy Draft (2014)**

The purpose of the National Museums Policy Framework is to change the running and methods of South African museums in terms of access, restore, fairness, social unity and nation-building to

permit the sector to competently protect our national heritage and provide adequate support to national growth (Department of Arts and Culture, 2014). Surprisingly, to date, this policy is still a draft and this position of the policy raises the following questions: Are the government and policy makers thinking about the future of our museums? Since 2014, how long does it take to have a policy document approved? Another question is the manner in which the draft policy is designed, it speaks directly to national museums in our country and totally excludes mandates and functions of our provincial and local museums.

This policy is designed as a one size fit all approach document, and this approach does not fit in our museums, it is a good document on paper but not in practice. One can just pick from the aim of why this draft policy exists, it is mentioned that the draft policy enables the sector to preserve national heritage, what about local ethnic and historical heritage, both tangible and intangible. Our museums are vast and differ in terms of the collections they house and their functions. For example, we have cultural history museums and also strictly cultural or historical museums. Therefore, the researcher argue that a policy of this stature should be clear and cater for the functions and management of the various types of museums we have in our country.

## **2.12 Summary of gaps in the literature**

IK is fundamental and can be utilised in the decolonization of museums. This gap in research was drawn from Raphesu (2010), who alludes that IK plays a significant part in different aspects of life; it is also assisting in solving problems and making decisions in the society, locally and globally. IK is capable of assisting a museum to stay relevant and play its role in the local community it serves, through the integration of the IKS in museum exhibitions, educational programs and research, with the involvement and assistance and of knowledge holders.

The exclusion of the bearers of knowledge by museums and libraries needed to be investigated further to find out how these institutions are tackling this issue, as alluded by Turner (2015:21) that libraries and museums continue to misrepresent how indigenous people wish to define and pursue their inheritance. Under apartheid, IK in South Africa as well as experts in those structures were disregarded, oppressed and exposed to mockery (Department of Science and Technology, 2004). Gibson (2019:19), during field work at Iziko Museum, discovered that there was a lack of involvement of IK communities as knowledge holders in the documentation. This gap need further research to explore the current status of IK holder's involvement in museums and the recognition and protection of IKS.

Digital storage does not provide long term archival storage (Bello & Mohamed, 2018). The researcher argued this statement by pointing out that relevant digital preservation strategies that are implemented in museums would have the capacity to meet the long term archival requirement for museum collections, only if those requirements are carefully aligned to a particular museum's technological needs. The study suggested an enquiry to find out what had been achieved in museums or by technology experts and researchers to ensure the long term digital archival storage of collections.

Butcher (2003) further states that some African countries have a lack of skills in ICT usage, which then obstructs most Africans to enter into ICT potentiality. The study suggest a further research on the plans and strategies currently in place in those African countries, to empower the previously marginalised people with basic ICT skills for the advancement of African countries to be on par with other developed countries. The fact is that this position is rapidly changing as Africa becomes more technologically capacitated and we are moving slowly from the digital divide, through the new emerging technologies that are currently at our disposal due to the fourth industrial revolution (4IR).

### **2.13 Conclusion**

Reviewed literature in this study revealed that ICTs can assist in bridging the gap between the museum and its diverse society, and is able to create adequate access to IK. The conceptual framework underpinning this study developed and discussed the relevant key concepts of the study. This chapter has further explored IKS, museums and digital technology with the capability and means to decolonize museums.

For the notion of decolonization to be fully achieved in our museums, cultural historic institutions as centres of knowledge have the role to ensure full participation of the indigenous society as bears of knowledge in the digitization projects of collections. Literature has exposed that the decolonization of museums is not a one-size-fits-all approach as situations differ from one museum to the other and decolonization is a momentous inimitable task that will require time.

The involvement of knowledge bearers in the documentation and preservation of their cultural heritage assists museums to avoid assumptions through stating facts or events as they occurred. The notion of inclusion also defines the role of museums in the multicultural society. People with disabilities require adequate access to museums to partake in the consumption of museum services. Critical policy frameworks that support the study have been critically discussed. Gaps in the literature have been identified, calling for further research to add to the existing body of knowledge.

## CHAPTER THREE

### PHILOSOPHICAL UNDERPINNINGS OF THE STUDY

#### 3.1 Introduction

Theories are considered to be important for their easing of the methodical handling of an issue, their logic, creating potential, their clarification and estimate of certain features of human conduct, and their capability to abstract our information to the greatest vital and world-wide concepts, thereby demonstrating underlying patterns and theoretical relations (Davison & Díaz Andrade, 2018). The investigation entrenched the cultural theory, new museology, and digital culture to form the theoretical framework of the study.

In this chapter unpacked theories to demonstrate their relation to the phenomenon under investigation, the impact of the digital technology implemented for the Mafikeng Museum indigenous collections. Davison and Díaz Andrade (2018) further emphasise that a theory should also be proper to the framework, where it is applied if we are to grasp the relevant understanding about the phenomenon explored. An unsuitably applied philosophy could be counter-productive since the expectations that structure the theory may not exist in a context different to the one where it was generated.

Cultural theory, new museology and digital culture are relevant theories to this current study, motivated by the Mafikeng Museum's utilisation of digital technology for access, safeguarding and curation of indigenous artefacts. In this chapter, the researcher discussed the epistemological, ontological and axiological assumptions of the study. The epistemology of the study provided a reality from participants in relation to the impact of digital technology implemented. The ontological position is provided to understand the use of digital technology by the museum. Ethical significance rooted in the indigenist theory formed the axiological stance of the study; a research report is made available to the museum, participants and the community.

#### 3.2 Cultural theory

Cultural theory proposes that the opinions of any specific individual on matters are moulded by the kind of social groups they form part of (Tansey & O'riordan, 1999). Edgar and Sedgwick (2005) argue that culture is the complex everyday world we all encounter and through which we all move. Culture begins at the point at which humans surpass whatever is simply given in their natural inheritance and it is the way of life adopted by a group of people.

Culture is not solid and lasting as it is always changing as each generation contributes its own experience. For example, most younger generation adopt the slang of language from musical videos, which are also promoting a certain style of dress, values, expression and attitude for our young people. This statement ascertains that culture is also not something you are born with, it is learned from family, school, television and media. Therefore, schools, community organizations and parents also play a big role in instilling a sense of culture in their children.

South Africa is called the rainbow nation because it has so many cultural practices. Cultural practices are how we talk and behave, the way in which we pray, the special things we do when we have festivals, births, deaths and we have groups with different languages, religions, race, customs and traditions. People are united by being South African and their ways of life form part of our country's identity and contribute to the promotion of our South African culture and identity. It is for this reason that the government has a project called Proudly South Africa.

The initiative encourages South Africans to value each other, local products and the country itself, as well as create tolerance for people from different cultural backgrounds to live together as one community. Allowing other cultural symbols and practices to enter into our own cultures and co-exist next to us or control us, allows us to understand that there is no stereotyping in the understandings of culture. In any society, a variety of cultures exist however, in South Africa, we cannot quantify how many cultures we have due to the fact that we have diverse cultures, and culture is evolving with time and it is also influenced by the technological era.

In the museum environment, the documentation, curation and display of exhibitions in a traditional or modern way constitutes a cultural theory adopted by that particular museum. The changing museology practices due to the emerging technologies in museums leads to the new way of documenting, curating and displaying exhibitions and provision of services, hence the new museology theory and the digital culture theory. The researcher argued that these theories are relevant to the study and evident at the Mafikeng Museum.

### **3.3 New museology theory**

The new museology began in the late twentieth century and marked a significant shift in museums attitudes toward society. Museums of all types became more socially relevant in their curatorial and public programming and reacting to social issues. Being accessible to all types of visitors became the main concern, with museums increasing their programs in amazing methods that seemed more like popular entertainment and community centres (Bautista, 2013:2).

Marstine (2006) asserts that the new museology holds that, though museum workers commonly naturalize their strategies and measures as per specialised practice, the resolutions these personnel make reveal fundamental value structures that are determined in established descriptions. The new museum theory is about decolonization, by giving those characterised control of their traditional heritage. The above statement by Marstine (2006) acknowledges that IK holders play a major part in the decolonization of museums, as bearers of knowledge, their involvement in museums is fundamental for communicating and documenting their own narratives.

Understanding the shifting nature of museology currently, assists to clarify how and why museums are generating new experiences not restricted to physical or local spaces, how they are supportive to the transparent culture of participatory engagements; still upholding influence and knowledge (Bautista, 2013). Marstine (2006) argues that the new museum theory is not solid, it embraces various perspectives.

The researcher suggests that the new museology theory influences the notion of digitization and participatory culture in museums, by putting into consideration the museum visitor and inclusion of the custodians of knowledge in decisions making with regards to museum collections management processes. In this study, the contribution of indigenous community in the digitization of museum artefacts was explored and analysis of the results is discussed in Chapter Five.

### **3.4 Digital culture theory**

Digital culture is transforming museums in the 21<sup>st</sup> century as they strive to keep up pace with the emerging technologies driving cultural and social changes played out not only in today's pervasive networked environment of the internet and specifically the web, but also in everyday life (Giannini & Bowen, 2019:173). Cameron and Kenderdine (2007) assert that digital culture is of rising importance and it will dominate the future of our institutions, our communities, and global arts exchange.

Giannini and Bowen (2019:177) point out that museums are facing new challenges as new digital reality dominates human attention and existence. Looking out from within the museum, the insiders, the museum professionals; are thinking about what their museum should be or become. Cameron and Kenderdine (2007) suggest that digital technology should not be understood of as a liability but as a worthy addition of your institution, it is culture shaped by digitization.

Bautista (2013:5) alludes that digital era has produced a sharing culture mainly with the younger generation that is familiar to visual temptation and an abundance of easily accessible information. Museums have successfully managed a balance between upholding their traditional, scholarly standards of collection, research, conservation, and exhibition, while at the same time, trying to meet the needs of a much wider and diverse public.

Van Dijk (2020:190) argues that digital culture shows that the extent of expressions increases exponentially. The same goes for the rapidity of creation, transmission and trading. What are the concerns of a culture that bursts in this manner? How does this impact the value of knowledge? Does it permit additional information and improved acceptance of the cumulative density of our society? What will be the penalties of this digital culture? Digital culture is evidently shifting the everyday media usage.

Digital culture theory in this investigation constituted the connection amongst people, in this regard, the custodians of knowledge, the museum professionals and the technology. In a digital culture, museums work together with community, rather than for the community (Van den Akker & Legêne, 2017). This statement is proven in the analysis of the results of the study, in which views of the participants were interpreted with regards to the digitization of indigenous artefacts.

### **3.5 The epistemological, ontological and axiological assumptions of the study**

Three relevant philosophical underpinnings of the study are discussed in this section. The position of each philosophical underpinning is clarified to provide an understanding of their relation to the study.

### **3.5.1 Epistemological position of the study**

Interpretivism formed the epistemological philosophy of this study. According to interpretivism epistemology, there is more than one reality and these realities should be interpreted (Kivunja & Kuyini, 2017). The study applied the exploratory research approach through conducting qualitative interviews to interpret the reality of the study, in interpreting viewpoints of IK holders and museum professionals on the use digital technology at Mafikeng Museum and how the IK holders benefited from this project.

For indigenous people, for whom the implications of colonization have created swift transformation, museum objects symbolise measurable heritage and integrate the lives and understandings of descendants. These artefacts are also critical connections to the future for people, whose way of life has transformed intensely and those whose identity rests on past traditional knowledge (Brown & Peers, 2005:5). The Phanzi Museum in Durban is one example of a museum, which houses many collections with no information or labels. Tour guides takes the users through the meanings and animate these stories.

### **3.5.2 Ontological position of the study**

The current introduction of digital tools to access, preserve, and curate indigenous artefacts at Mafikeng Museum formed the ontological position of the investigation. This introduction to ICT also influenced museum professionals to change their traditional ways of collecting, documentation, storing and educating and exhibiting indigenous collections. This ontology was explored to provide an understanding on the digital technology implications, prospects and challenges within the museum. Through providing responses from participants, findings of the investigation resulted from the objectives of the investigation; to investigate and unpack the effects of the implemented digital technology on indigenous artefacts and to explore prospects and challenges of the digital technology implemented at Mafikeng Museum.

### **3.5.3 Axiological position of the study**

The indigenist theory in the form of a research report emanated from the findings of the study for the benefit of the people and the world as a way to appreciate and value participant's contribution, time, and efforts. The mentioned approach is ethical and valuable for this study. Wilson (2001) allude that the indigenous paradigm emanates from the essential view that knowledge is rational, it is shared with all creation. It is not just with social interactions or with the study participants that the researcher dealt with, it involves the cosmos, animals, plants and the earth that we share this knowledge with.

## **3.6 Conclusion**

The chapter provided the theoretical framework and relevant theories to the study. The theories of cultural theory, new museology and digital culture are motivated by Mafikeng Museum's introduction of digital tools for access, safeguarding and curation of indigenous artefacts. The way of documentation, curating and displaying of exhibitions in a traditional or modern way, formed a cultural theory of the museum. The new museology theory influenced the notion of digitization and participatory culture in museums. The digital culture theory in relation to the study constituted

the relationship between people, in this regard the custodians of knowledge, museum professionals and technology.

The researcher provided a relation between the epistemology, ontology and axiology assumptions of the study as follows: the epistemology aspect of the study unpacked the realities of the impact of digital technology; the ontological aspect provided an understanding on the impact digital technology created. A research report available to the museum, participants and the community provided the indigenous ethical considerations and formed the axiological stance of the study.

# **CHAPTER FOUR**

## **RESEARCH METHODOLOGY**

### **4.1 Introduction**

Research or an investigation is directed by a set of beliefs. This worldview is also referred to as a paradigm (Killam, 2013). Kivunja and Kuyini (2017) outline that a study hypothesis fundamentally reveals the researcher's views about the world that she/he exists in and wants to exist in. In this study the researcher used the qualitative inquiry and conducted semi-structured interviews and held focus group discussions with museum professionals and IK holders. Responses were recorded and thematic techniques used to analyse data, through identification of relevant themes into groups, these themes are discussed under the findings of the study. The research methodology is discussed in detail below.

### **4.2 Methodology**

Rehman and Alharthi (2016) define methodology as an approach, plan of action, method or strategy that states one's selection of investigation techniques. Kivunja and Kuyini (2017) add to the definition by alluding that methodology is a broad term, which discusses the research approaches and measures utilised in a study that is well intended to discover something. Grix (2018) argues that methodology is focused with the discussion of how a specific part of the investigation should be conducted.

A methodology is motivated by the researcher's ontological and epistemological beliefs (Killam, 2013). Rehman and Alharthi (2016) conclude that methodology guides the researcher in deciding what type of data is required for a study and which data collection tools will be most appropriate for the purpose of his/her study. It is the methodological question that leads the researcher to ask how the world should be studied.

The validity of the study is ensured through qualitative inquiry, utilizing document analysis, focus group discussions and semi-structured interviews conducted from museum professionals and IK holders. These participants were sampled utilising a non-probability selection method of purposive sampling, to obtain information needed for the study. Responses were recorded and applied through the interpretive approach by using a voice recorder and note taking. The qualitative method can help the investigator to have access to opinions and understand the significance of the specific issues inside the study field (Wolcott, 1992). Semi-structured interviews and focus groups were conducted inside the Mafikeng Museum gallery and two interviews were conducted virtually.

Five research questions drive the study: How does the implemented digital technology impact on indigenous artefacts? Are there benefits available for the custodians and producers of the indigenous knowledge and their descendant, in the digitization of indigenous artefacts at Mafikeng Museum? How is ICT relevant to the delivery of service in Mafikeng Museum? Which digital

tools and methods are relevant for documentation and storage of indigenous artefacts? What are challenges and prospects in the digital technology in the access preservation and curation of indigenous artefacts at Mafikeng Museum?

### **4.3 Research design**

The research investigated the use of digital technology and its impact in the access, curation and preservation of indigenous artefacts, from the viewpoint of the Mafikeng Museum professionals as implementers of the technology. The IK holders were interviewed as bearers of the knowledge housed by the museum and the reason was to investigate their participation in the digitization project of indigenous artefacts.

The purpose of the entire study was to form a base for museums to be cautious and certain in decision making when it comes to the introduction of digital technology in the curation, preservation and creation of adequate access to indigenous artefacts.

To answer research questions, the qualitative method was considered as an approach relevant for the study. The researcher developed two separate interview schedules for the museum professionals and knowledge holders and developed an interview schedules as open-ended questions divided into three sections namely: opening questions, main questions and closing questions.

Participants of the study consisted of 10 museums professionals and 10 knowledge holders and a purposive selection method was used to choose the population of the investigation. Focus group consultations were also conducted from 14 participants, out of the total number of 20 initially sampled and interviewed participants.

### **4.4 Population of the study**

The study applied a non-probability sample procedure through purposive selection to assist in choosing relevant respondents for the study. Purposive sampling method refers to the measured selection of an informer due to the abilities the informer holds. Simply put, the researcher makes decisions on what is required to be acknowledged and searches for individuals, who can and are prepared to offer the evidence by virtue of knowledge or skill (Tongco, 2007:147).

The study sampled and interviewed 10 Mafikeng Museum professionals and 10 IK holders. According to Etikan *et al.* (2016:4); Tongco (2007:147), the purposive sampling technique does not need fundamental philosophies or an established number of exactly how many participants constitute a purposive sample, rather the importance is that the required information was attained. The study did not include the visitors (users) perceptions of Mafikeng Museum.

The purposive selection of participants focused mainly on getting information from the implementers of the technology and conservers of collections at the museum, and from the indigenous bearers of knowledge and objects housed in the museum. Interviews were conducted both physically and virtually on different dates, due to observing protocols for Level 3 of the COVID-19 pandemic. Each interview took forty (40) minutes.

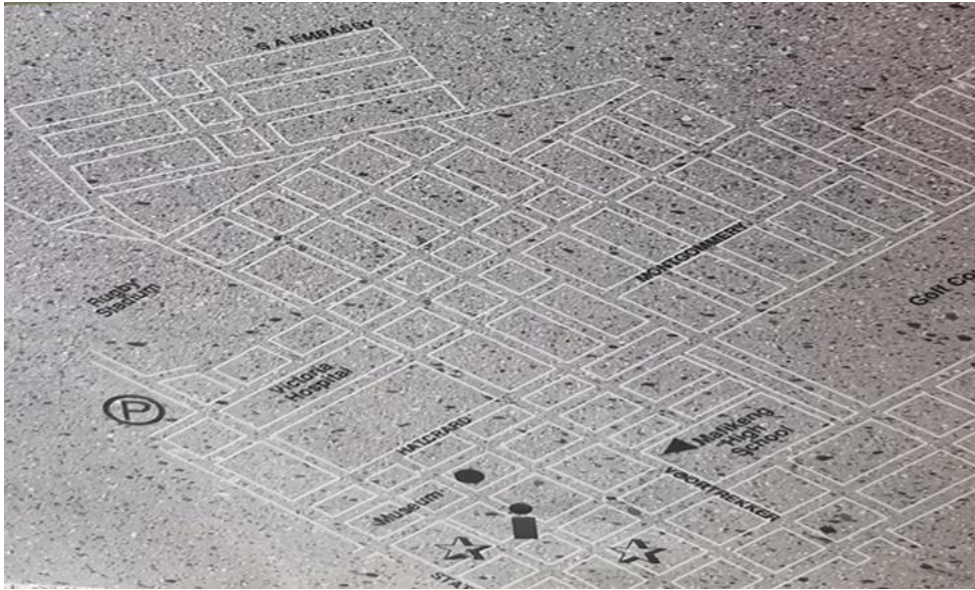
#### 4.5 Brief discussion of the study

The museum is a cultural history museum, which opened its doors to the public in 1975. Mafikeng Museum, GPS coordinates 25.8634° S, 25.6421° E, is the study area found in the heart of Mahikeng, within the Mahikeng local municipality. Mahikeng is the capital city of the North West province and it was once a Bechuanaland Protectorate until 1965 and it lies on the border of Botswana. The museum is named after the town, Mahikeng, which means a '*Place amongst the Rocks*'. The museum is housed in an old town hall built in 1902, completed in 1903 and officially opened in 1904.



**Figure 2:** Mafikeng Museum, housed in the 1902 Town Hall (Mafikeng Museum, 1985)

The museum houses over 40 000 collections, ranging from paper based material, metal objects, wood, clay, grass and paintings. It is a provincial museum and the only museum in the province that falls directly under the North West Provincial Department of ACSR. Therefore, the museum is a public institution dedicated to the safeguarding, protection and advancement of diverse cultural heritage and providing information and research services to the community.



**Figure 3:** Old map of Mahikeng (Mafikeng Museum, 1985)

#### **4.6 Data collection**

The importance of information gathering in a qualitative investigation is to provide proof for the area it is exploring. The substantiation is in the form of information people have provided of the experience (Polkinghorne, 2005:138). During data gathering, the information was collected through semi-structured interviews, focus group discussions and document analysis. These data collection techniques are discussed further in the following sections.

##### **4.6.1 Semi structured interviews**

Longhurst (2003:103) asserts that a semi-structured interview is a verbal interchange, where one person, the interviewer, attempts to elicit information from another person by asking questions. Although the interviewer prepares a list of predetermined questions, semi-structured interviews unfold in a conversational manner offering participants the chance to explore issues they feel are important.

The researcher started the interview process by working closely with the museum to identify participants. These participants consisted of 10 museums professionals and 10 community knowledge holders. The participants scheduled their own times for the interviews. Interviews were held at the Mafikeng Museum gallery, per the arrangement the researcher made with the museum management. The choice of venue at times posed a distraction as we had to pause the processions of the interviews because visitors would come into the gallery for the purpose of visiting the museum.

The researcher clearly clarified the informed consent to partake in the investigation and endorsement was given by participants through signing of forms. A voice recorder and note taking are used as resources to record data. Polkinghorne (2005:142) asserts that it is a standard practice in qualitative interviewing to audio record the discussions. Immediately after each interview, the

researcher transcribed the recording in to a written format. Longhurst (2003:111) points out that taking these notes is, in a sense, a form of data analysis for information on qualitative data analysis.

#### **4.6.2 Focus group discussions**

Krueger and Casey (2002) emphasise that focus groups can be a powerful learning tool. They can be used to assess needs and assets, develop social marketing efforts, pilot test ideas and products, and evaluate services or programs. The researcher conducted focus group discussions with 14 participants from the total of initially 20 sampled participants from the semi-structured interviews. The focus group was divided into two groups and the researcher made arrangements with the museum to provide space, as a neutral centralised location and an institution that was under investigation. Participants were interviewed in their own language, Setswana. The researcher informed participants why they are recorded and explained how and where the data can be accessed. Informed consent was well explained to participants and approval was received through signing of the forms.

The researcher applied the approach to divide groups into two, this made it easy for the researcher to concentrate on a particular group, to collect data and verify the responses emanating from the semi-structured interviews previously held. During the focus group discussions, more in-depth points emerged. Discussions were recorded through a voice recorder and notes taking for analysis. The researcher was able to form themes from these interactive collective discussions.

#### **4.6.3 Document analysis**

Document analysis is a methodical way for revising or assessing written and electronic documents (Bowen, 2009:27). The researcher began the process by ensuring that the primary sources used in the study and where it was not possible, the researcher resorted to justified secondary data. The researcher reviewed and analysed various documents which included, journals, books and publications that provided relevance to the new museology, the digital culture, and the cultural theories in museums. The following section is the discussion of the procedure the researcher took to analyse data collected.

### **4.7 Data analysis**

The study applied the thematic approach to analyse data. A thematic inquiry is an approach of finding out what is common to the manner an issue is communicated or transcribed and making sense of those commonalities (Braun & Clarke, 2012). The researcher started the data analysis procedure by familiarising herself with the information collected and coding of communication (texts) emanating from the semi-structured interviews, focus group discussions and document analysis.

Secondly, the researcher utilised mind mapping to group texts into themes according to similarities of what the participants were saying to provide clear understanding and to saturate information, these themes were then reviewed and renamed. Original recordings and notes, together with themed texts are stored in a hard drive. Analysed data formed the findings of the study. These findings are discussed in Chapter Five and Six , they addressed research questions of the study.

#### **4.8 Pilot study**

Lowe (2019:117) alludes that a pilot study is a small feasibility study designed to test various aspects of the methods planned for a larger, more rigorous, or confirmatory investigation. A pilot exercise for the main study was conducted at Klerksdorp History Museum, located within the Matlosana local municipality in the Dr Kenneth Kaunda district of the North West province. The museum is housed in a prison built in 1890. In 1973 the Old Prison was converted into a museum. The purpose to conduct this pilot study was to test that the relevant methodology was applied and that the study asks the intended inquiry questions to the relevant population of the research. The Klerksdorp Cultural History Museum assisted with the selection process to identify relevant participants for the pilot study.

The principle advantage of undertaking a pilot study is that it affords researchers with an opportunity to make changes and reviews in the main investigation (Kim, 2011:2). Lowe (2019) points out that another practicality purpose may include investigating the intended information and gathering tools or approaches for all types of data for value and relevance. If a qualitative research is undertaken, the interview guide produces the type and depth of data needed to answer the study questions. The first comment from participants was that the interview schedule needed to be amended in such a way that questions are separated, one part of questions designed for the museum professionals and the other part of the schedule should entail questions aimed at knowledge holders. The other comment was that the questions should be simpler, clearer and concise.

The suggestions from participants were considered which then enabled the researcher to correct the tools and improve questions before undertaking the main study. All the changes were made in the interview schedule and in the methodology of the study. Test lessons are purposed to notify succeeding studies (Lowe, 2019:118). The researcher learned the issue of respect towards other people's time and cultural values, participants scheduled their own time for the interview and they chose not to answer some of the questions. Lastly, the pilot exercise undertaken, assisted in the construction of effective, working, and relevant methods for the main study.

#### **4.9 Ethics considerations**

The researcher applied for ethical clearance which was approved by the NWU Research Ethics Committee before commencement of the study, and the ethical prescripts were adhered to as prescribed in the NWU research ethics policy. To reduce the health risks associated with the COVID-19 virus, necessary measures were put in place. Two virtual interviews were also conducted as physical interviews were not possible at that time.

Indigenous research ethics were adhered to and applied in the study; they are discussed in the following section. Langill (1999:11) asserts that IK research is a difficult activity with various ethical and methodological issues to think through when arranging a rational effective approach to working in local communities.

#### **4.9.1 Indigenous research ethics**

There are three basic issues to be considered when undertaking IK research. First, the involvement of local people is crucial. Conventional research has tended to be measured by strangers with little participation of indigenous people in decision-making and little consumption of IK. Second, sensitivity to the variation of knowledge amongst the community based on gender and other factors is central. Third, safeguarding local rights to knowledge is an important matter. Indigenous people want control over their knowledge and resources, and want to be properly reimbursed for sharing it (Langill, 1999:12). The study applied the following research ethics:

#### **4.9.2 Permission**

A request for approval to undertake a research at Mafikeng Provincial Museum was made in writing; signed by the Director of the IK Centre. The museum approved the permission in writing. The selection of the population for the study was done fairly, through consultation with the management of the museum.

#### **4.9.3 Informed consent**

The study ensured adherence to the conditions on the informed consent form developed, through clearly explaining the form to participants, who approved consent through signing of the informed consent forms. Anonymity was ensured as described in the form, with regards to not include their names in the study. Confidentiality of the participant information was also guaranteed. A choice was given to participants as stated in the consent form, to take part voluntarily and withdraw from the interview when they felt the need to do so.

#### **4.9.4 Joint venture with community**

The inclusion of source community in research with collections and consultation for exhibition developments provides opportunities to articulate perspectives and narratives denied by the dominant society (Brown & Peers, 2005:6). The researcher ensured involvement of local community knowledge holders during the study through purposive sampling to get their perspectives to ensure full participation, protection of their cultural and IK and to assist in building bridges between the museum and the community. Lastly, this was done to obtain information needed for the study as stated in the aim and objectives of the study.

#### **4.9.5 Reciprocity**

A reciprocity principle of the indigenous paradigm was applied in the study, whereby the researcher ensured that the research finding report was shared with the museum as a way of showing respect, creating mutual benefit and acknowledgment for participant's efforts, time and experiences and wisdom in shaping the study. The findings report is beneficial to the museum, participants and the community. Indigenous paradigm considers knowledge as a gratitude and the receivers are expected to react in ways that show respect for the collective, in how that gift is utilised on behalf of the collective (Walker, 2015).

#### **4.9.6 Trustworthiness**

Brown and Peers (2005:9) asserts that, one of the most important elements of the new way of working with source communities is trust-building and creating respect or healing the effects of the past is seen as being as important as co-writing labels or enhancing the database. To ensure

trustworthiness of the study, the principles of quality criteria were applied to the study, as pointed out by Korstjens and Moser (2018), credibility of research findings ensures that the truthful and correct interpretation of information from participants is what is reported on. The results of the study were shared with the museum professionals and knowledge holders as respondents to judge and assist with validity of data.

#### **4.10 Conclusion**

The chapter discussed methodology used in the investigation and a brief discussion of the area of study; qualitative data was collected through semi-structured interviews, focus group discussions and document analysis from purposive sampled museum professionals and knowledge holders. Issues of ethics for research were applied from the beginning of the field work until the end; they are further discussed in this chapter to ensure credibility and validity of the study. Information gathered, was evaluated thematically and the results of the investigation were reported on.

## CHAPTER FIVE

### THE DIGITAL TECHNOLOGY IMPLICATIONS

#### 5.1 Introduction

This chapter informs the findings of the study in the implementation of digital technology for access, curation and preservation of indigenous artefacts, the beneficence of the custodians and producers of IK at Mafikeng Museum. The findings emanated from participants themed responses from the semi-structured interviews and focus group discussions, and these findings are derived from the objectives of the study. Throughout the study, the researcher did not use participant's names when reporting their responses. The researcher adopted this approach to ensure confidentiality and respect. The approach formed the ethics consideration of the study discussed in the previous chapter.

Today we are able to access culture on equivalent footings and chances and this is accomplished through technology, carrying mechanisms nearer to the community through digital media (Llamazares de Prado & Arias Gago, 2021:5). Ardissono *et al.* (2012:74) adds that technology also introduces new challenges: firstly, large web-based collections are difficult to browse and entail the risk of overloading users with information. Secondly, visitors are heterogeneous and require different types of information at different levels of detail. Finally, the target users of cultural heritage sites are often first- and short-time visitors to an unknown place. This means that, they are in constant need of help in finding relevant information, while on the other hand, providing them with appropriate information is challenging because initially their interests and needs are unknown.

#### Findings of the study

The findings emanated from the participants' responses and rooted in the purposes of the study.

#### 5.2 The impact of digital technology on indigenous artefacts at Mafikeng Museum

The researcher through the application of thematic analysis on interview transcripts and recordings established the following theme: museum transformation.

##### 5.2.1 Museum transformation

The transformation of our museums should start with us decolonizing our museums through the implementation of relevant museum policies to include the introduction of technology, participatory culture, and the provision of adequate access to exhibitions for people with disabilities. To achieve the decolonization of our museums, it begins with decolonizing our society, our own minds and our interactions with other cultures and histories as asserted by Bernal (2021) and Gibson (2019).



**Figure 4:** Museum gallery before refurbishment (Mafikeng Museum, 2018)

Two museum professionals mentioned that “The museum is adapting to the requirement of the Fourth Industrial Revolution (4IR), through the installation of audio-visual tools and touch screen monitors”. One respondent alluded that “The use of ICT devices in a museum assists to cater for all people including the creation of a participatory environment and adequate access for persons with disabilities”. Three knowledge holders pointed out that “We were involved in the renovation task at Mafikeng Museum to ensure that IK is well curated and properly protected within the digital space”.

One knowledge holders further said “Museum exhibitions have been improved: the apartheid history; Bophuthatswana government history and the history of the country’s new democratic era are added to the museum displays for manual and digital consumption”. Two knowledge holders further alluded that “The IK and indigenous objects have been added to the new onsite digital exhibitions and in the museum website”. The core implication of situated technology praxis lies more in endurance rather than change, museums ability to change is precisely the reason for their survival in the digital age (Bautista, 2013).



**Figure 5:** New exhibitions (Mafikeng Museum, 2020)

The initiative to entirely transform exhibitions complemented the Mafikeng Museum’s housed stagnant exhibitions of the South African colonization era by the British government and the Boer force wars. The Batswana, the Khoi and San history, customs, songs, rituals and objects have been transformed into digital tools, using monitor screens and audio-visuals. Drawing from interviews and focus group responses, museum professionals suggested that the Mafikeng Museum tried its best to move with the times as museums all over the world had long gone digital. The researcher suggest that this process of digital technology introduction to museum exhibits played a vital role in improving access to museum exhibition displays, documentation of collections, curation and provisioning of services.

### **5.3 The benefits available for the custodians and producers of the indigenous knowledge and their descendant, in the digitization of indigenous artefacts at Mafikeng Museum**

The following themes were established: Bearers of knowledge involvement, knowledge sharing and benefits and the protection of knowledge holder’s intellectual property rights.

#### **5.3.1 Bearers of knowledge involvement**

The integration of technology by museums increases new inquiries about how museums are considering the idea of their community and how they are assisting that community or those communities (Bautista, 2013:5). Two knowledge holders stated that “The museum involves us in certain events and projects”. Four knowledge holders further argued that “When the museum developed and implemented the website in 2019, knowledge holders were consulted after the first phase of the museum website development”. However, they admitted that in 2020, they were actively involved from the beginning of the refurbishment project of the museum exhibitions, they alluded by saying that “We ensured that the IK within the museum is accurately researched, narrated, displayed and protected”.

Drawing from the above statements, it is evident that knowledge holders are not completely satisfied with the approach of the museum when it comes to IK holder’s involvement in museum

projects. This brought us to the concept of inclusiveness and the approach that museum can take to ensure a long term strategic partnership with bearers of knowledge. Brown and Peers (2005) emphasise that the more a community invests in a project, the greater their expectations for continued involvement will be. Project teams need to give thought to what happens once the exhibition opens or the initial project concludes; what are the long-term goals of the relationship? How best can museum and community partners make use of the relationship?

The Mafikeng Museum should ensure that all important parties are included when deciding on issues that affect the community and bearers of knowledge, and also plan ahead on how the relationship with source communities continue even when the project had ended. This is not easy to do in practice, but through the development of stakeholder relations, the museum would have had the capability to attain its objectives and also play its role in the society.

Brown and Peers (2005:4) conclude that communities are not homogeneous, and sources community members inevitably represent a range of perspectives. Museums entering into research projects need to deal with this diversity and ensure that the different community voices are represented on project teams. For many source communities, collaboration means full and equal partnership at all stages of a project; it is a recognition of their expertise and attachment to objects that are central to their culture, and their participation will often be based upon expectations of community benefit (Brown & Peers, 2005:9).

### **5.3.2 Knowledge sharing and benefits**

Knowledge holders admit that they were involved in the initial stages of the refurbishment of the entire Mafikeng Museum's permanent exhibitions within the gallery, which included indigenous artefacts. Knowledge sharing is vital in IK, one museum professional said, "Through collaboration between us and the knowledge holders in the refurbishment project, audio tools and monitor screens were installed for digital provision of museum exhibitions and the cultural history of Mahikeng town and local heritage sites". Bringing knowledge holders into museums turns these normally dominant-society structures into spaces for multicultural discussions and learning, and can lead to unexpected interactions of information as well as prospects for people from various aspects of life to start to recognise the opinions of the other person from a different cultural group (Brown & Peers, 2005:3).

The Mafikeng Museum professionals commended the impact that the knowledge holders have made in the digitization and refurbishment process of the permanent exhibitions within the museum. Three professionals alluded that "Knowledge holders assisted the museum greatly in filling the gaps in research with relation to indigenous collections, which had less or incorrect descriptions". As mentioned by Brown and Peers (2005:10), source community involvement in a museum project and sharing knowledge regarding indigenous objects and information research is of the benefit to the community. This process also benefits the museum as it creates and promotes new learning and growth for museum professionals to see the true significance of IKS.

It is very important that indigenous communities gain from documenting their knowledge as it is emphasised by Langill (1999) that contributing to project goals, documentation and storage of IK can benefit indigenous communities in the following ways:

- IK can be conserved for upcoming generations so that it does not vanish when elders get deceased.
- IK can be legitimized in the eyes of current generations by awarding it in a layout that puts it on equivalent footing with the international knowledge system, which they are exposed to in state-run schools and through television and radio.
- IK can be imparted to newer generations in schools or as a consistent program.
- IK can be made obtainable to the least well-informed of a community. People can use inquiries or own encounters to develop IK.
- Problems and resolutions can be recognised through assessment of IK, resulting in additional projects that can assist the community (Langill, 1999:50).

### **5.3.3 The protection of knowledge holders' intellectual property rights**

Gathering from interviews and focus group discussions, intellectual property right for collections housed in Mafikeng Museum rested with the museum, as attested by three professionals that “Donations of artefacts are made by the community to the museum”. A worrying thing about this arrangement is that the museum and donors have not established in paper an agreement in case the museum loses, neglect and misuse collections or if they get pirated. What will be the consequences or the position of the donors due to the museum's negligence? Consideration must therefore, be provided to plan for guarding the IK emanating from research projects, so that local people can maintain control over their knowledge and resources; and are properly rewarded for sharing them (Langill, 1999:16).

The researcher argue that intellectual property rights seems difficult and the South Africa's current legislation on intellectual property rights cannot accommodate and adequately protect IK, as alluded to by the Department of Science and Technology (2014), IK should be shared for community benefits and not for private gain. Therefore, in the IKS ecosystem, intellectual property is a weak point. IK has its own belief systems of knowledge management, which differ from Western information management, and these in turn, introduce diverse principles and guidelines of accessibility and safeguard to these information and their diverse forms (Nakata, 2007:102).

Langill (1999:15) asserts that the reuse of IKS should explore the benefits of local traditional methods over westernized methods. This reuse should contain some sort of financial gain to the custodians of this knowledge, as owners of the intellectual rights in the knowledge. However, this opens up challenges in identifying who the original creators and custodians are and this brings us to the point that intellectual protection is a complex task.

## **5.4 The relevance of information communication technology to the delivery of service at Mafikeng Museum**

The museum space, education and outreach programmes are two themes that emanated from the thematic analysis of participants' responses in relation to the research objective.

### **5.4.1 Museum space**

Five professionals alluded that "The museum's introduction of ICT in the form of monitor screens, audio, portable external drives and flash drives assisted to create more space in the main gallery". Two professionals further pointed out that "Museum visitors are now able to move freely and have adequate access to information and exhibition". Ardissono *et al.* (2012:74) argued the point that, the broad amount of current cultural heritage resources, which extremely surpasses the space accessible in museums, and the growing concern in creating collections available to a vast public, has driven cultural heritage structures to use online and mobile data tools as resources for presenting their artefacts.

Museums adapted to the challenging and changing world of technology, in order to fit in and to stay relevant to the modern society. This worked into the advantage of Mafikeng Museum, the technology applied by the museum assisted in creating adequate space and at the same time preserving artefacts, which lead to the extended lifespan of collections. The above statement is supported by Bello and Mohamed (2018:50) that, the advantage of digital media storage in museum collection storage, amongst others, is space saving. The research draws the conclusion that space is one of the major challenges in museums. On the other hand, acquisition of collections is a continuous process in a sense that collections continue to pile up, while the size of the museum building remained the same.

### **5.4.2 Education and outreach programs**

Museums are active, lively institutions in continuous progress, they need to assist both the knowledge and examination of cultural elements (Llamazares de Prado & Arias Gago, 2021). Four museum professionals alluded that "Through digital technology, the museum utilise monitor screens and audio visuals that keeps the younger children excited and entertained while learning". One professional argued by saying that "Sometimes these children stay for a prolonged time and end up messing up the devices when they are unattended".

The researcher suggested that these young people are now more interested to visiting the museum because it provide a better method of museum education through touching screens and listening to selected content from audios, rather than long lectures. They also able to conduct research for school projects on their own through accessing the computers at the museum, and this improve their skills in computer applications. Furthermore, security personnel should keep guard for the safety of the children and devices.



**Figure 6:** Educational programmes ( Mogajane, 2020)

Three museum professionals further admitted by saying that “ The introduction of ICT in the museum has eased the work as the information is now at our fingertips, we do not have to go through manual catalogues to search for the information required by researchers and school children”. Two professionals also made an acknowledgement by saying that “More work is still to be done with regards to the digitization of documents and objects as only a quarter of the work is done”.

Museum professionals further emphasise that they are committed in serving the community through the implementation of community outreach programs. Through these programs, museums provide awareness and educating the public on the services of the museum including the history, culture and heritage of our country. Outreach programs are important to communities that are not in the periphery of the museum or people who are unable to visit museums due to social economic conditions they live in. Adequate access to museum services is vital as prescribed in the Bill of Rights that every citizen has equal rights to information and services (Constitutional Assembly, 1996b).



**Figure 7:** Outreach program (Mafikeng Museum, 2021)

## **5.5 Digital tools and methods used for documentation and storage of indigenous artefacts.**

The coding of transcripts and recordings per themes established the digital tools and methods and documentation of indigenous artefacts as themes for the above research objective.

### **5.5.1 Digital tools and methods**

The present day society relies on ICT tools to manage both intangible and tangible knowledge (Dlamini & Ocholla, 2018:137). Two Mafikeng Museum professionals asserted that “Digital tools used by the museum are namely: monitor screens, audio devices, computers, portable external drives and flash drives to assist with digital documentation and storing of collections”. Three other professionals added that "These tools assist museum officials to render effective services because the information is easily accessible in the devices and computer database, and at the same time, we are protecting original objects and paper based materials from wear and tear”.

Bello and Mohamed (2018:50) point out that the advantages of digital media storage in museum collection storage are: space saving and portability, data retrieval and swiftly adjusted, easy document availability and recovery; as well as the safeguard of objects from theft, fire, damage, and other threats. ICT has the capability of information management from its multiple technologies (Dlamini & Ocholla, 2018:37) .

Bautista (2013) argues that digital technology has influenced almost every feature of current society from the commercial, community and individuals. It has changed the ways in which we obtain information, how we listen to music and watch television, how we converse with our family, and how we create, protect and share our innovative expressions such as photography or film.



**Figure 8:** Digital screens (Mogajane, 2021)

Dlamini and Ocholla (2018) emphasise that there are some ICT tools that are used to manage IK namely: computers, USBs, tape/voice recorders, and video/digital cameras. YouTube, Twitter, Facebook, Google Docs, computers, video, television and radio, and cell phone are tools to disseminate indigenous knowledge (Dlamini & Ocholla, 2018). Bello and Mohamed (2018:50) affirm that the disadvantages are: hardware and software uselessness can make records irrecoverable. Media is able to flop abruptly or unpredictably; even when kept in perfect settings and media can be ruined by computer bugs.

### **5.5.2 Documentation of indigenous artefacts**

One of the advantages of using technology to manage IK is that it facilitates the presentation of knowledge in databases and documents (Dlamini & Ocholla, 2018:141). Nakata (2007:104) further asserts that knowledge records that narrate lineage, heritage sites, custom practices, and biodiversity information, from time to time, the single way ethnic groups can verify traditional relations to land-dwelling for titles or demonstrate previous indigenous invention of biodiversity-related information and methods on which inventors or others make claims of.

Three museum professionals pointed out that “The museum is in the continuous process of updating a computerised database of all collection inventory of the museum”. Nakata (2007:104) pose this question: How is all this hotchpotch of documents, recovery from societies, modern creations of IK in digital method, be achieved in a manner that increases protection and availability through period and space? Bello and Mohamed (2018:50) suggest that the following measures are required: digital tools should be stored in a cool, dry and dim place, and pointless touching or usage should not be performed. Storage media should also be tested and initiated frequently and routine backups of entire information should be done

One other critical issue at Mafikeng Museum is the security measures within the museum. Five professionals alluded that “The museum is making plans to upgrade security measures for the safekeeping of all collections and digital devices and tools to prevent theft and vandalism”. They also suggested that surveillance cameras needed to be installed in the galleries and that only security personnel have been deployed to safeguard these digital tools and objects. The museum

consists of more than one exit point and this posed a great threat. Knowledge holders also shared the same sentiments as museum professionals regarding safety and security of indigenous objects and information, which can be lost due to lack of proper security measures in place. Three knowledge holders stated that “The museum needs to act with urgency on this matter because collections are at risk due to lack of proper security measures”.

## **5.6 Conclusion**

The initiative taken by the museum to tap into digital technology for refurbishment of exhibitions is commended; it contributed to the museum transformation with regards to accommodating other histories and cultures, including the integration of digital culture in the traditional exhibitions. Careful and necessary measures with regards to long term strategies of digital collections to ensure sustainability of these collections should be considered, these measures should have been planned in the beginning. Digital tools and method implemented by the Mafikeng Museum need to improve with regards to safety of collections and information to prevent misuse. The digital projects are at a risk of many factors for example, pirating by online users and information hacking, to name but a few. Through findings, the research established that the museum building security is insufficient and require immediate attention.

The study exposed that the digital documentation of artefacts also lacked behind, therefore, the researcher argue that there was an oversight on the digital preservation strategy of the museum. The intellectual property right for all collections housed in Mafikeng Museum is another critical issue that required urgent attention. The study further established that the involvement of IK holders was insufficient at the museum; the research also evidently exposed evidently that the involvement of these custodians of knowledge was not enough in the current digitization project. The museum can do better in the future through involvement of sources of knowledge, in the initial stage of planning a project for the benefit of the community and museum. Most of the responses suggested that the museum implemented digital technology for education, research, promotion and transformation of the museum exhibits.

## CHAPTER SIX

### DIGITAL TECHNOLOGY PROSPECTS AND CHALLENGES

#### 6.1 Introduction

The chapter discusses the prospects and challenges of digital technology at Mafikeng Museum. The findings emanated from participants' responses from the semi-structured interviews and focus group discussions, and these findings derived from objective 5 of the study. The changes in technology have brought changes in museum operations generally. The use of ICT encourages visitors to escape the physical barriers of traditional museums, which are based on manual systems. The outstanding provision of technology in protecting and sustaining museum objects are: easy documents availability and recovery, safeguarding of objects from stealing, fire, destruction, proper storage conditions and tourism creation of revenue (Bello & Mohamed, 2018:47).

Residential and universal problems need museums to make their opinions heard, provide platforms for discussions, and become an important player in community opinion forming. Once the museum admits these new encounters, it comes natural to rely on current digital technologies for a range of goals: to inform, reach and motivate visitors, to make them expressively involved, turn them physically and psychologically active members (Ruttkay & Bényei, 2018:18).

The challenge is that the museum somehow failed to cope with scientific and technological changes to run and manage museum activities because the new innovations came up with updates on the technology that might be independent of the version in present. Traditional methods of safeguarding museum objects are confronted with many threats such as stealing, fire, reduction, damage and so on. Therefore, the requirement for technical involvements in a method of digital storage media and a technological gallery for digital preservation of heritage assets (Bello & Mohamed, 2018:47).

Bello and Mohamed (2018:51) recommend further investigation on technical museum advancement and application, as another way for sustainable archival storage of museum collections. They, Bello and Mohamed (2018:46), recognise the important role of technology in safeguarding and sustaining museum objects. Although the digital shift represents major challenges to the museum of the future, meeting these challenges will depend on how museums integrate into the digital ecosystem and use emerging technologies, whilst recognising the power of digital culture to transform human identity, behaviour, states of being, digital seeing, art and aesthetics (Giannini & Bowen, 2019:178).

## **Findings of the study**

The following findings emanated from participant's responses for objective 5 of the study.

### **6.2 Prospects of digital technology at Mafikeng Museum**

Through application of the thematic analysis processes of coding: access to information, research and education were established as themes for the above mentioned research objective.

#### **6.2.1 Access to information**

Cultural heritage is our past and part of our belief system as a society, and to reflect on its significance and to recognise its development, it has to be available to all people. Therefore, it is significant to advance the daily ease of use of our museums. The museum has developed and launched a website in 2018 to provide online users with easy access to museum information. The museum professional commented, "This process has also enhanced and eased the work of museum professionals to provide efficient services to the public". Technology is a tool for museums to achieve certain goals, a tool to support experiential infrastructure, and only by first recognizing their goals and structure as locally and culturally constructed museums will have the most effective results (Bautista, 2013).

Technology assists to enhance museum functions namely: acquisition, access, education, documentation, research and preservation of artefacts. Safeguarding of objects and documents will not be attained if digital data is not structured to be migrant and not adequately consistent to be available outside a specific period. The knowledge holder alluded that "The information on the website is not updated" and two other respondents seem to agree with this statement. Information needs to be constant and reliable in terms of provision and access by users at any given time, both online and onsite. Therefore, it is vital for the museum to have manageable and reliable digital platforms and IT capabilities to ensure easy access to updated information and other museum services.

Gathering from participant responses during the focus group discussions and interviews, the Mafikeng Museum implemented the digitization of collection through the development of a website, and onsite digital screens with the purpose of providing visitors and researchers with convenient access to collections and services online and onsite.

#### **6.2.2 Research and education**

Museums are trying to keep the public informed about their contribution to culture, knowledge, entertainment, the events they organize and generally, everything they believe that would be interesting for their audience, through utilising digital technologies (Papadopoulou, 2016:10). Ardissono *et al.* (2012) further allude that in museums, there is an increasing interest in ensuring the accessibility of collections to a larger audience using web based and mobile information tools.



**Figure 9:** Screenshot of museum website (Mogajane, 2021)

Responses gathered from the Mafikeng Museum professionals pointed out that the implemented digital technology at Mafikeng Museum, contributed positively to education and research within the museum. Through the development of Mafikeng Museum’s website, the public is able to access online information and conduct own research at any time. One museum professional alluded that “The museum website is also aimed at accommodating other museums in the province to educate and promote their museums”. Two professionals added that the approach generated online visitor’s profile, which continued to grow in the beginning of the running of the website in 2018 and 2019.

“Currently the website added the Kraaipan Museum, a community museum located in the Kraaipan village within the Ratlou local municipality”, alluded one museum professional. Two respondents however, pointed out that the website is frequently down due to poor network connection at the museum and this impacted negatively on the provisioning of online service. Four respondents further alluded that “Within the museum, visitors and researchers are able to tap on the touch screens monitors to access information and educational programs and spend time going through the content without being rushed”.

### **6.3 Challenges of digital technology at Mafikeng Museum**

The internet connectivity, digital preservation strategy, policy implementation, museum governance and management are challenges of the digital technology currently introduced at Mafikeng Museum.

#### **6.3.1 Internet connectivity**

Two respondents alluded that “The unavailability of Wi-Fi connection in the museum makes the onsite provisioning of virtual information sometimes unachievable” and one professional added that “Personnel workstations are also affected by network hence the museum connectivity is entirely dependent on centralised network, which most of the time, is unreliable”. It also emerged from four participants’ responses that the information technology technicians also caters for all the

four districts offices within each district in the province. Respondents proposed that the provincial department should upgrade the museum internet network system.

The study suggest that the museum outsource network providers to: (1) mitigate this challenge through installation of Wi-Fi because the government network also caters for all districts in the province and this lead to slow or at times, no network connection; (2) assist the museum to speed up the response time on fixing network faults, these faults are managed and attended to at the provincial level and this caused delays for faults to be fixed, which contributed negatively to the provisioning of museum online services.

### **6.3.2 Digital preservation strategy**

Collection managers, curators, conservators and ICT specialists should work together in order to develop a digital preservation strategy, policy and procedures including preservation tools and methods according to the digital preservation framework (Erturk, 2020:109). In the case of Mafikeng Museum, responses from interviews and focus group discussions indicated that the museum management did not put into consideration the digital preservation strategy. Three museum professionals stated that “Mafikeng Museum’s focus was mainly on providing easy access to information, marketing and promotion of the museum through the introduction of ICT”. The museum tapped into the digital era as a new way of disseminating information to a larger, diverse audience.

Ruttkey and Bényei (2018:14) also suggest that in addition to designing the technological support for individual exhibitions, the museum must develop a digital strategy, covering the following issues:

- Long-term vision and commitment for the usage of digital technologies, related to specific goals.
- The realisation of digital technologies within the museum.
- The development of infrastructure.
- Evaluation and restitution procedure (Ruttkey & Bényei, 2018).

Gathering from interviews and focus group discussions, there was an oversight regarding the long term strategies in terms of what is going to happen in the long run to all digital collections at Mafikeng Museum. Erturk (2020:109) further makes an assertion that, digital preservation policy is of importance and it is designed to secure the long-term future of digital heritage in museum storage area. This strategy is currently non-existing at Mafikeng Museum to provide the appropriate steps to address future threats and action plans.

### **6.3.3 Policy implementation**

Three museum professionals emphasised that “The Mafikeng Museum is guided by the National Museums Draft Policy for administrative functions and collection management procedures”. The DAC in crafting the National Museums Draft Policy committed a serious flaw. This policy solely focused on national museums and excluded provincial and local museums. In this sense, the

transformation of museums in areas such as Mafikeng Museum seems difficult until the chronology of activities related to museum regulations from national to local levels get addressed.

One important justification for this is that some museums still have national status by virtue of being there historically. The grading criteria on what qualifies to be a national, provincial or local museum does not exist. Some commentators have stressed that the collection of a museum determine the vision, objectives, mission and boundaries of its collecting policy. The centre should hold in an orderly process to draft well-articulated museums policies at national up to local levels. The researcher posed this statement to drive the debate to a point that a draft policy simply means a draft, it is not an approved binding document and furthermore, currently this draft does not accommodate local and provincial museums.

A museums policy at all levels as indicated, provide museums with direction, it enhance funding to museums. This is because museums are able to present coordinated business models. Furthermore, structures that represent museums are recognised as statutory bodies meant to uphold interests of the museums sector. At national level, there is a structure known as SAMA. One professional augmented the above statement by arguing that “SAMA has been in existence for many years, however, it has not been able to advocate for museums interests coherently”.

Two professionals asserted that “In the North West province in 2012, NWMC was formed as the provincial arm of SAMA. This is because North West used to fall under what is known as SAMA North”. One professional argued that “The interests of the North West Museums were never given priority and hence the creation of the NWMC. One major task of this committee is to advocate for museum interests and serve as mouthpiece of museums in the province”. This discussion then turned into another argument, due to consequence of a lack of museums policy framework in the province, which resulted in most museums currently lacking approved organogram let alone management structure.

#### **6.3.4 Museum governance and management**

Gathering from focus group discussions and interviews of museum professionals, the museum have not generated income or charged entrance fees from visitors. Four Museum professionals alluded that “Mafikeng Museum is a provincial museum and falls under government entities, and report directly to the provincial department therefore, we are not authorised to raise funds or to charge for guided tours to our local heritage sites”. Two museum professionals added that “The museum entirely rely on government for funding of projects and the running of the museum”.

It has proven evident that the museum personnel required basic training to acquire relevant skills in information technology, drawing the statement from one respondent comment in which he said “We are lacking in ICT skills to effectively operate digital tools and to solve minor technical problems which may arise”. Museum professionals further admitted that the museum lacked capacity in terms of personnel; the institution is understaffed. Per legislation, public museums are governed in terms of the heritage legislation known as the National Heritage Resources Act No 25 of 1999. However, the legislation does not cover museums fully as it only focuses on heritage objects and their grading in terms of Grade 1, 2 and 3 of the same Act.

In reality, there is no relevant legislation on museums; as the Cultural Promotions Act and Cultural Institutions Act was only designed to focus on specific cultural issues, which are of national importance. Therefore, provincial museums were left to cater for themselves in terms of governance, which affected management and functions of museums. Most museums in the province are governed at local municipal level with the exception of Mafikeng Provincial Museum, which falls directly under the jurisdiction of the provincial department of ACSR. This makes it the only provincial museum by virtue of historical events and the fact that it is situated within the capital city of the province.

There has never been a proper governance structure established post 1994, meant solely for museums. The focus rather, was on adopting the already existing governance structure used by the apartheid government. In the name of transformation, newly established museums were constructed within the same vacuum and while some were handed over to local municipalities, others were handed over to traditional authority for governance. A standard governance system for museums in the province such as the Mafikeng Museum, is non-existent and this is an enormous challenge, which requires the attention of relevant stakeholders.

#### **6.4 Discussions on the findings of the study**

During field work, the Mafikeng Museum professionals and local community knowledge holders were welcoming and kind enough to reschedule their appointments on other matters that needed their attention to accommodate the research interviews. It was heart-warming to see people eager to assist, even when they are under resourced due to shortage of staff. The results revealed that the museum did not foresee the enormous complexity of the digitization project; and therefore, there was an oversight in the development and implementation of a relevant digital preservation strategy.

The digital preservation strategy, which is a crucial process to implement when venturing into digitization projects of museum indigenous collections, was not addressed at Mafikeng Museum. The museum focused mainly on tapping into the digital era for the purpose of providing access and promotion of the museum without putting the necessary plans to achieve long term goals. The indigenous people should be informed that the information they are reproducing through digital tools is indeed being conserved and not just obtainable provisionally (Nakata, 2007:105).

Rather, the museum introduced digital technology to transform exhibits within the museum through implementation of digital monitor screens, documentation database and the development of a website. The study suggested that the overall transformation of the Mafikeng Museum can go further only if the national draft policy on museums gets amended to include the scope and needs of provincial and local museums. Currently, the transformation of most museums in South Africa will never be fully achieved until there is a chronology of activities related to museum regulations from national to local levels.

The intellectual property right for all collections housed in Mafikeng Museum required urgent attention, due to the fact that the care of information and collections has been given to the museum but there are no tangible documentations in case the museum neglects collections. Indigenous people should be informed when their intellectual property rights are exposed or in danger; and

how their specific actions interfere with the intellectual property rights of other peripheral groups (Nakata, 2007:105).

The study exposed that digital documentation of IK at Mafikeng Museum lacked behind. IKS plays an important role in all aspects of the society as asserted by Raphesu (2010); in a museum, through educational programs, cultural values are introduced to young people for them to know where they are coming from, and to respect cultures. Therefore, the museum should continuously involve IK holders to assist with IK research and exhibitions for the benefit of the community.

The policy agenda is major challenge facing the provincial and local museums, due to the fact that: (1) the national policy for museums excluded local museums and focused on the National museum's priorities; (2) it is a draft document and from a policy viewpoint, this raises more questions around issues of the South African Museums Policy implications. Questions such as: what other lawful documents are directly and currently binding for museums in the province, in terms of collections management and overall functions in museums such as the Mafikeng Museum, which are entrusted with rich diverse cultural and historic collections? As it stands, gathered from the responses; the Mafikeng Museum does not have an internal policy to guide museum practices and operations.

In this case, the Mafikeng Provincial Museum, in which the management structure consists of a manager, at times referred to as a curator, with either a single official or three at the most. Another critical question can be raised: How will a museum function successfully without adequate human capital? This has been worsened by lack of proper governance structures in the form of a council or a board. Furthermore, a lack in government regulations to determine, which museums are governed at provincial, district and local levels is another stumbling block.

Gathering from the responses, a fully functioning independent museum board is nonexistence at Mafikeng Museum, to guide the museum in matters of museology practices and to advise on the kind of technology the museum required to begin with the digitization project. Any integration of technology should be designed within the overall museum mission and strategies and not as an isolated individual offering, fulfilling the criteria set out in business plans and policies of institutions (Zollo *et al.*, 2021:14). The museum should not operate in a vacuum; the study therefore, suggested that the museum appoint an independent museum board to provide advice to the museum's management.

The museum professionals admitted to not having necessary skills and funding to undertake the digitization project. They alluded that there are discussions with the museum mother body; the provincial department to assist in filling up of positions, training of existing staff and providing funding for the sustainability of the digitization project. Zollo *et al.*, (2021:17) argued that the improved employment and skills requirements should be acknowledged, pointed out to the obligation to construct committed disciplinary teams in the museum that will manage the technical sides, and the requirement for further skills development, both for the current museum personnel but most significantly, for academic graduates, who will grow into the prospect museum expert.

### **6.4.1 Limitation of the study**

The research was carried out during the third wave of COVID-19 pandemic in South Africa and due to this situation, the government implemented lockdown restrictions. It was difficult to get interviews with more respondents, and as such, other interviews had to be conducted virtually. The data connectivity for virtual meetings was a challenge for some respondents; this interfered with the time scheduled for data collection. Interviews were held in the Mafikeng Museum's main gallery, this choice of venue to conduct interviews posed distractions, as uninformed visitors would come into the gallery. The time frame allocated to finish the entire research, hindered the researcher to interview more respondents.

### **6.4.2 Lessons learned from the study**

Conducting a research that involves community knowledge holders proved to be a tough task to undertake, it requires patience and commitment. The holders and custodians of knowledge take their time very serious, they asked why they are being interviewed and how is the interview going to help them and their work. The researcher explained to them that a research report will be made available to the museum with recommendations emanating from the interviews.

Conducting a study during the COVID-19 pandemic was a bit of a hassle, more so, in the third wave of the pandemic. On two occasions, a face to face interview had to be rescheduled because a respondent was contact to someone, who tested positive to the virus. Secondly, in the case of the IK holders, one could not unable to opt for a virtual meeting because some of them were unfamiliar with the technology, and data to connect to the meeting posed as a challenge, since some respondents could not afford it.

### **6.4.3 Gaps identified in the findings**

The following areas called for further research:

- Policy implications for all museums in South Africa that are guided by the National Museums Policy Draft, which is to date not approved and does not cater for local museums. Predominantly, those museums such as the Mafikeng Museum, that have none existing internal policies to guide their museums practices and operations.
- Digital preservation strategies relevant to Mafikeng Museum to ensure the proper digital documentation and long term archival storage of digitised information and records.
- An inquiry regarding the support that the provincial department provide to the museum.
- A further study regarding the intellectual property rights of collections of cultural and historical importance housed at the Mafikeng Museum.
- Further research into the governance and management of provincial and local museums in South Africa. As indicated from this study, the Cultural Promotions Act and Cultural Institutions Act were designed to focus on specific cultural issues which of national importance.

## **6.5 Conclusion**

The study exposed that the museum did not have a plan in place when implementing the digital preservation project of collections; due to non-existence of a guiding document. The challenges of internet and Wi-Fi connectivity are also stumbling blocks, which hindered the museum transformation process to be able to adapt successfully into the digital era. This created a bad impression of the museum to its audience. The position of the Mafikeng Museum with regards to National Museums Draft Policy is troublesome. This draft policy does not speak directly to the aims and objectives of Mafikeng Provincial Museum. It was drafted as one size fits all document which seemed to suggest that South African museums operated in a vacuum.

The study further exposed that the Mafikeng Museum does not have an internal museum policy and raised more questions on management and governance of the museum, the safety, intellectual property rights, curation, and preservation of the collections. The study suggested that the museum develop a policy that assist in the acquisition, handling, preservation and curation of museum's collections and the overall museum operation.

## CHAPTER SEVEN

### RECOMMENDATIONS AND CONCLUSION

#### 7.1 Introduction

Digital tools and methods used by Mafikeng Museum described the choice of the digital approach the museum undertook to achieve and set its aims and objectives. Digitization of museum artefacts requires a lot of determination and good strategies in place, it is not a one size fit all approach. Each museum's requirements in relation to the integration of digital technology is unique and differs from one museum to the other. Furthermore, since a variety of different types of emerging technologies is available, a museum should adapt every technology based on a particular need and on how it can be better used, considering the advantages and limitations of each technology (Zollo *et al.*, 2021:15).

A qualitative inquiry was applied to this study and it was rooted in the cultural theory, new museology theory and the digital culture theory. Focus group discussions and semi-structured interviews were used to collect data from purposive sampled, museum professionals and IK holders. Responses gathered from the semi-structured interviews and focus group discussions were recorded using a voice recorder and notes taking. Qualitative data was analysed thematically.

The research findings explored that the Mafikeng Museum is guided by the national museums draft policy, which does not speak directly to the aims and objectives of the museum, it is a one size fit all document, which seems to suggest that South African Museums operate in a vacuum. The museum further admitted to not having a digital preservation strategy, adequate human resources and funding to undertake the digitization project. This is caused by non-existence of an internal museum policy.

The museum does not have an independent museum board to guide the museum in matters of museology practices. This raises questions on management and governance of the museum, the safety, curation and preservation of the collections. The results of the study further exposed that the intellectual property right of IK holder's work housed at the museum, is none-existing. The participation and involvement of bearers of knowledge in the digital documentation of IK does exist at Mafikeng Museum though it is minimal.

#### 7.2 Recommendations of the study

A Museums Policy at all levels, as indicated in this study, will provide museums with a feasible direction and it will enhance funding to museums. This is because museums will be able to present coordinated business models. Therefore, this study suggests that the current National Museums Draft Policy should be revised to include and accommodate the mandate of local and provincial museums, and the draft be approved.

The study further recommends that it is time that the museum takes control of its own affairs and develop an internal approved museum policy, which will guide the museology practices within the museum: acquisition of collections, collections management, exhibitions, research, education, documentation and curation, including digital preservation strategy in the case of digitization, and protection of artefacts, and the overall museum operation. The digitization policy will also assist the museum to avoid the misusing of indigenous collections and information that are displayed on the museum website, which is an online public domain.

The NWMC should receive support from all relevant stakeholders as a mouthpiece of various museums in the province, in advocating the interests of respective museums in the province and assists with relevant museology practices as prescribed by ICOM. The study also recommends that the Mafikeng Museum develops an independent museum board to assist in providing supporting and guiding the museum.

Security measures for the museum's objects and information is of great concern. The security needs to be maximised at the museum for the protection of collections. According to the researcher's observations, the museum has more than one exit, which remain open during operating hours. Thus, the study recommends strict measures such as a scanner at each exit point and the installation of surveillance cameras.

The IK holder's active involvement in the museum projects is vital; the results of the study exposed that the involvement of bearers of knowledge is existing at Mafikeng Museum, though they were not properly consulted in the beginning of the digitization project. The study suggests that the Mafikeng Museum should ensure proper consultations with bearers of knowledge when planning to implement projects that affect the community. The active participation of community knowledge holders should be maximised, from the initial planning stage of a project until completion.

Intellectual property rights are of great concern at the Mafikeng Museum; as the museum does not have a formal documentation regarding IK holder's intellectual property rights. The study recommends that relevant stakeholders attend to this matter with urgency, due to the vulnerability and complexity of IK holders work. The study further recommends fundraising initiatives and activities where both the Mafikeng Museum and the community work together and showcase materials and objects to raise funds.

The museum needs to encourage volunteerism and recruit skilled and unskilled community members to assist the museum; and the provision of relevant skills training for the Mafikeng Museum staff on museum and heritage studies. Lastly, the study recommends that the museum should charge guided tours to the heritage site; implementation of entrance fee for individuals and groups visiting the museum to raise funds, which will assist museum operations. Gaps identified in literature and at the Mafikeng Museum are hereby strongly recommended by the study.

### **7.3 Conclusion**

The main purpose of the study to investigate the effect of digital technology in the access, curation and preservation of indigenous artefacts has been explored through literature review, pilot study and fieldwork research through interviews and focus group discussions at the Mafikeng Museum. Literature has explored that digital technology and IKS have the capacity to assist museums in the decolonization of these cultural institutions. The process is fully achievable if museums, as cultural historic institutions and as centres of knowledge, promote inclusion and the full contribution of the local community as bearers of knowledge in the development stages of all the digitization projects of museum collections.

The involvement of knowledge bearers in the documentation and preservation of their cultural heritage will assist museums to play their role in society, because museums coexist to serve the community. The study investigated the involvement of IK holders in the digitization project at Mafikeng Museum, and research findings exposed that the inclusion of these bearers of knowledge in the digitization project has been proven to slightly exist, as they were not consulted in the beginning.

Education, research and promotion seemed to be the main objectives for the introduction of the digital technology at Mafikeng Museum. The implemented digital tools also seemed to ease the job of the Mafikeng Museum personnel in providing services, access and documentation. The study indicated that there was a visible impact of ICT at Mafikeng Museum, these tools served the curator-oriented or the visitor-oriented mediation mission (Kéfi & Pallud, 2011:284). Necessary measures with regards to long term strategies, strict security and relevant digital tools for digital collections to ensure sustainability of museum collection need to be considered. These measures needed to be planned in the initial stages of a digitization project.

Literature has further exposed that the implementation of ICT in museums is not a one size fit all approach. Technological needs differ from one museum to the other, depending on the goals the museums are set to achieve. Museums are different and unique in relation to their historic cultural collections and the culture of showcasing and preserving collections, and as such, is the goals and aims of various museums. Therefore, the entire integration process of digitization of artefacts within a museum will be determined by what that particular museum aims to achieve its goals, in the digital era.

The researcher acknowledged that there are challenges of digital technology in our museums. These knowledge centres have the capacity to overcome challenges through the development of museums committee, training of workers, indigenous community engagements, stakeholder relations and creation of fundraising initiatives rather than to entirely depend on government.

## BIBLIOGRAPHY

Abungu, L. 2002. Access to digital heritage in Africa: bridging the digital divide. *Museum International*, 54(3):29-34. Doi:10.1111/1468-0033.00385

Aikenhead, G.S. & Ogawa, M. 2007. Indigenous knowledge and science revisited. *Cultural Studies of Science Education*, 2(3):539-620. DOI 10.1007/s11422-007-9067-8b

Andrea, C., Michele, C. & Elena, I. 2017. The image as a communication tool for virtual museums : Narration and the enjoyment of cultural heritage. *Proceedings*, 1(9):919-919. doi:10.3390/proceedings1090919

Ardissono, L., Kuflik, T. & Petrelli, D. 2012. Personalization in cultural heritage: the road travelled and the one ahead. *User Modeling and User-adapted Interaction*, 22(1-2):73-99. DOI: 10.1007/s11257-011-9104-x

Avaro, A.A., de Guichen, G. & Godonou, A. 2010. *Documentation of museum collections. Why? How?: Practical guide*. UNESCO.

Bakar, J.A.A., Kassim, P.S.J. & Mahmud, M. 2010. The level of information and communication technology use by museums in Malaysia. Vol. 3. pp. 1462-1467.

Barker, D. Indigenous knowledge. In. *International Encyclopedia of Geography*. pp. 1-6.

Battin, P. 1993. From preservation to access: Paradigm for the nineties. *Ifla Journal-International Federation of Library Associations*, 19(4):367-373. Doi: 10.1177/034003529301900406

Bautista, S.S. 2013. *Museums in the digital age: changing meanings of place, community, and culture*. UK: Rowman & Littlefield.

Bello, R.-W. & Mohamed, A. 2018. Impact of technology on traditional museum collection storage and management. 7:46-51.

Bernal, V. 2021. Digitality and decolonization: A response to achille mbembe. *African Studies Review*, 64(1):41-56. Doi: 10.1017/asr.2020.90

Bhaskar, M. 2016. *Curation: The power of selection in a world of excess*. London: Hachette UK.

- Bowen, G.A. 2009. Document analysis as a qualitative research method. *Qualitative research journal*,
- Braun, V. & Clarke, V. 2012. Thematic analysis.
- Brown, A.K. & Peers, L. 2005. *Museums and source communities: A Routledge reader*. Routledge.
- Brulon, B. 2020. Decolonizing museological thinking: Reintegrating the matter to re-think museums. *Anais do Museu Paulista: História e Cultura Material*, 28, Doi:10.1590/1982-02672020v28e1
- Butcher, N. 2003. *Technological infrastructure and use of ICT in education in Africa: An overview*. Paris: Association for the Development of Education in Africa.
- Cameron, F. & Kenderdine, S. 2007. *Theorizing digital cultural heritage: A critical discourse*.
- Campetella, P. 2016. ICTs as cultural mediation tools in archaeological museums. *Cadmo*, 24(2):75-90. <https://nwulib.nwu.ac.za/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=edselc&AN=edselc.2-52.0-85011028433&site=eds-live>
- Chipangura, N. & Chipangura, P. 2020. Community museums and rethinking the colonial frame of national museums in Zimbabwe. *Museum Management and Curatorship*, 35(1):36-56. doi: 10.1080/09647775.2019.1683882
- Cloonan, M.V. 2001. W (h)ither preservation? *The Library Quarterly*, 71(2):231-242.
- Colucci, E. 2007. "Focus groups can be fun": The use of activity-oriented questions in focus group discussions. *Qualitative Health Research*, 17(10):1422-1433.
- Constitutional Assembly. 1996a. The constitution of the Republic of South Africa.
- Constitutional Assembly. 1996b. Constitution of the republic of South Africa. 230(38):1241-1331.
- Crawford, R. 2013. ICT capability. In. *The ICT Teacher's Handbook*: Routledge. pp. 19-25.
- Darley, A. 2002. *Visual digital culture: Surface play and spectacle in new media genres*. London: Routledge.
- Davison, R.M. & Díaz Andrade, A. 2018. Promoting indigenous theory. Wiley Online Library.

Deacon, H. 2004. Intangible heritage in conservation management planning: the case of Robben Island. *International Journal of Heritage Studies*, 10(3):309-319. DOI: 10.1080/1352725042000234479

Department of Arts and Culture. 1996. White paper on arts, culture, and heritage

Department of Arts and Culture. 2011. National policy on the digitisation of heritage resources. 9:63,

Department of Arts and Culture. 2014. National museums policy draft.

Department of Science and Technology. 2004. Indigenous knowledge systems policy. 42,

Department of Science and Technology. 2014. *Indigenous knowledge systems: Overview of DST Activities*. 20 Aug. 2014. www.dst.gov.za Date of access.

Deuze, M. 2006. Participation, remediation, bricolage: considering principal components of a digital culture. *The Information Society*, 22(2):63-75. Doi: 10.1080/01972240600567170 · Source: OAI

Díaz Andrade, A., Techatassanasoontorn, A.A., Singh, H. & Staniland, N. 2021. Indigenous cultural representation and re-affirmation: The case of Māori IT professionals. *Information Systems Journal*, 31(6):803-837. <https://doi.org/10.1111/isj.12331>

Dlamini, P. & Ocholla, D.N. 2018. Information and communication technology tools for managing indigenous knowledge in KwaZulu-Natal Province, South Africa. *African Journal of Library, Archives & Information Science*, 28(2):137-153.

Easterby-Smith, M., Thorpe, R. & Jackson, P.R. 2012. *Management research*. Sage.

Edgar, A. & Sedgwick, P. 2005. *Key concepts in cultural theory*. Routledge.

Empler, T. 2018. Traditional museums, virtual museums. Dissemination role of ICTs. *DISEGNARECON*, 11(21),

Erturk, N. 2020. Preservation of digitized intangible cultural heritage in museums storage. *Milli Folklor*, (128):100-110. <http://www.millifolklor.com>

Etikan, I., Musa, S.A. & Alkassim, R.S. 2016. Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1):1-4. DOI: 10.11648/j.ajtas.20160501.11

- Fred, S. & Nawe, J. 2017. Effectiveness of information and communication technologies in promoting and disseminating information to users at the museum and House of Culture, Dar es Salaam, Tanzania. *University of Dar es Salaam Library Journal*, 12(1):121-145. <https://www.ajol.info>
- Geismar, H. 2018. *Museum object lessons in the digital age*. London: UCL Press.
- Giannini, T. & Bowen, J. 2019. Museums and digital culture: New perspectives and research. *Library of Congress*, <https://doi.org/10.1007/978-3-319-97457-6>
- Gibson, L.K. 2019. *Decolonising South African museums in a digital age: Re-imagining the Iziko Museums*. London: King's College. (Thesis). <https://creativecommons.org/licenses/by-nc-nd/4.0/>
- Gillian, O. & Ross, H. 2016. *Digital curation*. 2nd ed. Chicago: ALA Neal-Schuman.
- Greene, C.S. 2015. Museum anthropology. *Emerging Trends in the Social and Behavioral Sciences*,
- Grenier, L. 1998. *Working with indigenous knowledge: A guide for researchers*. idrc.
- Grix, J. 2018. *The foundations of research*. 3rd ed. New York: Macmillan International Higher Education.
- Gutowski, P. & Kłós-Adamkiewicz, Z. 2020. Development of e-service virtual museum tours in Poland during the SARS-CoV-2 pandemic. *Procedia Computer Science*, 176:2375-2383. [10.1016/j.procs.2020.09.303](https://doi.org/10.1016/j.procs.2020.09.303)
- Hajmoosaei, A. & Skoric, P. 2016. Museum ontology-based metadata. In. 2016 IEEE Tenth International Conference on Semantic Computing (ICSC). IEEE. pp. 100-103.
- Hall, T.D. & Fenelon, J.V. Indigenous people, resistance. In. *The Wiley-Blackwell Encyclopedia of Globalization*. pp. 1-6.
- Harvey, R. & Mahard, M. 2014. *The preservation management handbook: A 21st-century guide for libraries*. New York: Rowman and Littlefield.
- Henning, M. 2005. *Museums, media and cultural theory*. UK: McGraw-Hill Education.
- Hinch, T.D. & Prentice, R. 2004. Indigenous people and tourism. In. *A Companion to Tourism*. pp. 246-261.

Hodge, C.J. 2019. Museum object lessons for the digital age. *Post Medieval Archaeology*, 53(3):434-435. doi: 10.1080/00794236.2019.1659647

International Council of Museums. 2007. *Museum definition*.  
<https://icom.museum/en/resources/standards-guidelines/museum-definition/> Date of access: 25 June 2021.

Jabareen, Y. 2009. Building a conceptual framework: philosophy, definitions, and procedure. *International Journal of Qualitative Methods*, 8(4):49-62.

Janet, H.T. & Joe, R. 1995. Museums and galleries on the internet. *Internet Research*, 5(1):80-88. doi: 10.1108/10662249510084499

Kayombo, N.A. 2005. *General guidelines for establishment and management of museums in Tanzania*. Dar es Salaam Dar es Salaam University Press.

Kéfi, H. & Pallud, J. 2011. The role of technologies in cultural mediation in museums: an actor-network theory view applied in France. *Museum Management and Curatorship*, 26(3):273-289. DOI: 10.1080/09647775.2011.585803

Killam, L. 2013. *Research terminology simplified: Paradigms, axiology, ontology, epistemology and methodology*. Sudbury, ON: Laura Killam.

Kim, Y. 2011. The pilot study in qualitative inquiry: Identifying issues and learning lessons for culturally competent research. *Qualitative Social Work*, 10(2):190-206. DOI:10.1177/1473325010362001

Kivunja, C. & Kuyini, A.B. 2017. Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, Doi:10.5430/ijhe.v6n5p26

Korstjens, I. & Moser, A. 2018. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1):120-124. DOI:10.1080/13814788.2017.1375092

Krueger, R.A. & Casey, M.A. 2002. Designing and conducting focus group interviews. Citeseer.

Langill, S. 1999. Indigenous knowledge: a resource kit for sustainable development researchers in dryland Africa.

Leshem, S. & Trafford, V. 2007. Overlooking the conceptual framework. *Innovations in Education and Teaching International*, 44(1):93-105.

Llamazares de Prado, J.E. & Arias Gago, A.R. 2021. Technology and education as elements in museum cultural inclusion. *Education and Urban Society*, Doi:10.1177/00131245211004576

Longhurst, R. 2003. Semi-structured interviews and focus groups. *Key Methods in Geography*, 3(2):143-156.

Lopes, R.O. 2020. Museum curation in the digital age. In. *The Future of Creative Work*: Edward Elgar Publishing.

Lowe, N.K. 2019. What is a pilot study? *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 48(2):117-118. <https://doi.org/10.1016/j.jogn.2019.01.005>

Magni, G. 2017. Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education*, 52(4):437-447. 10.1111/ejed.12238

Mäkelä, M. 2007. Knowing through making: The role of the artefact in practice-led research. *Knowledge, Technology & Policy*, 20(3):157-163.

Marback, R. 2004. The rhetorical space of Robben Island. *Rhetoric Society Quarterly*, 34(2):7-27. <http://www.jstor.org/stable/40232409>

Marinova, D. & Raven, M. 2006. Indigenous knowledge and intellectual property: A sustainability agenda *Journal of Economic Surveys*, 20(4):587-605. <https://doi.org/10.1111/j.1467-6419.2006.00260.x>

Marstine, J. 2006. *New museum theory and practice: An introduction*. UK: Blackwell.

Más, J.M. & Monfort, A. 2021. From the social museum to the digital social museum. *Del Museo Social al Museo Social Digital.*, 24(24):8-25. 10.7263/adresic-024-01

Mason, R. 2006a. Cultural theory and museum studies. *A Companion to Museum Studies*:17-32.

Mason, R. 2006b. Cultural theory and museum studies. In: Macdonald, S., ed. *A Companion to Museum Studies*. USA: Blackwell. pp. 17-32.

Mason, R., Robinson, A. & Coffield, E. 2017. *Museum and gallery studies: The basics*. Routledge.

Mauro, F. & Hardison, P.D. 2000. Traditional knowledge of indigenous and local communities: International debate and policy initiatives. *Ecological Applications*, 10(5):1263-1269. [https://doi.org/10.1890/1051-0761\(2000\)010\[1263:TKOIAL\]2.0.CO;2](https://doi.org/10.1890/1051-0761(2000)010[1263:TKOIAL]2.0.CO;2)

- Morris, B. 2010. Indigenous knowledge. *The Society of Malawi Journal*, 63(1):1-9.
- Murphy, O. 2018. Coworking spaces, accelerators and incubators: Emerging forms of museum practice in an increasingly digital world. *Museum International*, 70(1-2):62-75. <https://doi.org/10.1111/muse.12193>
- Nakata, M. & Langton, M. 2005. *Australian Indigenous Knowledge and Libraries*. 36. UTS ePRESS.
- Nakata, N.M. 2007. Indigenous digital collections. *Australian Academic & Research Libraries*,:99-110. Doi: 10.1080/00048623.2007.10721280
- Naramski, M. 2020. The application of ICT and smart technologies in Polish museums-towards smart tourism. *Sustainability*, 12(21), 10.3390/su12219287
- Navarro, N., Andres, Adolfo, & Moreno, S., Isidro,. 2015. Redefinition of ICTs in the museum: from invasive to inclusive discourse. *Complutum*, 26(2):219-228.doi:10.5209/rev\_CMPL.2015.v26.n2.50432
- Newcomer, K.E., Hatry, H.P. & Wholey, J.S. 2015. Conducting semi-structured interviews. *Handbook of Practical Program Evaluation*, 492,
- Ngulube, P. 2002. Managing and preserving indigenous knowledge in the knowledge management era: challenges and opportunities for information professionals. *Information Development*, 18(2):95-102. DOI: 10.1177/026666602400842486
- O' Connor, R.A. 1981. law as indigenous social theory: a Siamese Thai case. *American Ethnologist*, 8(2):223-237. <https://doi.org/10.1525/ae.1981.8.2.02a00010>
- O'Reilly, K. 2009. Key informants and gatekeepers. *Key Concepts in Ethnography*:132-137.
- O guamanam, C.h. 2004. Localizing intellectual property in the globalization epoch: The integration of indigenous knowledge. *Indiana Journal of Global Legal Studies*, 11(2):135-169.
- Oliver, G. 2017. *Museum and archive on the move : Changing cultural institutions in the digital era*. Berlin/Boston, Germany: De Gruyter.
- Papadopoulou, K. 2016. *Digital technologies in museums: An ethnographic study*. Sweden: Linnaeus University. (Thesis).

Pietroni, E. & Ferdani, D. 2021. Virtual restoration and virtual reconstruction in cultural heritage: terminology, methodologies, visual representation techniques and cognitive models. *Information*, 12(4), 167. Doi: 10.3390/info12040167

Pilot, J. 2005. Developing indigenous knowledge centres. *Australian Academic & Research Libraries*, 36(2):37-43. <https://doi.org/10.1080/00048623.2005.10721247>

Polkinghorne, D.E. 2005. Language and meaning: Data collection in qualitative research. *Journal of Counseling Psychology*, 52(2):137. DOI: 10.1037/0022-0167.52.2.137

Pujol-Tost, L. 2011. Integrating ICT in exhibitions. *Museum Management and Curatorship*, 26(1):63-79. doi:

10.1080/09647775.2011.540127

Raphesu, M. 2010. Vulnerability of indigenous knowledge management systems in South Africa. *Slideshare Blog*,

Rayne, A., Byrnes, G., Collier-Robinson Ngāi Tahu, N.A.k.t.r.t., Te Whānau-ā-Apanui, Ngāti Porou, Levi, Hollows, J., McIntosh, A., Ramsden Kāti Huikai, K.T., Mananui, Steeves, T.E. 2020. Centring indigenous knowledge systems to re-imagine conservation translocations. *People and Nature*, 2(3):512-526. <https://doi.org/10.1002/pan3.10126>

Rehman, A.A. & Alharthi, K. 2016. An introduction to research paradigms. *International Journal of Educational Investigations*, 3(8):51-59.

Ribot, J.C. & Peluso, N.L. 2003. A theory of access. *Rural Sociology*, 68(2):153-181.

Ruttkay, Z. & Bényei, J. 2018. Renewal of the museum in the digital epoch. In. *The Future of Museums*: Springer. pp. 101-116.

Sabharwal, A. 2015. *Digital curation in the digital humanities : preserving and promoting archival and special collections*. USA: Chandos Publishing.

Sandahl, J. 2019. The museum definition as the backbone of ICOM. *Museum International*, 71(1-2):vi-9.

Schmidt, C. 2004. The analysis of semi-structured interviews. *A companion to Qualitative Research*, 253:258.

South African Government. 2019. Protection, promotion, development and management of indigenous knowledge act 6 of 2019.

South African History Online. 1997. Address by President Mandela on heritage day at Robben Island. *Speeches and Public Statements*, [www.sahistoryonline.org.za](http://www.sahistoryonline.org.za)

South African Museums Association. 2007. *Museums in a Virtual Age Conference*. 15 July 2021.

Srinivasan, R., Enoté, J., Becvar, K.M. & Boast, R. 2009. Critical and reflective uses of new media technologies in tribal museums. *Museum Management and Curatorship*, 24(2):161-181.

Stella, S. & Georgios, P. 2019. ICT in the promotion of arts and cultural heritage education in museums. pp. 363. Cham: Springer International Publishing.

Susan, H. 2011. The museum in the palm of your hand: presenting the Israel museum through ICT. *II Capitale Culturale: Studies on the Value of Cultural Heritage*, (3):11-23. doi: 10.13138/2039-2362/166

Tansey, J. & O'riordan, T. 1999. Cultural theory and risk: a review. *Health, risk & society*, 1(1):71-90.

Terry, G., Hayfield, N., Clarke, V. & Braun, V. 2017. Thematic analysis. *The Sage Handbook of Qualitative Research in Psychology*:17-37.

Thomas, P. & Mazonde, I.N. 2007. *Indigenous knowledge systems and intellectual property in the twenty-first century : Perspectives from Southern Africa*. Dakar: Codesria. (Codesria Book Series).

Thompson, J. 1996. Moving the indigenous knowledge debate forward? *Development Policy Review*, 14(1):105-112. <https://doi.org/10.1111/j.1467-7679.1996.tb00413.x>

Tolia-Kelly, D.P. & Raymond, R. 2020. Decolonising museum cultures: An artist and a geographer in collaboration. *Transactions of the Institute of British Geographers*, 45(1):2-17. Doi:10.1111/tran.12339

Tongco, M.D.C. 2007. Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, 5:147-158. <https://hdl.handle.net/10125/227>

Turner, H. 2015. Decolonizing ethnographic documentation: A critical history of the early museum catalogs at the Smithsonian's National Museum of Natural History. *Cataloging & Classification Quarterly*, 53(5-6):658-676. <https://www.figshare.com>

Van den Akker, C. & Legêne, S. 2017. *Museums in a Digital Culture*. Amsterdam: Amsterdam University Press.

Van Dijk, J. 2020. *The network society*. Sage.

Voogt, J. & Knezek, G. 2008. *International Handbook of Information Technology in Primary and Secondary Education*. 20. New York: Springer.

Vos, C. Heritage and policy. In. *The Encyclopedia of Archaeological Sciences*. pp. 1-5.

Walker, P.O. 2015. Indigenous paradigm research. In. *Methodologies in Peace Psychology: Peace Research by Peaceful Means*: Springer. pp. 159-175.

Wang, Y.C., Chen, C.L. & Deng, Y.Y. 2021. Museum-authorization of digital rights: A sustainable and traceable cultural relics exhibition mechanism. *Sustainability*, 13(4), 2046. Doi:10.3390/su13042046

Widdersheim, M.M. 2021. Libraries, archives and museums as democratic spaces in a digital age. *Journal of Arts Management Law and Society*, 51(2):150-152. doi: 10.1080/10632921.2021.1878081

Williams, R. 2013. *Base and superstructure in Marxist cultural theory*. Routledge.

Williams, R.V., Grenersen, P.G., Edwards, B.F.R. & Srinivasan, R. 2009. Documentation and communication in Aboriginal/indigenous communities. *Proceedings of the American Society for Information Science and Technology*, 46(1):1-3. <https://doi.org/10.1002/meet.2009.145046016>

Wilson, S. 2001. *What is indigenous research methodology?* . Canada: Proquest Central.

Witcomb, A. 2003. *Re-imagining the museum: Beyond the mausoleum*. London: Routledge.

Wolcott, H. 1992. Posturing in qualitative inquiry in MD Lecomyste. *The Handbook of Qualitative Research in Education (3-52)*, NT: Academic,

Yu, hyphen, Liang, C., Tien, hyphen, Yu, H., ... Pang, Y. 2006. Ontological techniques for reuse and sharing knowledge in digital museums. *The Electronic Library*, 24(2):147-159. doi: 10.1108/02640470610660341

Zollo, L., Rialti, R., Marrucci, A. & Ciappei, C. 2021. How do museums foster loyalty in tech-savvy visitors: The role of social media and digital experience. *Current Issues in Tourism*, Doi: 10.1080/13683500.2021.1896487

# ANNEXURES

## Annexure 1: Research ethics approval



**ETHICS APPROVAL LETTER OF STUDY**  
 I, based on approval by the Faculty of Natural and Agricultural Sciences Ethics Committee (FNASREC), the Faculty of Natural and Agricultural Sciences Ethics Committee hereby approves your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-SCRE) grants the permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

**Study title:** Digital Technology Impact in the Access, Preservation and Curation of Indigenous Artefacts at Matleng Museum  
**Study Leader/Supervisor:** Dr MT Koitsiwu  
**Student:** NM Moswera

**Ethics number:** **NWU-00515-21-A9**

**Application type:** Single  
**Commencement date:** 24/06/2021  
**Expiry date:** 30/09/2022

**Risk Category:** Minimal

Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.

- Special in process conditions of the research for approval (if applicable):
- The following documentation are archived by FNASREC and should be complete and kept up to date:
    - Research proposal
    - Signed approval from the scientific committee indicating the proposed risk category
  - All researchers involved in the study should submit signed NWU code of conduct statements annually.
  - All researchers of low risk studies should submit proof of relevant ethics training every two years.
  - All researchers that take part in activities that pose a safety and security threat to the researchers or the environment should submit a risk assessment form annually.
  - All research involving human participants should follow best ethical practice and keep documents as proof. This includes informed consent, questionnaires, incorporation of risk factors, and domestic data management.
  - Any research at governmental or private institutions, permission must still be obtained from relevant authorities and provided to the FNASREC. Ethics approval is required BEFORE approval can be obtained from those authorities.

**Special conditions:**  
 The best practices with regards to interviews should be implemented, including proper negotiation of access to participants, representative sampling, documented informed consent that includes the important elements, alignment of information collected with research questions, anonymisation of collected information, ensuring the integrity and security of all data collected. If personal information is collected as part of the study, it will denote the risk level of the project.

While the ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- The study leader/supervisor (principal investigator)/researcher must report in the prescribed format to the FNASREC:
  - annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and
  - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.
- The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the FNASREC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately forfeited.
- Annually a number of studies may be randomly selected for an external audit.
- The date of approval indicates the final date that the study may be started.
- In the event of ethical responsibility, the NWU-SCRE and FNASREC reserves the right to:
  - request access to any information or data at any time during the course or after completion of the study;
  - to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;
  - withdraw or postpone approval if:
    - any unethical principles or provisions of the study are revealed or misreported;
    - it becomes apparent that any relevant information was withheld from the FNASREC or that information has been false or misrepresented;
    - submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or
    - new institutional rules, national legislation or international conventions deem it.
- FNASREC can be contacted for further information or any report templates via [ResearchEthics@nwu.ac.za](mailto:ResearchEthics@nwu.ac.za) 018 299 4209

The FNASREC would like to remain at your service as adviser and researcher, and wishes you well with your study. Please do not hesitate to contact the FNASREC or the NWU-SCRE for any further enquiries or requests for assistance.

Yours sincerely,

Prof Hoelof Burger  
 Chairperson Faculty of Natural and Agricultural Sciences Ethics Committee (FNASREC)

## Annexure 2: Permission letter to conduct research



FACULTY OF NATURAL & AGRICULTURAL SCIENCES  
INDIGENOUS KNOWLEDGE SYSTEMS CENTRE  
Private Bag X 2046, Mmabatho South Africa, 2745  
Tel: (018) 389 2463  
Fax: (018) 382 5776  
Web: <http://www.nwu.ac.za>

24 May 2021

To whom it may Concern

Dear Sir/Madam

### REQUEST FOR PERMISSION TO CONDUCT RESEARCH

The above matter bears reference.

This correspondence serves to confirm that Ms Nkagisang Maria Mogajane student number 2314339, is a registered student at the IKS Centre, North West University Mafikeng Campus. She is currently studying towards a Master's degree in Indigenous Knowledge Systems.

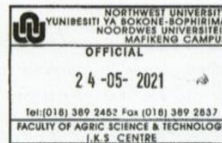
The Mafikeng Museum is a chosen study area for the research as per Ms Mogajane's approved research topic: Digital Technology Impact: In the Access, Curation and Preservation of Indigenous Artefacts at Mafikeng Museum. The NWU, therefore request permission for the student to collect data at Mafikeng Museum.

Yours sincerely,


A handwritten signature in black ink, appearing to read 'M. Koitsiwe', is placed above the name of the Research Director and Supervisor.

Dr Motheo Koitsiwe

Research Director and Supervisor



## Annexure 3: Interview schedule



**INTERVIEW SCHEDULE:**

**Indigenous Knowledge Holders**

**Section 1: Introduction**

**Starting the interview:** Good day, my name is Nkagisang Mogajane. I am a masters student from the North West University: Indigenous Knowledge Centre. Thank you for agreeing to take part in this interview. Please read and sign the consent form before we proceed with the interview.

Firstly, I would like to start with questions related to you:

- Please tell me about yourself (Name, main responsibilities & achievements).
- What does your work entail?


**Section 2: Main Questions**

- Are indigenous knowledge holders consulted and included in the digitization projects undertaken by the museum?
- What has been your contribution to the digitisation of collections at Mafikeng Museum?
- What is the impact of digital technology for the documentation, curation and preservation of indigenous artefacts? And how has this impact affected your work?

**Section 3: Closing Questions**

- Are custodians of the indigenous knowledge benefiting from digitization of indigenous artefacts at Mafikeng Museum?
- How does the museum ensure that intellectual property rights of knowledge holders as owners of these indigenous artefacts are protected?
- Which other issues do you think must be addressed or included in this research?

**Ending the interview:** Thank you for taking part in this interview and committing your time to answer questions. You are most welcome to contact me on issues and ideas that you think can assist further in this research.



**INTERVIEW SCHEDULE:**

**Museum Professionals**

**Section 1: Introduction**

**Starting the interview:** Good day, my name is Nkagisang Mogajane. I am a masters student from the North West University: Indigenous Knowledge Centre. Thank you for agreeing to take part in this interview. Please read and sign the consent form before we proceed with the interview.

Firstly, I would like to start with questions related to you:

- Please tell me about yourself (Name, Job title, main responsibilities & achievements).
- What does your work entail?

**Section 2: Main Questions**

- What is the motivation behind the introduction of digital technology to the preservation and curation of indigenous artefacts at Mafikeng Museum?
- As per your daily interaction with digital technology at the Mafikeng Museum, what can you attest based on the impact it has to preservation and curation of indigenous artefacts? Follow up question: How has this impact affected your work?
- How is the current level of service in terms of delivery at Mafikeng Museum now that it is linked to information communication technology?
- Which digital tools and methods are utilised for documentation and storage of indigenous artefacts at Mafikeng Museum? Follow up question: How effective, efficient and safe are these tools and methods?
- How is the community and the custodians of the indigenous knowledge benefiting from digitization of indigenous artefacts?
- Which strategy is adopted by the museum ensure that intellectual property rights of knowledge holders as owners of these indigenous artefacts are protected?

**Section 3: Closing Questions**

- What are challenges of digital technology to curation of artefacts at Mafikeng Museum?
- How is the museum mitigating these challenges?
- Is there a long-term strategy in place for the preservation of digitised artefacts? And how is this strategy implemented?
- Which other issues do you think must be addressed or included in this research?

**Ending the interview:** Thank you for taking part in this interview and committing your time to answer questions. You are most welcome to send me an email on issues and ideas that you think can assist in this research.





## Annexure 6: Turn-it in report

23143339:23143339\_NM\_MOGAJANE.DISSERTATION.pdf

### ORIGINALITY REPORT

<b>20%</b>	<b>17%</b>	<b>7%</b>	<b>9%</b>
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

### PRIMARY SOURCES

<b>1</b>	<b>openresearch.lsbu.ac.uk</b> Internet Source	<b>1%</b>
<b>2</b>	<b>journals.udsm.ac.tz</b> Internet Source	<b>1%</b>
<b>3</b>	<b>idl-bnc.idrc.ca</b> Internet Source	<b>1%</b>
<b>4</b>	<b>samuseumsassociationeasterncape.co.za</b> Internet Source	<b>1%</b>
<b>5</b>	<b>lnu.diva-portal.org</b> Internet Source	<b>1%</b>
<b>6</b>	<b>silopub</b> Internet Source	<b>1%</b>
<b>7</b>	<b>www.tandfonline.com</b> Internet Source	<b>1%</b>
<b>8</b>	<b>Submitted to North West University</b> Student Paper	<b>1%</b>
<b>9</b>	<b>www.intechopen.com</b> Internet Source	<b>1%</b>