

**VISUALISING EMBEDDED KNOWLEDGE IN INDIGENOUS IRON ARTIFACT
DESIGNS OF THE BAGANDA IN UGANDA THROUGH DRAWINGS**

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DECLARATION

I MAYANJA Richard Weazher, declare that this dissertation is my original work and has never been submitted to any academic institution for any award.

Signature: Date:

APPROVAL

We, as the University supervisors, confirm the work done by the candidate under our supervision.

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DEDICATION

I dedicate this dissertation to my children: MAYANJA Mary Psalms, MAYANJA Ecclesiastes, MAYANJA Proverbs Shure, MAYANJA Evelyn Frøya, and MAYANJA Luganda.

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LIST OF ACRONYMS AND ABBREVIATIONS

UNESCO	United Nations Educational, Scientific and Cultural Organization
NDP	National Development Plan

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ABSTRACT

Indigenous iron artifact designs are considered relevant in many communities around the globe due to their connection to traditional knowledge, spiritual beliefs, meanings, aesthetics, functional value and tangible links for technological advancements. Therefore, various societies have exerted efforts in having their indigenous concepts visualized through profiling for revival and posterity. However, this was not the case with the indigenous iron artifact designs of the Baganda in Uganda, irrespective of their unceasing relevance. This study was set out to visualise embedded knowledge in indigenous iron artifact designs of the Baganda in Uganda through drawings for posterity. The study was guided by three objectives: to analyse the historical relevance of Indigenous iron artifact designs of the Baganda in Uganda through interpretive drawings, to assess the extent to which indigenous knowledge of iron artifact designs of the Baganda in Uganda has survived in the contemporary creative space. to extract the embedded knowledge in the indigenous artifact designs of the Baganda in Uganda through analytical design drawings. The study was qualitative and employed an ethnographic research design to capture the production and consumption of indigenous iron artifact designs. The theoretical framework was crafted from three theories: Material culture theory, which was the primary theory supported by Articulation theory and Adoption theory. The study population consisted of blacksmiths, household users, and dealers in trading indigenous iron artifacts of the Baganda from Buddu, Kyaggwe, and Sseese counties of Buganda. Two sampling techniques; purposive and snowball, were used to select a study sample of twenty-seven (27) respondents from the study population. A combination of data collection methods was employed to attain triangulated data, and they consisted of Semi-structured interviews, library and archival search, participant observation, photography, and studio experimentation. The collected data was tabulated and analyzed using a narrative inquiry approach by coding and identifying themes to discuss the aspects of trustworthiness in the collected data, and informing studio explorations. The study findings indicate that the historical relevance of indigenous iron artifact designs in the lives of the Baganda fostered the sustainability of the political, religious, and socio-economic fabric of the Baganda. Although ironworking as an indigenous practice in Buganda experienced setbacks emanating from factors such as colonialism, modern education, religious shift, political insurgencies, and globalization, which were instrumental in the decline of smelting, forging tools, indigenous iron artifact designs minimally survived through oral traditions, improvisation of substitutive materials, continuation of cultural practices, musealisation and adoption of their features into contemporary creative arts and design productions. The study concludes that the indigenous iron artifact designs of the Baganda survive as repositories of embedded knowledge that have been gradually ignored and undervalued by mainstream design and visual culture scholarship. Through rigorous studio-based analysis and theoretical reflection approaches demonstrated in this study, it becomes clear that these iron artifacts incorporate multifaceted knowledge systems; technical functionality, spiritual representation aspects, symbolism, and aesthetics, which deserve immortalization.

CHAPTER ONE: INTRODUCTION

1.1 Overview

This study was intended to visualise the embedded knowledge of indigenous iron artifact designs of the Baganda. The guiding thesis question was: How can the cultural, historical, and technical knowledge embedded in the indigenous iron artifact designs of the Baganda be extracted and immortalized through visual interpretation for posterity? Therefore, this chapter contextualizes the study by incorporating the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, scope of the study, and significance of the study.

1.2 Background to the Study

Indigenous iron artifact designs are among the treasured art forms by various native societies because of their significant ergonomic-aesthetic value (function, composition, decorations, and beauty) and historic resonance, which manifests communities' ancestral knowledge, cultural identity, and heritage (Eze-Uzomaka, 2019; Lwanga, 2020; Ndoro & Pwiti, 2020). This is affirmed by scholarly works from the material culture point of view, with attestation that these designs go beyond just being objects for functional use and ornaments, but are vessels of social memory, individual reflection of belief systems, and value orientation to the makers and users (Kopytoff, 1986; Miller, 2005). They serve as tangible links to the past, reflecting artistic traditions and technological advancements.

In this study, indigenous Iron artifact designs incorporate human-made objects out of iron for emotional consumption and practical purposes, often reflecting a specific culture and sometimes an edge (Miller, 2001). They are designs of craftsmanship and skill, invested with emotional, philosophical, expressive, spiritual, and aesthetic quality. Their meanings are not fixed but interpreted subjectively by individual communities within popular and social contexts (Crotty,

1998; Guba & Lincoln, 1994). Therefore, indigenous iron artifacts embody fine visual art with a sense of utility and are crafted for human agency and visual communication. This implies that globally, civilizations not only make indigenous iron artifact designs for a practical use, but also as a means to articulate ideas, emotions, beauty, and power- a claim consistent with material culture theory's focus on how physical objects mediate social experience; hence driving inspiration for their visualization as a form of immortalisation.

Visualisation as an approach to immortalisation provides a clear understanding and interpretations of iron artifacts designs through drawing, describing ideas which might otherwise be invisible, abstract, and sometimes hidden. This way, the study argues that the data in visual form is not just a representation of what is seen but also what is embedded as symbolic meanings, functions, relationships, and cultural values. This aligns with Pink (2013), who confirms visual methods as powerful tools for making cultural knowledge visible, and with Niedderer and Roworth-Stokes (2017), who emphasise that studio-based practices enable reflective interaction with material culture. Therefore, visualisation supports the immortalization and continued relevance of indigenous knowledge by making embedded ideas accessible for both scholarly interpretation and posterity.

Immortalization denotes the process of preserving something in a way that ensures it endures beyond its original context; time, production, and use (Digital heritage and its importance, 2023; Maré, 2004). Important to note is that the immortalisation of indigenous ideas, regarding the extraction and profiling of the knowledge embedded in the design conception, production, usage, and meanings, has been advocated for in the UNESCO sustainable development agenda of 2016 (Magni, 2017). As well, Fagg Rackham, et al (2017), Iles (2013), Sassoon (1963), Schmidt (1997), among others, made efforts to have such ideas immortalized through scholarly works. However,

this has not been the case for the indigenous iron artifact designs of the Baganda people of Uganda. There is limited information about profiling the indigenous iron artifacts of the Baganda (Iles, 2013; Oliver, 2010; Reid, 2002); thus, reflecting a broader gap in global heritage studies since knowledge systems of indigenous communities, more so in East Africa, have been marginalized. Most of the historical and ethnographic studies neglected visual interpretation in historical analysis. They do not employ interpretive drawings as a methodical tool to reconstruct and contextualise the use and of the indigenous iron artifact designs; knowledge, symbolic meaning, aesthetics, and cultural power

UNESCO (2005) observes that recognizing the importance of traditional knowledge as a source of non-material and material wealth is one of the current objectives various reputable organizations in governments, academic institutions, and international agencies are fronting; in particular, the knowledge systems of indigenous peoples, its positive contribution to sustainable development, as well as the need for its adequate protection and promotion. Therefore, explanations constructed through Articulation theory (amplified in chapter 2) provide the understanding of how the indigenous iron artifact designs are historically and culturally linked to various domains: ritual, power, gender, and trade (Hall, 1986; Slack, 1996). Articulation also allows the analysis of how colonial, modern, and global influences have shifted or disrupted these meanings (Grossberg, 1996). What becomes evident is that the indigenous iron artifact designs of Buganda with their embedded knowledge are not isolated but articulated broader systems of economic exchange, social organization, and cosmological belief.

Studying indigenous knowledge systems incorporates the understanding of skills, philosophies developed by communities with long histories of interaction with their natural and cultural settings (Gupta, 2012; Mhlongo, 2020). From an interpretivist perspective, indigenous artifacts, including

iron works, cannot be understood through technocratic analysis but demand a situated interpretation of how communities and individuals give meaning to them through visual symbolism, ritual, and oral tradition. As phenomena based on ancestral relationships, practices, and perception, deeply connected to the social, economic, and spiritual aspects of indigenous knowledge systems.

Embedded in the indigenous systems is the knowledge of using iron to make artifacts. Among the Baganda, this knowledge comprises the indigenous technical skills and cultural wisdom passed down through apprenticeship systems. Notably, the mining and selection of iron ore, the collection of other related materials, and the technology of smelting iron ore for the production of ready-to-use iron, design thinking, and forging of artifacts from iron by the blacksmiths. The nature of the designs highlights their importance and multifaceted role in the indigenous societies as crafts with functions to serve, such as aesthetic items, symbols of power, social class, and assigned meanings. The gradual reduction in the presence of indigenous ironworking threatens this knowledge, necessitating urgent documentation and revitalization efforts.

There is a danger of these valuable indigenous cultural ideas being neglected, particularly by the younger generation of the Baganda, as it is increasingly succumbing to the appeal of modern culture (Nuwagaba, 2014). Ultimately, the Iron artifact designs and technical knowledge that have been activated and upheld for centuries by their forefathers could potentially disappear forever if not articulately documented. Only a few elderly Baganda individuals still possess the traditional skills of smelting and forging tools from iron ore. As a result, the disappearance of these distinctive artifacts and their significance within society is evident due to the lack of conservation efforts, notably documentation, drawings, photography, videos, and museums in their profiling (Mayanja, 2024).

Iron working, as one of the ancient human activities that has played a significant role in establishing human civilization and shaping societies through its functional, economic, spiritual, and artistic contributions, depending on the consumers' contexts (Bulstrode, 2023; Mtetwa, 2017). Therefore, this infers why communities in contemporary times still value and identify themselves with the supremacy of designs for indigenous iron artifacts; aesthetics, meanings, and symbolism (Haaland et al. 2002). This implies that for ages, ironworking as a practice has been engrossed in societies around the globe (Figure 1).

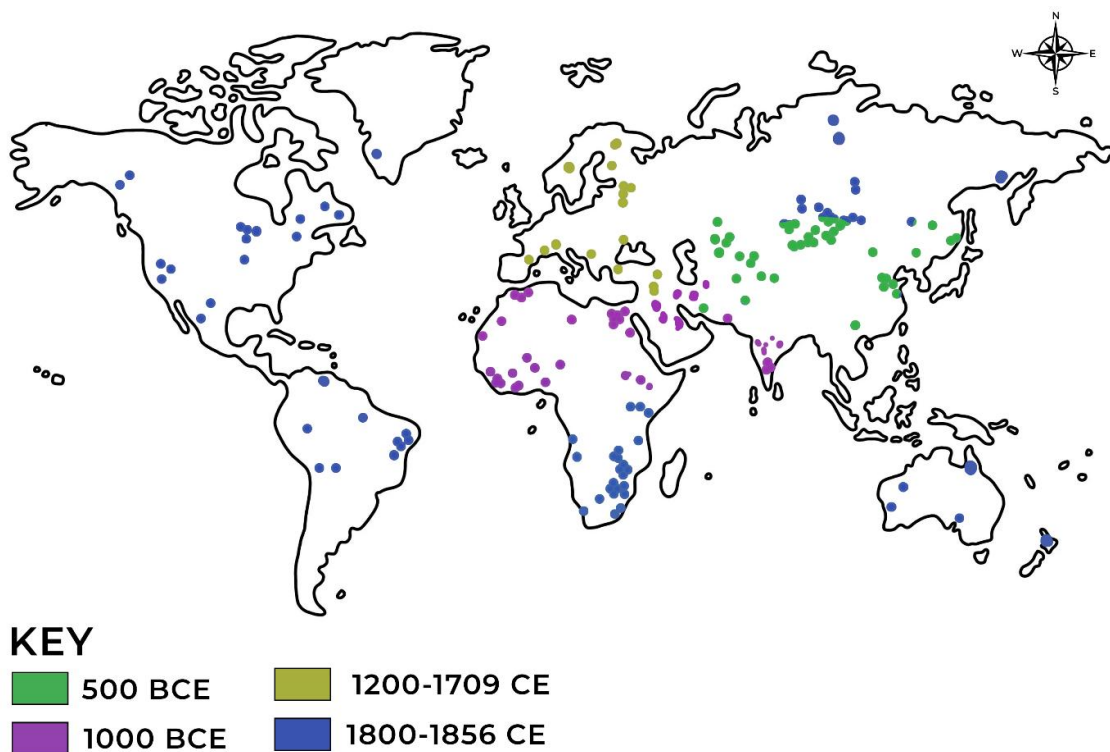


Figure 1: The map of the world showing ancient iron working civilizations

Source: Researcher

The historicity and advent of knowledge about iron working are discussed in various publications. Bromehead (1940), Childress (2000), Srinivasan & Ranganathan (2013), and Wilson (2001) affirm

early ironworking technology in African civilizations, such as West Africa and Egypt, before it spread to other civilizations around the world, such as India, Turkey, Greece, and China. However, the year when iron working was discovered is not clear since the idea of documenting historical events has not been a common practice in various civilizations. Also, the archeological findings cannot be independently based on for conclusive answers, more so in East and central Africa (Reid, 2012). In most societies where ironworking is practiced, information is still disseminated through oral traditions and object-centered conversations (Ossai, 2010). This necessitates a subjective method that honors local epistemologies over positivist standards of evidence (Grossberg, 1996; Roberts & Montoya, 2023; Slack, 1996).

Across Africa, there has been evidence of iron smelting sites, weapons, and other artifacts that have been unearthed by archaeologists. The discoveries in the territories once occupied by ancient African chiefdoms, kingdoms, and empires such as Teruga in the Republic of Nigeria, Ethiopia, Burkina Faso, and the Chwezi Empire, which occupied partly the current East African region (some parts of Uganda, Tanzania and the Democratic Republic of Congo (DRC)) predate to over 2000 years (Holl, 2009; Rackham et al, 2017). These findings are part of the bigger African collection presented in museums and other historical sites around the world, with minimal descriptive contextual profiling information. These collections serve as educational materials for tourists, innovators, and academicians (Nakazibwe, 2005); albeit with inadequate, exhaustive data. From the material culture perspective, this detextualisation strips artifact designs of their embedded meanings; therefore, only through community-based research and interpretive visual documentation can the full significance of such creations be restored (Chirikure & Pwiti, 2008; DeSilvey, 2017).

In various civilizations around Africa, iron was used to make different and significant artifacts, including but not limited to knives, needles, daggers, arrows, swords, axes, pieces of jewelry, bells, and nails. The artifacts were in various designs and created based on the intended purposes of blacksmiths and users. Some purposes were security, defense, fishing, spirituality, agriculture, utilities for home use, and commodification. Therefore, iron artifact design, production, and consumption were fundamental for the survival and transformation of societies in Africa into well-established kingdoms or Empires with both spiritual and material power (Froeschle, 2015; UNESCO, 2009).

The Great Lakes region is one of the areas globally known for its skills and with a long history of ironworking. Childs and Herbert (2005) point out that ironworking was developed in the Lake Victoria region by the different Bantu communities. Various scholarly works affirm that iron production revolutionized the political (leadership, security), social (rituals, religion, items of identity), and economic (commodities for exchange with neighbors, taxation) lives of the Bantu-speaking Africans (McKeeby, 2018). Crafting ironworks was useful in creating tools for agriculture, utensils for everyday life, weapons for protection, and conquest for the expansion of territories (Shillington, 2012, p. 45).

Literature on ironworking of selected cultures across Africa such as the Haya, Dahomey, Benin, Ife, Bunyoro among others (Childs, 1991; Chirikure & Rehren, 2006; Haaland, 2004; Kiptala et al., 2022; Schmidt & Avery, 1978; Van-Noten & Raymaekers, 1988; Zou et al., 2022) establishes that the practice of ironworks differs from one grouping of people to another, with uniqueness in the way every step in production is done, designs of iron forms, the norms related to the practice, the value, and the meaning. Subsequently, the attained products possess designs with elements of identity, making them unique from the iron artifact designs of respective societies. However, the

similarities in the scholarly literature on the researched and documented cultures are not enough to serve as a basis for understanding the iron artifact designs of other cultures, such as the Baganda people, but rather an inspirational springboard to study the undocumented embedded knowledge.

The Baganda are indigenous people of the central and southern region of Uganda, who are part of the Bantu ethnicity. Singularly, the word *Muganda* is used to refer to a member of that group. Their territorial location is called Buganda (Figure 3), and often the words *Kiganda* or *Kaganda* are commonly used to refer to their productions (Nakazibwe, 2005, p 1). The Baganda were cultivators, pastoralists, and craftsmen. Crafts in areas such as musical instruments, woodwork, pottery, woven baskets, architectural Figures, bark cloth, and ironworks were some of the items sold within Buganda and to nearby territories through barter exchange to access other items made by other kingdoms (Nagawa, 2018; Nakazibwe, 2005). For generations, Buganda has been one of the most powerful kingdoms in East and Central Africa and the largest kingdom in Uganda.

Buganda has been ruled over by the *Bakabaka* (Kings) since its conception as Muwawa a territory of three counties three counties until its consolidation around 1400 AD under the establishment of Kintu lineage. The Kabaka is the supreme leader and has control over the cultural practices, clans, and administrative structures of the kingdom (Msiska, 2019; Finnström, 2010; Fallers, 2017). The Baganda, as his subjects are generally classified into two major groups: the *Balangira and Bakopi*, speaking Luganda as their native language. This classification will be useful in the understanding of the relevance of indigenous iron artifact design among the Baganda since both classes used iron artifact designs for various purposes within their class rights.

Buganda is one of the Bantu kingdoms around the Lake Victoria region with a long history of iron works, though with no clear predated archeological evidence. Therefore, there is no conclusive

information on when, in particular, the Baganda started to produce iron implements. The available historical data points out that the Baganda are believed to have started accessing iron implements through trading with the Bunyoro Kingdom, their former rival neighbor, in exchange for *Embugo* (Bark cloth), animals, and hides (Nakazibwe, 2005). The conquest of three territories, Buddu, Kyaggwe, and Kooki counties, from the Bunyoro Kingdom boosted Iron production in Buganda. The three counties were endowed with iron ore and skilled blacksmiths, who were tasked by the Kabaka (King of Buganda) to train his trustees in the palace (Iles, 2016; Kagwa, 1934; Reid, 1997). The Iron industry was strongly manifested and consolidated among the Baganda as a cultural practice.

The trustees embraced the knowledge of iron smelting and forging artifacts in different designs to meet the needs of the time. The monarchy played a role in determining, directing, and sustaining their production and usage. As a result, ironworks production became stronger in Buganda than in other parts of Uganda. The production provided items for use and trade (Chirikure, 2007). The iron items included but were not limited to knives, spears, arrows, rattles, bells, and sharp implements (Figure 2), which were essential to various life activities. These artifacts are still extrinsically and intrinsically valuable to the Baganda, with important roles and meanings in contemporary times and space. Their relevance concerning the economic, political, and social spheres of the Baganda is undeniable.



Figure 2: Some of the Iron artifacts of the Baganda: (a) Akambe, (b) Effumu, (c) Obusaale, and (d) Endege

Source: Collage of Photographs taken by Researcher during museum visits

The Baganda people of central and southern Uganda are among the African societies that designed iron artifacts and developed a sophisticated iron working tradition that became central in their daily life, warfare, symbolism, and interactions with the spiritual realm. Historically, the relevance of the indigenous iron works of the Baganda dates back several centuries. Holding the blacksmiths occupying a respected status in society due to their ability to design and craft tools, weapons, decorative, and ritual objects. The Baganda, like other cultures, have their ironworks designs adapted to their cultural practices and consumption. The designs, knowledge, and technology related to indigenous ironworks still hold an important place in the political, social, and economic life of the Baganda. The iron objects are still believed to be of significance in the traditions and modern culture of the Baganda (Kekimuri, 2019; Humphris & Iles, 2013). The unceasing relevance

of the indigenous iron artifact designs in the contemporary Buganda underscores their material and symbolic endurance. However, the available studies underemphasize how colonialism, modernity, and socio-economic change disrupted the transmission of blacksmithing knowledge and sometimes viewed it as outdated, with limited attention to how they might inspire modern design and education. Adoption theory and material culture approaches underscore the continuity, emphasizing the enduring social-artistic life of objects irrespective of their evolving functions. This depicts indigenous iron artifact designs as social actors (Miller, 2005), entangled in humanistic projections.

By 1500 CE, the consumption of ironwork designs was not only limited to utilitarian importance, but became central to ritual, power, and state-making among societies (Chirikure, 2007; Oliver et al., 1975). The consumption started evolving and spanning from just on the functionality of the iron products to being used as symbols of identity, forms of supernatural power (Oliver et al., 1975), to usage in enriching the language (Kallen, 2001), forms of space ornamentation for interior decoration and among others in the contemporary space (Chirikure, 2007). This was a consequence of the Baganda developing specific adaptations that catered for systems of iron production since Iron artifacts were highly considered in the local political, religious, and social fabric.

The historical contribution of iron implements in the expansion and development of Buganda from a smaller kingdom to one of the most prominent Kingdoms in Africa cannot be ruled out. Implements such as spears and arrows were useful weapons for warfare and protection at individual households and the Buganda Kingdom territories. Hoes and knives led to agricultural advancement. Other important cultural and economic activities were hunting, trading, bride price for marriage, regalia for the gods, kings, and divine rituals (Kafumbe, 2011; Kekimuri, 2019).

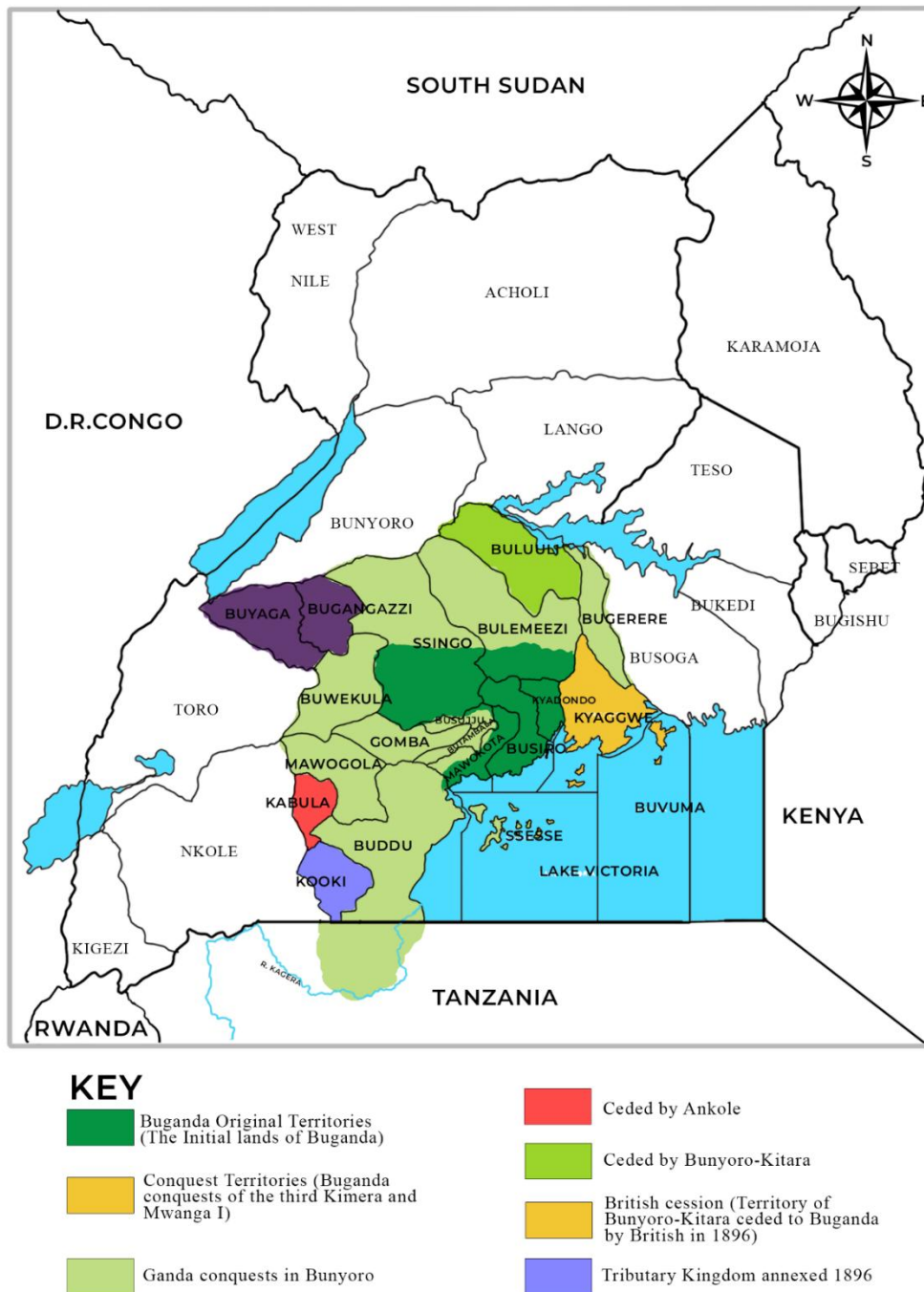


Figure 3: A map of Uganda showing origin and expansion of Buganda territory

Source: Researcher

Figure 3 presents the systematic expansion of the Baganda territory from the original three (3) counties to eighteen (18). The territorial expansion acquired through warfare provided the Baganda

with the opportunity to acquire more iron ore deposits, population, cattle, fertile soils, and women. The desirable further conquest and developments were interrupted by religious interpretations and political instabilities, which started during the independence struggle between the British and Ugandans, the Kabaka crisis of 1953 to 1955, and 1966, which led to the abolition of the Buganda kingdom in 1968 (Earle, 2017; Wasswa-Kintu, 1995).

The scarcity of imported goods of the 1970s, occasioned by the said President Amin's economic mismanagement, was an opportunity for indigenous iron works. Blacksmiths in Kikukumbi, Katwe and Kisenyi fabricated farm implements and domestic utensils because there was no money to import industrial products from the West. The practice was later disabled by the liberation wars; from 1975 to 1979 of the Uganda National Liberation Front (UNLF) against the Idi Amin regime, and later from 1981 to 1986 of the National Resistance Army (NRA) against Milton Obote's regime (Mutungi, 2015). The wars destabilized the renowned counties of iron works in Buganda, such as Ssesse, Kooki, Buddu, Kyaggwe, Mawokota, and Bulemeezi, loss of life, destruction of property, and displacement of people. After the liberation war that made NRA take power in 1986, peace prevailed for a little while in Buganda and Ugandans started to embark on resuming their cultural practices and vendors in markets like Sauriyako and Owino set up stalls dealing in the related artifacts; not until the outbreak of other instabilities like land grabbing broke out and new government environmental policies, which still stand to date hence another phase of hinderance.

1.2.1 A reflective situation analysis

The purpose of this reflective situation analysis was to create a space for the researcher to not only share personal life experiences but also to delve into the deeper context and significance of this research. It is vital to gain a thorough insight into how different components within this context

interplay and impact the sustainability and importance of indigenous knowledge systems concerning iron works. By identifying important stakeholders, factors of influence, and connections, this analysis aims to shed light on the obstacles and prospects linked to the conservation of these historical artefacts. Through this methodical approach, the study has managed to gain a clearer perspective on the current situation, which will in turn help guide further discussions and analyses in subsequent chapters.

For countless generations, the Buganda established a highly specialized craftsmanship in ironworking. Skilled blacksmiths passed down their knowledge through generations with the intention of future utility. Even today, these iron artifact designs hold significant value and are considered essential instruments in various aspects of Buganda society. Iron artifacts served a vital role in the kingdom's power dynamics and social structures, functioning as symbols of authority, leadership, power, and respect. One notable example of the importance of iron artifacts in Buganda is their use in the clan hierarchy. From the lowest ranks of *Owolujja*, *Owomotuba*, *Owolunyiriri*, *Owessiga*, and *Owakasolya* to the highest rank of the Kabaka, tools such as spears were integral in demonstrating status and hierarchy within the community (Kekimuri and Wathum, 2024; Stonehouse, 2012). Kabaka, as the ultimate leader of all clans and counties, wielded iron artifacts (spears and arrows) symbolizing his supreme authority. The occasions are sometimes elaborated to the young generation by the clan of family elders. They form part of the stories I heard since my childhood.

My upbringing is punctuated with vivid memories of these iron artifacts utilised on various occasions within Buganda society. The significance of these tools goes beyond their material composition, encompassing the cultural heritage and traditions of the Buganda people. They are not just simple objects for utility, but designs affirming respect, tradition, and power within the

community. The craftsmanship and design of Buganda iron artifacts reflect the expertise and skill of the artisans who have passed down their techniques through generations. Each piece tells a story of heritage and legacy, encapsulating the history and values of the Buganda culture. The intricate patterns and shapes of the artifacts signify more than just their physical form; they are embodiments of Baganda identity and pride.

The use of iron artifact designs in Buganda is deeply rooted in traditions and customs, representing a continuity of practices that have been part of their culture for generations. The significance of these tools goes beyond their physical attributes, reflecting the values and beliefs of the Baganda. They serve as a visual reminder of the cultural heritage and legacy that shapes Buganda society. From the intricate details of each iron artifact to the rituals and ceremonies in which they are used, Buganda's tradition of craftsmanship is embedded in every aspect of the community's life. The cultural importance of these objects is evident in their role in ceremonies, celebrations, and everyday practices within Buganda society. They are not merely tools or decorations, but they affirm tradition, honor, and identity that define Buganda culture.

Reflecting on my experiences growing up in Buganda, I was struck by the profound impact that iron artifacts have had on shaping my cultural identity and sense of belonging. These objects are not just relics of the past; they are living symbols of the traditions and values that have been passed down through generations. Their presence in Buganda society serves as a constant reminder of the history and heritage that define who we are as a community.

The curiosity about the Iron artifact designs of the Baganda began when I was six years old, during a visit to my grandfathers' home. The first was my maternal grandfather's home in Kalungu, Buddu County of the Buganda kingdom. I also got intrigued by my paternal grandfather's home in Bunamwaya-Zana, situated in Busiro County of the same kingdom. In Bunamwaya-Zana, my

grandfather had a shrine within his home compound. This shrine served as a place of worship for the gods (*Balubaale*) realm and for divination rituals.

Deep within the sanctuary, I came across a variety of indigenous crafts that immediately reminded me of my maternal grandfather's bustling workshop and stores in the vibrant town of Kalungu. The collection of indigenous creations showcased ranged from exquisitely woven baskets and intricately designed pottery to bark cloths of different shades and delicate shells, it was the ironworks that truly stole the show. The diverse array of iron crafts on display, which included a dazzling assortment of spears, knives, arrows, rattles, and bells in varying shades and sizes, held me mesmerized. The meticulous organisation of the exhibit seemed to hint at the immense power and significance of the sacred space, with the iron implements standing as tangible symbols of authority, respect, strength, and dominance.

This was the first time to see such a vast collection arranged neatly in a grass-thatched hut. It seemed that these items served a purpose beyond just trading, with significant roles in the lives of the Baganda. I may have overlooked their importance due to a lack of exposure. I grew up with my mother, a devout Christian who viewed indigenous items negatively due to religious teachings. As I encountered similar artefacts in various locations among the Baganda, I began to outgrow her indoctrination and developed an open mind towards indigenous ideas.

During our occasional conversations, I asked my grandfather about the names of the different items. Some of the items he explained included *Amafumu* (spears shown in Figures 2 and 3), *Endege* (rattles in Figure 2), *Obusaale* (arrows), *Obwambe* (knives in Figure 2), *Enninga* (sharp tools), *Enyondo* (hammers), *Ebiwabyo*, and *Enkumbi* (hoes). He explained that these tools played a crucial role as they were used in daily lives by the Baganda, their gods, and spiritual practitioners during the divination process. The items were of various designs, each representing the power of

a different deity. Some of the gods mentioned were *Kibuuka-omumbale* (god of war), *Ddungu* (god of hunting), *Musoke* (god of rain), *Mukasa* (god of waters), and *Kiwanuka* (god of thunder).

As I observed cultural events of the Baganda community during my adolescence, I came to understand that Indigenous iron artefacts have significance beyond their use in divine healing ceremonies. These artefacts are commonly found in Baganda households and are also utilised in various traditional practices such as hunting, funeral rituals, the crowning of the Kabaka (king of Buganda), and the ceremonies of extraordinary chiefs like the Kamuswaga, the chief of Koki County of the Buganda kingdom. Additionally, these artefacts were used as props in music and dance performances.

In contemporary times, the Baganda use the tools and techniques of iron smelting and forging metal in their Luganda language to convey messages and lessons through folk songs, stories, idioms, visual arts, and proverbs related to power, politics, and hunting (Figure 4).



Figure 4: *Endege ziba nyingi neziyogaana* (Mayanja, 2015)

Artist: Researcher

Material: Soot on canvas (Tadooba technique)

Source: Researcher

Figure 4 visualises a story based on a proverb inspired by the character of *Endege*, an iron sound instrument used in dancing. The drawing reflects the Ganda proverb; "*Endege ziba nyingi neziyogaana*", loosely translated as 'the more rattles, the more the sound. This saying encourages teamwork and collaboration to achieve greater success.

Although indigenous iron artifacts and related activities are of great significance for the Baganda, there is a lack of information in the academic resources accessible to the natives and researchers. This deficiency has partly been enabled by the development of our educational curricula; the developers tend to focus less on indigenous technology and artefacts of African cultures, as well

as their cultural practices in general. The content generally tends to revolve around Eurocentric culture, technology, images, and languages such as English, Portuguese, and French.

There is limited information available about the presence of indigenous iron tools and other handicrafts in Africa, with only a few legends from various African tribes, such as the Alur, Buganda, Zulu, and Bunyoro among others, through oral tradition (Hanebrink & Smith, 2013; Ivey, 2021; Kunene, 1996; Reid, 1996; Roscoe, 1911). These legends include tales such as Kintu, the first Muganda, and Nambi, which depict the origins of Buganda, as well as Kibuuka Omumbale, a warrior and war god who fought with arrows and spears from the clouds. Gipir and Labong from the Luos of northern Uganda are mentioned for their spear, a symbol of power and authority, while Shaka Zulu and his warriors in South Africa are known for their use of short spears, which was an act of bravery. Another story involves Walukagga, a blacksmith from the *Kasimba* clan, who was tasked by Kabaka Bemba Musota, the last King of Buganda from the lineage of Kabaka Tonda, to create iron soldiers for warfare. The stories not only highlight the evidence of the existence of knowledge for producing iron artifacts but also serve as avenues of teaching various generations about the relevance of indigenous iron works in different cultures. I am some of my classmates got a chance of having these legends narrated to us by our primary teachers; however did little in providing the in-depth profiling information about the artifacts in the legends.

During my academic journey, I improved in critical appreciation for African cultures, technology, and their creations. By applying the design principles and elements design, I could establish the aesthetics and ergonomics value. I was tasked with understanding and appreciating traditional crafts in Uganda, focusing specifically on their design and intended purpose. This provided me with a new understanding of the different categories of artifacts used within our communities,

expanding my knowledge beyond just arrows and spears. In particular, I delved into the indigenous ironworks of the Baganda people, exploring both the aesthetic value and practical functions of the crafts within the community.

Despite the knowledge I had gathered about the beauty, uniqueness, importance, and value of indigenous crafts and technology, I was limited by the lack of emphasis on these aspects in various educational curricula. Instead, they were often regarded as insignificant and only mentioned in the stories with no descriptive visual information. The academic systems offered very little in terms of introducing, encouraging, and celebrating indigenous technology and knowledge among students at primary, secondary, and tertiary levels.

In the case of many inspiring oral stories, my grandfather used to stress the importance of arrows and spears by sharing with me the tale of Kibuuka Omumbaale. According to his account, which aligns with the narratives of other oral traditionalists and authors (Frey, 2004; Nyiracyiza, 2009; Peel, 1977), Kibuuka was a semi-divine belonging to the *Balubaale* (deities) in the traditional religion of the Baganda. He engaged in battles that aided in the growth and expansion of Buganda, using his magical abilities with iron weaponry to conquer the territories of the Bunyoro kingdom. Legends still tell of his feats today, with some remnants and information about his life found in Mbale-Mawokota, now part of the Mpigi district in Uganda. The most intriguing aspect of the story was his arrows, sparking my curiosity to learn about their design, texture, and materials used.

After my grandfather departed, some spearheads that were for Kibuuka were discovered in his rundown shrine. The shrine was close to falling apart, surrounded by new buildings and a church. Some of the iron artifacts were sold to metal scrap dealers by my aunt, who had embraced Christianity and no longer followed the traditional beliefs and customs of the Baganda people. She had fully embraced her new religion. Later, my aunt, along with fellow believers and their pastors,

set fire to the remnants of the shrines. The Pentecostal church, led by my aunt, now stands in the same location where my grandfather's shrine once stood. The rich history passed down by my grandfathers has now been lost, leaving us with only oral stories that lack evidence. The gatherings around the fireplace that my grandfather used to host for his grandchildren ceased, and we rarely come together anymore. Relatives embraced modernism, forsaking cultural traditions that defined their identity. This is happening to different families of Baganda and other tribes in Africa, where Western religious indoctrination is taking place.

While searching for indigenous knowledge to enrich my visual diary for studio practice, I visited various historical sites in Buganda, particularly places associated with indigenous religion. I was amazed to discover iron forms and other artefacts that closely resembled those I had seen in my grandfather's shrine and storage area. Some of the spears I collected from the shrine were identical to those found in places such as Mbaale in the current Mpigi district, known as the home of Kibuuka, the god of war, the worship space at Ssezibwa Falls in Mukono district, and the tombs of Kabaka Suuna in Wamala, Wakiso district. It became evident that they were crafted with the same skill and technique. Some of the spears are presented in Figure 5.



Figure 5: The spears of Kayikuuzi, Kinene, Walumbe, the gods of Buganda

Source: Photograph taken by the researcher from the remains of the shrine

A selection of ancient spears (Figure 5) belongs to the gods Bulamu, Kinene, and Walumbe, which survived over time from my grandfather's shrine. Despite showing signs of rust and damage from fire, I keep them in my collection for inspiration in my research endeavors. Each spear has a unique head shape, probably indicating varying uses or symbolic meanings such as supremacy, cultural belonging, and family memories.

During the pilot study for this research project, I explored various locations to gather pertinent information on the traditional ironworks of the Baganda. These places included the Kasubi tombs,

which serve as the final resting place for the four Buganda kings, the Uganda National Library, the National Archive, online resources, the Uganda National Cultural Center, and the Uganda Museum. Unfortunately, none of these establishments provided detailed information on the subject of interest as I had anticipated.

I was unable to get access to the Kasubi tombs due to a fire that occurred in March 2010, destroying a significant number of its valuable indigenous artifacts. The surviving artifacts have not been made accessible to the public yet. Scholars continue to feel the impact of this loss as the restoration has not been completed. The Uganda museum had some iron tools in its collection, but they were inadequately showcased and mixed with tools from other tribes, with limited information on the displays.

The national library had some books written by dedicated authors on traditional practices, who briefly hinted at the subject of ironworks with limited and basic illustrations, notably Trowell and Waschmann (1953). These written accounts do not provide a detailed explanation of the production processes, like design dimensions and decoration styles, in a visual format for individuals with limited literacy skills. Furthermore, accessing written materials is challenging due to the scarcity of public libraries in Uganda.

The scenario at the national archive was comparable to my experience at the Uganda Museum. They had visual representations of the specimens, but I could not locate explanations for important inquiries like who created the product, the reason for its creation, its users, its usage, and its relevance today, which are important questions for material culture study. The Uganda National Cultural Centre had limited information available. Their programs mainly concentrated on the activities performed with indigenous iron tools, rather than on the tools themselves, their production process, and their significance.

Teaching and overseeing research projects in painting, sculpture, and drawing allowed me to study my students' projects and explore themes inspired by objects from various cultures, with a particular focus on the indigenous cultures of Uganda. This enabled me to deepen my understanding and appreciation for the value of traditional knowledge in contemporary society, as well as the unique attributes, production methods, and similarities found in different cultural artifacts. While playing my role as a supervisor, I examined the creative forms utilized by students in their studio work and observed that while many shared similar design functions, they varied in their structural design and the materials they were made of. This reechoed the significance of studying the material culture of different cultures to protect their identities in the globalized world, as visualised in Figure 6.



Figure 6: Culture collage

Artist: NSHEKANABO Peter (former student)

Material: Acrylics on canvas

Source: Photograph taken by researcher during academic studio supervision

In the mural foreground (Figure 6), Nshekanabo depicted indigenous crafts to symbolically address the increasing blending of Ugandan cultures, specifically focusing on the Baganda and Banyankore. In the background, the artwork also forecasted the disappearance of certain customs, beliefs, and traditions from various cultures. The traditional iron works of the Baganda were prominently featured in the visual representation.

Through engaging in studios sessions and thematic exhibitions worldwide, I like other artists such as Kekimuri (2019), Kabiito (2010), Gombe (2002), Senoga¹, and Trowell and Waschmann (1953), exerted efforts towards showcasing and promoting the indigenous artifacts of the Baganda community. My works involved creating visual narratives and conducting performances during grand exhibition openings. These initiatives sparked discussions among audiences from various countries, appreciating the unique inspiration found in the artifacts' structures, textures, and the stories they convey. The significance of iron works within my academic circles has been a prominent topic of debate. In addition to the commercial success of these exhibitions, they served as educational platforms for sharing indigenous knowledge and encouraging cultural exchanges.

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Figure 7: Exhibition collection in Brussels, Belgium

Artist: Researcher

Year: 2015

Source: Tone Berg Knudsen

Figure 7 presents a collection of artworks created in tribute to the traditional artifacts of the Baganda culture in the Brussels exhibition. Among the assortment, one can distinguish unique forms such as the tube fiddle, the bow harp, iron rattles, pots, guards, and drums, many of which play a significant role in musical performances.

The collection prompted the Dutch audience to ask more questions about the conception, relevance, value, and functions of the displayed visual forms from their respective communities of origin, particularly in the context of ironworks with limited and superficial information available. This resulted in numerous unanswered questions for both me and the audience. I believe that finding more comprehensive answers could contribute to the achievement of various initiatives

such as the Sustainable Development Goal 12 which focuses on ensuring sustainable consumption and production patterns, the African Union's Agenda 2063 in the line of promoting use of science, technology and innovation to achieve sustainable development, United Nations Educational, Scientific and Cultural Organization (UNESCO) conservation plans, and the inspiration of future innovations.

Similar to many African ethnic groups, the Baganda primarily rely on oral tradition as a means of preserving their knowledge and technology, with ironworking practices being handed down through generations via gatherings and apprenticeship. Despite its long-standing use, this method has been criticized for its lack of efficiency (Sharma & Magar, 2024). The interpretation of spoken information can vary among individuals, making it difficult to ensure a consistent preservation of knowledge. In light of these challenges, there is no employment of analytical design drawings irrespective of their potential to record extracted design-related information.

In consideration of the significance of ironworks reflected in the legends, the practice and consumption of the indigenous iron artifacts of the Baganda warrants to be traced, profiled, documented, and promoted for posterity. Whereas scholars have tried to document Iron works of other cultures, which would be generalized to represent the indigenous knowledge of the Baganda, people live in the same world but differently, and treasure some things sometimes in divergent ways depending on cultural values, meanings, and interests. The processes, notions, norms, and intentions are always different in varying cultural contexts. When these contexts change, even artefacts get different meanings. Hence a need to study iron artifacts in their totality in the Buganda context; through meaning-making and drawing as visual interpretation.

As a designer with skills in drafting design drawings for products, I considered ergonomics and aesthetic values. I was disappointed by the poor presentation of artifacts with no clear profiling information in different learning sites. I was challenged by the marginalization of the rich heritage of iron smelting once I practiced with my late great-grandfather, who was a skilled blacksmith and bark cloth maker. I was saddened by the decline of the practice and demolition of the workshops under the watch of various family members who seemingly saw no value in the continuity of the family practices. Later, when we visited the Uganda museum with my Art and Industrial Design University students, I was surprised to find out that none of the students from iron smelting societies in Uganda had any idea on how indigenous iron designs are formed. This reminded me of the designs they always present with inspirations from the Western world. As an artist and a designer, I realized a need to contribute towards the contestation against genocidal and menticultural tendencies that have promoted to marginalising and eradicating our indigenous technology

The knowledge behind indigenous iron artifacts of the Baganda is facing extinction, with no systematic visual records that can be consulted for future users, such as innovators and cultural practitioners. A series of transformations in production, use, and context of new meanings coined without cultural attachment greatly threatened their identity in the globalized space. Yet, their original relevance is still pertinent to the Baganda. This study sought to extract the cultural, historical, and design production knowledge embedded in the indigenous iron artifacts of the Baganda and provided detailed visual interpretations to immortalize this heritage. By documenting and analyzing these artifacts, the research aimed to explore their potential for forming sustainable design production and fostering culturally inspired innovations for posterity.

1.3 Statement of the Problem

The indigenous iron artifact designs of the Baganda embody a significant cultural heritage, reflecting the community's technical expertise, symbolic meaning, aesthetics, and usage. However, there is a rapid erosion of this knowledge due to diminished practice of indigenous ironworking and insufficient systematic documentation profiling the designs, production, usage, and contemporary adoption. This has led to the disappearance of cultural memory, loss of symbolic and aesthetic vocabularies unique to the Baganda, and weakening of cultural identity tied to iron working traditions. Furthermore, the absence of visual documentation hampers cultural transmission to the young generation. The available literature is generalized, with minimal focus on the design attributes of Baganda artifact designs as repositories of indigenous knowledge. The visual elaboration on the relevance of the indigenous iron artifact designs is lacking, despite the intrinsic and extrinsic value, the meaning and identity they hold in the lives of the Baganda. This knowledge gap has left a void in cultural preservation and design research, undermining efforts to immortalise indigenous creativity, which not only threatens the survival of Baganda ironworking traditions but also hinders the ability to harness their rich cultural and technical insights for modern design applications. There is a critical need for theory-driven and studio-based investigations based on the visualization of the embedded knowledge within indigenous iron artifact designs of the Baganda for posterity.

1.4 Purpose of the Study

The purpose of this study was to visualise embedded knowledge in indigenous iron artifact designs of the Baganda in Uganda through drawings for posterity.

1.5 Objectives of the Study

The following three specific objectives guided the study:

1. To analyse the historical relevance of Indigenous iron artifact designs of the Baganda in Uganda through interpretive drawings.
2. To assess the extent to which indigenous knowledge of iron artifact designs of the Baganda in Uganda has survived in the contemporary creative space.
3. To extract the embedded knowledge in the indigenous artifact designs of the Baganda in Uganda through interpretive and analytical design drawings.

1.6 Research Questions

The study set out to answer the following research questions:

1. What is the historical relevance of Indigenous iron artifact designs to the Baganda in Uganda?
2. To what extent do indigenous iron artifacts of the Baganda in Uganda survive, and their significance in the contemporary creative space?
3. How can knowledge embedded in the design production of the indigenous iron artifacts of the Baganda in Uganda be extracted through interpretive and analytical design drawings for posterity?

1.7 Scope of the Study

The parameters of this study were set based on content scope, time scope, and geographical scope.

1.7.1 Content Scope

The content parameters of this study were set following the study objectives. In objective one (1), the study investigated the advent of ironworking and the indigenous use of iron artifact designs of the Baganda, with focus on spiritual, political, and socio-economic relevance in daily life. Subjective-interpretive drawings were made by the researcher to create visual interpretation to

buttress the identified historical accounts on the relevance of the indigenous iron artifacts to the Baganda through the lens of Material culture theory and articulation theory.

In objective two (2), the study evaluated the extent to which indigenous knowledge of the Baganda iron artifact has survived and its relevance in the contemporary creative industry. The study discussed factors that contributed to the decline of indigenous iron working and how the knowledge regarding the practice transformed and survived. The study further analyses the approaches through which indigenous iron artifact design components have been adopted into contemporary creative ideas were re-echoed.

Under objective three (3), the study extracted and systematically documented the embedded technical knowledge in the production of indigenous iron artifacts of the Baganda; the material collection, methods of smelting and forging, and established attributes constituted in the indigenous iron artifact designs of the Baganda. Through analytical design drawings, the study captured essential aesthetic aspects such as shape, dimensions, texture, and decorative elements, ensuring preservation of indigenous design principles. This was important in visualizing their aesthetic, ergonomic, and functional evidence for immortalization that could inspire contemporary design work.

1.7.2 Geographical Scope

Whereas the indigenous iron artifact designs of the Baganda are used widely across all counties of Buganda and in other parts of Uganda and the East African region, this study focused on three counties of Buganda: Sseese, Buddu, and Kyagwe. These were some of the key counties of Buganda serving as the main hubs of indigenous iron smelting, forging, and custodianship of indigenous iron artifacts of the Baganda. Furthermore, the counties are believed to have a few remaining

blacksmiths with site residues of original iron works, which provided information that richly informed this study.

1.7.3 Time scope

This study covered the practice and the consumption of indigenous iron artifact designs of the Baganda from the 18th century to the 21st century. This period was composed of different events that transformed the key components of indigenous iron artifact designs, such as smelting, designing, production, rituals, and commodification.

1.8 Significance of the Study

The study will be beneficial in the following ways:

The Blacksmiths: The current generation of blacksmiths in the community of the Baganda will be informed of the true processes and identities of the indigenous iron artifacts of the Baganda. This will empower the restoration of a true culture embedded in ironworks practice. The original design, taboos, and rituals of the iron industry in production and utilization will be restored in the political and social fabrics of the Baganda. This will avert the extinction of the indigenous technology of ironworks of the Baganda.

Researchers and other academics: Ethnographers, visual anthropologists, artists, and social anthropologists, will use the gaps and recommendations highlighted by this study to draw more studies and develop the realms of knowledge in design and visual culture studies, and other related areas.

Innovators in Uganda and other parts of the world will draw inspiration from the study findings to develop new creations to meet community needs and, in return, attain income. The profiling of the indigenous iron artifact designs will provide detailed information about the smelting of iron

ore and the forging of metallic forms. Being aware that cultural diversity creates a rich and varied world, which increases the range of choices and nurtures human capacities and values, and therefore is a mainspring for sustainable development for communities and peoples, UNESCO (2005)

Musealization centers: As the purpose of the study resonates with the aspect of profiling selected indigenous ironworks of the Baganda, the systematically developed documentation will inform the musealization centers, focusing on the indigenous iron artifacts of the Baganda people. The study established key attributes that constitute the designs of selected indigenous iron implements of the Baganda for identity construction. Analytical drawings were developed to provide analytical and descriptive information regarding their crafted nature, such as composition and appearance, and establish their aesthetic and ergonomic evidence. These forms of knowledge are important in informing the establishment of musealization centers and related academic programs.

Policy makers: The study findings will contribute to the fulfillment of national and international policies on cultural heritage. Locally, the Uganda National Culture Policy of 2006 aims to safeguard cultural heritage and ensure equitable sharing. This will be achieved by documenting and visually interpreting the indigenous iron artifact designs, which safeguard them as endangered cultural heritage. Furthermore, nationally, the study findings will contribute on the fulfillment of National Development Plan (NDPIV), which positions culture and creative industries as drivers of social-economic transformation. On the continental level, the study contributes to the African Union Agenda 2063 aspiration 5, which focuses on Africa with a strong cultural identity, common heritage, shared values, and ethics; this aspiration highlights the importance of indigenous knowledge systems through inclusive knowledge and education. Internationally, the study findings will be important in fulfilling the UNESCO Convention of 2005, where Uganda was a signatory.

The findings will reflect on two convention objectives (a) and (f); objective (a) focuses on promoting the diversity of cultural expressions, and objective (f) entails reaffirming the importance of the nexus between culture and development for all countries more so in developing countries (UNESCO, 2005; Ferri, 2005; Craufurd-Smith, 2007; Aylett, 2010; Hanania, 2014). This is similar to what SDG 11 advocates for sustainable cities and communities. The study findings will inform the process of protection and conservation of all cultural heritage.

The field of visual culture: The study makes a philosophical contribution to the field of design and visual culture by grounding indigenous knowledge systems and their capacity to inspire alternative dialogical, embodied, and culturally situated epistemologies. Through approaching the understanding of indigenous iron artifact designs using a subjective and interpretive perspective, the study contests the dominant objective interpretations and asserts that material culture can serve as a legitimate source of philosophical enquiries. The study positions design not just merely a form-making but as a method of meaning construction rooted in cultural assumptions and realities.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview

This chapter reviews literature related to the study. Secondary data from various sources were discussed to lay a foundation for informed contextualization of embedded knowledge within the indigenous iron artifacts of the Baganda in line with the study objectives drawn from the purpose of the study. The review is informed by a theoretical framework formed from material culture theory (as a primary lens), supported by articulation theory and adoption theory. The literature evidence is presented under categorical themes derived from study objectives. Whereas the research focuses on the embedded knowledge in indigenous iron artifacts of the Baganda. It was deemed necessary to analyze Uganda's historical development and the Baganda kingdom, as well as their social dynamics and leadership structures, to establish a basis for informed discussions and independent conclusions in the subsequent chapters.

2.2 Theoretical Framework

The theoretical background of this study is stimulated by the contribution of three theories: Material culture theory by Jules David Prown (1982) as the main theory on which the study is anchored, supported by Stuart Hall's Articulation theory (Grossberg, 1986), and the Adoption theory by Everett Rogers (2003).

Material culture as a theory is rooted in the social life of objects, with the assumption that material things are not just passive items but active participants in social relationships. The theory investigates how produced, consumed, exchanged, and given in cultural contexts. The theory's proponents have various affirmations which are relevant in the field of design and visual culture, a field where this study belongs; Miller (2005) asserts that form, design, and use objects reflect cultural values and identities, an indicator of meaning construction. From the materiality stance,

Tilley et al (2006) argue that objects mediate relationships between people and the world as aesthetic and symbolic agents. Objects control memory and traditions. Through consumption and identity, the object further establishes identities as an emanation of the acquisition process and use (Woodward, 2007). Every object has a life cycle spanning from its creation and use to obsolescence and sometimes recontextualisation, a process that establishes its social biography (Appadurai, 1988).

The material culture theory was relevant to this study because it provided the main theoretical lens for understanding indigenous iron artifact designs of the Baganda, not merely as tools, but a culturally significant art forms embedded with aesthetic and symbolic meanings, and social, economic, and political functions. The theory helps to analyse the design elements of the iron artifacts as forms of communication, the ritual and social roles of the artifacts among the Baganda, and how preservation, transformation, and reinterpretation of the artifacts contribute to identity, cultural resilience, and cultural continuity.

Articulation theory addresses design and visual culture studies with post-Marxist thoughts. It explores how different elements in social, political, cultural, and economic settings are linked together temporarily to form new meanings and identities. The theory stands on the principle of non-essentialism, under which cultural identities and meanings are not fixed and can be constructed through contingent linkages (Hall, 1986). It further anchors an assumption that meanings are formed in particular historical, social, and political contexts. Disarticulation and rearticulation, as one of the core tenets, give the possibility of detaching from one meaning system to a new configuration. Therefore, new meanings emerge when traditional and modern elements are combined to form cultural hybridity.

Articulation theory was relevant to the study through enabling analysis of indigenous iron artifact designs to be re-contextualised in the contemporary; artifacts were rearticulated into modern discourses, education, and tourism. Furthermore, the artifacts continue to hold relevance through meanings such as cultural heritage, symbols of identity, and design inspiration. Lastly, the theory empowered the study to trace how colonial and post-colonial global forces have impacted the symbolic use and perception of iron artifacts, allowing a critical understanding of cultural transformation.

Adoption theory establishes how innovations, irrespective of being technological, cultural or design based are communicated and adopted or rejected by individuals and groups over time. According to Rogers (2003), the theory highlights five stages of adoption such as knowledge, persuasion, decision, implementation, and confirmation. The theory assumes the adopter categories comprise innovators, early adopters, early majority, late majority, and laggards. It perceives attributes of innovations as relative advantage, compatibility, complexity and trialability, and observability. Lastly, the theory asserts that social systems influence adoption through peer influence, cultural values, and social structures affect how new practices and products spread.

Adoption theory was relevant to this study since it supports the study's exploration of how indigenous iron artifact designs can be revitalized and re-integrated into modern Uganda and global design systems, the theory offers tools to understand retaining and forgetting certain traditional designs, adoption of indigenous motifs by designers and ways to design intervention that improve the adoption of traditional artifacts in education, design industries and museum practices.

Robb (2015) asserts that there has been little attempt to develop methods that work across the entire range of material things humans make and that relate to the social projects they form part of; the actual material characteristics of things. Therefore, material culture theory is supplemented with the combination of Articulation theory and adoption theory, which focuses on explaining how different elements, such as ideas, practices, and identities, are connected to form temporary and meaningful structures within specific historical and cultural contexts. Articulation theory does emphasize that these connections are not fixed or inherent but contingent and shaped by particular social, political, and economic conditions (Clarke, 2018; Grossberg, 2002; Hall, 1972; Slack, 2006). The three theories have been employed by different scholars in analyzing similar studies in the fields of anthropology, art history, archeology, and social anthropology (Aronin et al, 2018; Clarke, 2015; Labanyi, 2010; Prown, 1994; Tilley, 2012).

The combination of the two theories in this study is later amplified with the incorporation of the adoption theory lens. This theory provides a comprehensive framework for understanding how new ideas and technologies spread through contemporary creative spaces. Included are key concepts such as innovation decision process, adopter categories, and attributes influencing the adoption of innovations (Rogers, 2003). This provides ground for analysis of reinterpretation of indigenous iron artifact designs and their integration into contemporary design applications, by modifying their original designs to suit contemporary tests such as fashion, home décor, museum displays, architectural designs, paintings, and sculptures (Schiffer, 1999). Adoption theory transcends into how the developed ideas are communicated through exhibitions, digital media, fashion shows, museums, and cultural festivals for pride and celebration (Hodder, 2012).

This study is linked to Schlereth (1980), who asserts that material culture study is an attempt to establish why things were made, and why they took the forms they did, as well as considering the social, functional, aesthetic, and symbolic needs they serve. The theory nurtures interrogation of objects humans make and use to survive, define social relationships, represent facets of identity, or benefit people's state of mind, and social-economic standing (Berger, 2016; Buchli 2004, p. 241; Riello, 2017). Therefore, the theory focuses on social reality grounded in objects and architecture that surround people. It includes the material collection and manipulation, usage, consumption, creation, and trade of objects as well as the behaviors, norms, and rituals that the objects create. The culture strand in the theory deals with the social, political, and economic organization of a particular group of people, which in turn sets the environment for the value and meaning construction of the objects they possess.

Reflecting on Schlereth's (1980) assertion, material culture theory advocates that objects matter; they are important because objects revolve in social representation or symbolization and recognize that they contain important meanings of social action. Objects have their biography changing use and meaning over time as they interact with or are interacted by people, cultures, and different societies (Gosden& Marshall, 1999). Material culture theory is relevant to this study since its purpose is drawn from the need to explore and immortalize the indigenous iron artifact of the Baganda, which might soon face extinction. Schlereth's perception is important since it resonates well with the focal points of material culture study in the art-historical perspective of profiling the historicity of conception, production, historical and contemporary consumption, survival, and continuity of the ironworks practice. Unlike material culture, which anchors assumptions that objects are ambiguous but not promiscuous, Articulation theory in the discipline of design and

visual cultural studies accounts for the powerful material consequences of the ideas, principles, and beliefs that manifest ideologies (Colpani, 2022; Jackson & Hogg, 2010).

The Articulation theory offers an insightful means to account for how discourse and discursive formations can bind people and their sense of identity together in concrete ways. It labels the strategy through which particular classes appropriate cultural forms and practices for their use (Tilley et al., 2013). The theory is rooted in the production of identity on top of differences, of unities out of fragments, of structures across practices. Articulation links the practice of ironworks to that effect, this text to that meaning, this meaning to that meaning, to that reality (Clarke, 2015; Solomos, 2014; Tilley et al., 2013).

The cultural practice of indigenous ironworks can easily be interrogated using articulation theory perspectives since it is one of the generative concepts in contemporary studies on design and visual culture. The theory can provide “a way of contextualizing the object of one's analysis” (Grossberg 1993; p 4). Epistemologically, articulation as a way of thinking, propels the proper understanding of knowledge through re-imaging the nature, beliefs, meaning, and political connotations behind the production, consumption, change, and survival of the indigenous ironworks of the Baganda, as summarized in Figure 8.

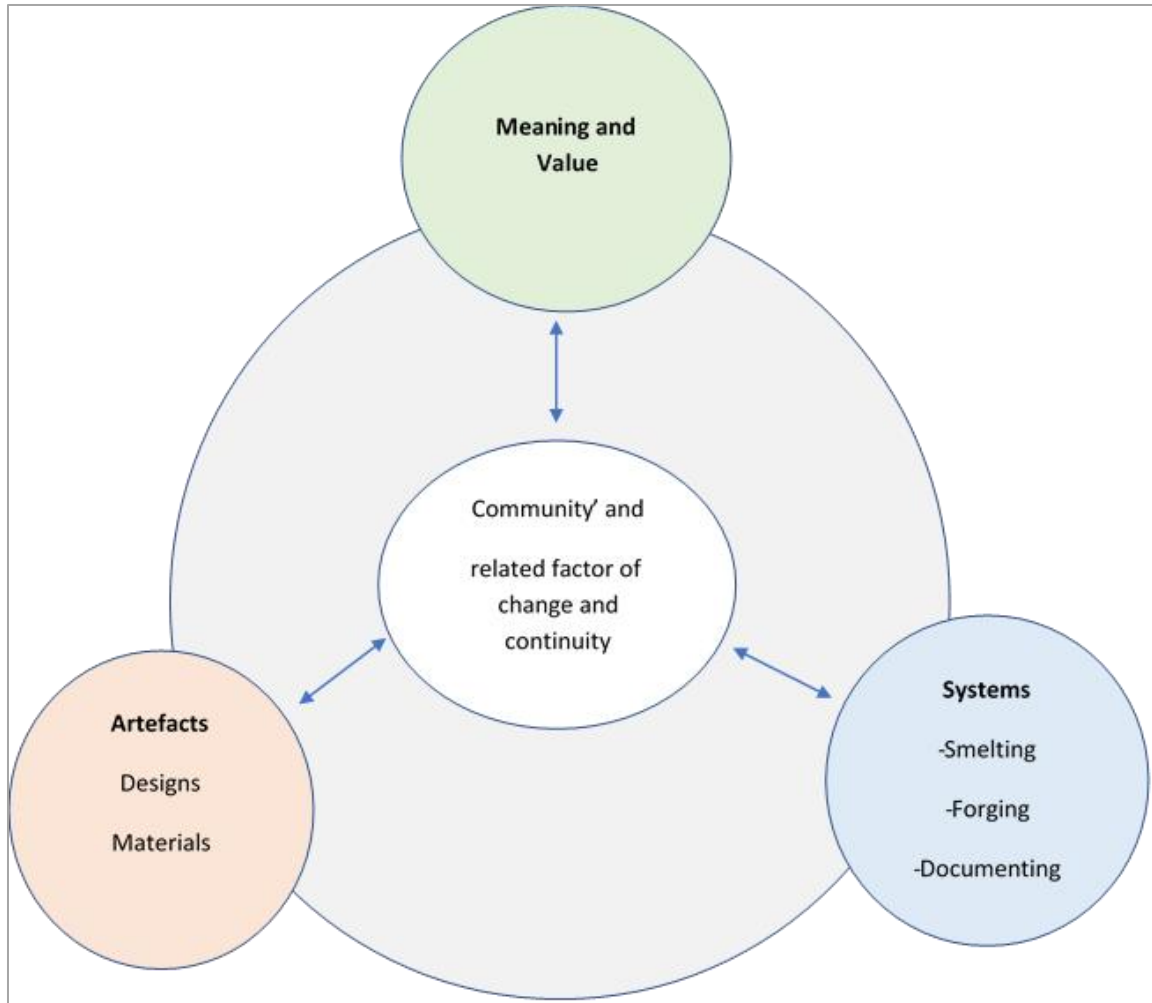


Figure 8: Theoretical framework

Source: Kashim (2013).

The theoretical framework in Figure 8 highlights production spheres for the indigenous iron artifacts of the Baganda; methods of smelting and forging techniques, and attributes constituted in designs of the artifacts are prudent in establishing an analysis for their formation. The spheres provide informed perspectives for the better articulation of the content (including knowledge) behind iron objects, describing inspirations behind their crafted nature, composition, and appearance. These are structures that establish aesthetic value, functional and ergonomic evidence considering dimensions, proportions, style, fabrication, and decoration conditions. The embedded

indigenous knowledge here refers to designs, materiality, technologies, and usage behind ironworks production, and artifacts are characterized by the division of labor according to gender, rituals, customs, and other related activities. The characteristics are part of manifesting and intertwining the iron objects in the cultural-social fabric of the Baganda.

Objects live lives of their own rather than existing in the subjective space (Berger, 2016; De Graaf, 2016). They can have aspects of double-coding, pluralism, and multiple readings in terms of purpose, meaning, function, and value (Pearce, 2017). For example, a spear can be a symbol of security in a certain audience and a symbol of aggression in another, a state underscored by adoption theory. Some objects can symbolize power; for example, a crown means that one holds a lot of power, and the crown represents the authority of the bearer (Foulk et al., 2018; Smith, 2016; Wolffe, 2019). Other objects, like money, can be a medium through which people's statuses and access to good standards of living can be established. Their value may change from community to community and from person to person. Analysing individualized narratives and experiences becomes a basis for establishing the historical and contemporary relevance of the iron object and practices around it; a process that requires the fusion of material culture, articulation, and adoption theories.

Through the material culture and adoption lenses, this study analysed the selected iron artifacts' physical properties in consideration of material, design, ergonomics, and relevance in the indigenous context, and the transformation of their role and meaning through generations. The researcher established the value, the relationship between people and their things, and the interpretation of objects (Jackson, 2000). Objects are the medium through which people act, understand, and relate to each other. They are not inert; they are invested with meaning through

associated usage, which is not static but evolves with the change in influencing factors such as time, space, power structure, among others.

Material evolution is being used as a way of gauging the technological sophistication of a given group. Man reproduces himself not only intellectually in his consciousness but actively, and he can therefore contemplate himself in what he has created (Berger, 2016). It is prudent to think about the materiality of things, the interest in the relationship people have with objects, the interest in practice, and emotional value. Material culture nurtures an understanding of the visualised state embodied in answering a wide range of questions, such as memory, relationship to others, biography, and social change (Gould & Schiffer, 2014; Hallam & Hockey, 2020; Tilley, 2014).

In contemporary times, objects and their production processes cannot remain untouched in the changing world with new needs of modern lifestyles, and other related calamities and hazards; modern education, advancing technologies and innovations, imperialism, colonialism, religion, and political climates affect the indigenous life around the production, and crafting concepts of the objects and their consumption. New changes normally arise in justifying why objects are created, how and when objects are used, and by whom in the contemporary life of the object (Mefful et al., 2024). The aforementioned factors were explored further in this chapter.

Material culture theory, as a main framework, enabled the exploration of how indigenous iron artifacts of the Baganda have served as manifestations of indigenous knowledge systems while informing identity, hierarchy, survival, and aesthetics. The development of interpretive drawings and analytical design drawings of the selected iron artifacts under objectives one and three was positioned as a studio method to unearth embedded narratives on the usage, design logic, and symbolic value.

Articulation theory and adoption theory in this study facilitated the analysis on the negotiation between indigenous and contemporary stances; a fusion of modernism and postmodernism. Blacksmiths, designers, and consumers re-interpreted the relevance of these artifacts, fostering assurance of their survival in the evolving creative landscape (Appadurai, 1986). According to Miller (2005), the theoretical positionality has been further reinforced by the rise of Afrocentric design concepts, inspiring the positioning of indigenous iron artifacts within a globalized artistic market.

The adoption of indigenous iron artifacts of the Baganda in creative designs is molded by a collection of theoretical forces. In this study, material culture theory helped to uncover the symbolic value of artifacts; the transformation in new discursive settings was elucidated through articulation theory, and their diffusion across communities was established and largely explained through adoption theory. All the highlighted aspects of the study are shaped by interpretivist (Schwartz-Shea & Yanow, 2020) and subjectivist (Creswell & Poth, 2018) philosophical perspectives that are emphatic on cultural meanings, creative agency, and ethical responsibility. As a result, postmodern aesthetics attributes such as appropriation, double coding, eclecticism, creative destruction, pluralism, and multiple readings (Mayanja et al., 2024) become tools of reimagination rather than erasure. This accounts for a living and dynamic heritage of the Baganda.

2.3 Conception and historical relevance of Indigenous Knowledge Iron Artifact Designs

This section is linked to objective one of this study; therefore, it delves into an analysis drawn from existing literature from different scholars to elaborate on the subjective conception of indigenous iron artifact designs and their historical relevance.

Design is manifested by what we attain after composing materials to express our conceptualised ideas, feelings, and emotions; it is what we can see, touch, or feel (Mayanja 2015; Mayanja 2016).

Design as a concept is affirmed when visual solutions are created to meet personal or societal needs. This proves the design concept as a product and a phenomenon of creative thinking (Razzouk & Shute, 2012). Conceptualization of a design incorporates imaging and planning the creation of objects. (Razzouk & Shute, 2012; Wendt, 2015; Yee & Rodgers, 2018). According to Giacomini, (2017, p. 1), “various practicing designers attest that the motive of designing cannot be separated from the intended values and meanings of the artifact”. However, basing the possibility of subjectivity in design creation and material composition, selection, mixing, and application, designs can be achieved through intentional and accidental processes. This can be based on the settings and how they were determined before the conception and execution of the idea.



Figure 9: Mangbetu knife

Source: Online²

² <https://www.hamillgallery.com/CURRENCY/MANGBETUCURRENCY/Mangbetu19.html>

Production of designs for the artifacts involves doing philosophy with hands (Wendt 2015) since design as a phenomenon resonates with making sense of things (Krippendorff, 1989). The process incorporates selection, mixing, and application of key design constituencies such as material, content, style, technique, inspirational objects, message, and meanings (Mayanja 2015; Mayanja 2016). The fact of design reality is always manifested through one's consciousness to determine which materials, methods, and tools, depending on the purpose of the product, who is to use the product, why use that product, where, and when. The design constituencies, as highlighted by Mayanja (2016), derive reflections in decision-making for design production and commodification, irrespective of whether indigenous or modern.

Indigenous designs are meticulously crafted with care, considering their intended purpose, to ensure they are ergonomically, functionally, and aesthetically pleasing. The purpose of each artifact is drafted and customized to meet the necessary needs and preferences of the intended users, considering the specifications required. This is highlighted by Binder et al (2011), who affirm that the designs of artefacts take into account both beauty and practicality. Binder's perspective is affirmed by the design of throwing knives of Ngombe (a) and Kota (b) throwing knives in Figure 10.



Figure 10: (a) Ngombe style throwing knife (DRC) and (b) Kota style throwing knife (Gabon)

Source: Online³

The two distinct designs of throwing knives in Figure 10 are used for hunting and currency before the coming of colonial powers. Both knives were made by blacksmiths from Bantu communities in the central African countries, Gabon and the Democratic Republic of Congo. Design-wise, these iron sickle knives are comparable to hunting knives from various African societies such as the Azande, Mambele, Teda, and Mafa. From the study's point of view, the knives have similar designs to the iron blades drawn from the birds' heads with perforated wings. The handles are twisted with other metals like brass and copper. The blacksmith invested time in decorating the handle with a patterned texture for beauty enhancement. The same strength was exerted in ensuring the sharpness of the blades for better functioning. Like the way modern industries, for example, shoe manufacturers, prioritize factors such as size and function to create fashionable items for their

³ <https://www.hamillgallery.com/KNIVES/ThrowingKnives.html> (Accessed on 10 November 2024)

clients, similarly, indigenous blacksmiths focused on the function, height, and width of the chest when crafting iron artefacts, more so weaponry for the established armies.

In crafting design ideas, intended functions determine the dimensionality of their formation (Maier & Fadel, 2009; Qian & Gero, 1996; Szykman et al., 1999). This implies either the design to be formed as three-dimensional or two-dimensional, and sometimes installation-based. Irrespective of being digital or physical. The dimensional formation of a design also influences how the artifacts can be engaged by the user. This may be the viewpoint of practical purposes and sometimes purely aesthetic satisfaction. The practical purposes of a formed design dictate the use of the artifact to accomplish the intended task, expressing personal interpretation through and conveying deeper values and meanings. Therefore, design as a result becomes the essential, inseparable identity and is engraved in human experience.



Figure 11: A collection of African spears

Source: Online⁴

⁴ <https://www.bonhams.com/auction/23075/lot/90/an-interesting-collection-of-african-spears-20/>

Figure 11, presents some African spears are presented with different sizes, shapes, and decorations. Though most of them seem to have been inspired by the same object, the difference in design speaks to the different purposes they are used for: hunting, rituals, and regalia. The function determines the size, shape, sharpness, and decoration style. The iron tools for rituals and regalia appear to be more decorated, likely to distinguish them from others and reaffirm the honor and respect due to the bearer (Kekimuri & Wathum, 2024; Klehm, 2017; Pikirayi, 2007). The special spears may be dedicated to the gods, kings, and special people in the society. The less decorated ones are utilized by their subjects.

The conveyance nature of designs affirms that indigenous iron artifacts can offer a unique window into understanding between members of similar or different backgrounds. This is through revealing our identities, interests, environmental perspectives, spiritual beliefs, and cultural histories and various levels. Design serves as a means of constructing productions with obvious and hidden meanings, conveying them as messages to the consciousness of the intended audiences, whether in tangible realities or sometimes in the realm of dreams. As Indigenous productions possess a profound emotional intelligence that links our identities with the social formations and fusions. This offers reassurances, directions, and a sense of harmony (Lockton et al, 2010). The communication conveyed through these designs can be considered explicit and straightforward, subtle, operating within the depths of subliminal minds, as presented in Figure 12.



Figure 12: The spiritual identity of Nakayima, a Buganda goddess

Source: Online⁵



Figure 13: Bark cloth coat modern fashion

Source: Online⁶

⁵ <https://www.independent.co.ug/sculptural-installation-of-nakayima-at-makerere-art-gallery/>

⁶ <https://www.ganyanasafaris.com/blog/olubugo-the-barkcloth/>

According to Munyai and M'Rithaa (2010), fusion of modern ideas in indigenous productions amplifies their capacity to convey both universal and local meanings, hence manifesting the attribute of multiple readings by multiple groups of people (Figures 12 and 13). These meanings can be influenced by the material composition of the design and tangible elements, and convey messages to the audience. The Figures, 12 and 13, have indigenous materials manipulated to meet the required artistic intention. The former was intended to reconstruct meanings about the indigenous artifacts such as bark cloth, spears, pottery objects, and others of Nakayima (one of the goddesses of Buganda). The installation steered multiple interpretations in the public domain, with people of mixed backgrounds influencing their interpretations.

The latter (Figure 13) was intended to refashion the *Olubugo* (Bark cloth) of the Baganda using a foreign lens of a suit dominated by Western cultures. To the audiences, such design ideas with eclectic fusion of modern and indigenous lead to contemporary attributes of double-coding, pluralism, and multiple readings. On the other hand, it draws the forgotten indigenous material to contemporary space where it is given a hybridized identity without losing what it is. In this case, the indigenous iron artifacts crafted by the Baganda people have intricate designs focused on the physical attributes, including materials used, texture, structure, colors, and decorative styles. Whether intentionally or accidentally, aesthetics is considered during the design process through visual elements and other concepts such as movement, dominance, balance, and proportions.

Designs evoke non-material aspects such as emotional connections, symbolic meanings, spiritual and intellectual depth (Chohan et al, 2024; Hekkert, 2006; Silvia, 2012). This nature lays the ground for academic agitation for deeper exploration, understanding, and interpretation of the existence of forms within the fantastical realm that is part of human experience since the advent of human civilization. The human mind is capacitated of storing, developing attachment, and

replaying the designs of objects in their physical or nonphysical state (Norman, 2018; Malafouris, 2020; Pallasmaa, 2017). For example, when the body and brain rest during sleep, designs are still manifested and unfold in the realm of understanding, reflecting, and generating new ideas that can be materialized. However, it is imperative to note that these creations become inspirations generated by one's experience of the physical world. Therefore, images persist in our conscious state of mind as well, as we use them to visually represent our thoughts and feelings before putting them into action.

From an axiological standpoint, designs possess value that can be both intrinsic and extrinsic (Nzinga, 2022; Tlostanova, 2017). In the case of iron works, value is determined by the perspectives of both the creators and the consumers, based on their motivations for owning the design. The value of a design may be long-lasting or temporary, depending on the individual who possesses it. Extrinsic value is typically perceived when a design is viewed through a commercialized lens, where it is compared or equated to other objects in terms of its impact on one's life. This viewpoint applies to indigenous iron designs that are commodified for public consumption in the market.

Concerning the material culture perspective, the intrinsic value of indigenous artifacts can emanate from an individual perspective and eventually be embraced by the community, or it can be absorbed by an individual upon joining a larger group (Gjersoe et al, 2014; Mullins, 2009). All over the world, there are numerous artifacts whose designs evoke deeper connections in physical and psychological domains among people for generations, symbolizing a country, a race, a culture, and a language. These visual symbols serve as a testament to commemorative ideas on both the individual and societal levels (Figure 14).



Figure 14: Iron-made Axe from the Kuba tribe

Source: Online⁷

The iron axe of a Kuba tribe in Figure 14 is one of many indigenous, unique artifacts. The axe serves as a divination and ceremonial artifact to its society of belonging. The artifact is embellished with other materials such as hides, wooden shafts, and beads. Each material color holds meanings to the makers and users in the divination realm that resonate with the purpose it serves in the process.

At times, the value of these artifacts cannot be equated with any other form of price. Various societies, whether indigenous, traditional, or modern, can claim ownership of designs, each with its distinct purposes and histories. Indigenous designs, in particular, hold a significant connection due to their ancient presence in society and their strong meanings and relations to the lives of the natives within a specific culture or region. These designs gradually become intertwined with the

⁷ <https://www.hamillgallery.com/KUBA/KubaAxes/KubaAx15.html>

societal settings, impacting social norms, cultural practices, economic systems, and even political structures for a long time.

The creation of indigenous artifacts in most societies was inspired by specific needs of the society, drawing ideas from the unique characteristics of their environment, the nature of the climate, social leadership structures, and power and authority. A significant number of examples can be found in various countries; in Ireland the indigenous musical harp was made the national coat of arm (Figure 16), the Norwegian culture creation of woolen sweaters for cold weather became a significant aspect of their heritage please see Figure17 (Hebrok & Klepp, 2013); In Africa the Congolese have special axe commonly used in ceremonies (Figure 15); in Uganda the Banyankole and the Bahima people in the western region of the country are renowned for their intricate wood and metal milk gourds (Ebyanzi) in Figure 18, reflecting their cultural identity and life as societies of milk (Mutungi, et al 2015). In a similar perspective, the Baganda are known for their distinctive production of Barkcloth in Figure 19 (Nyamweru & Gombe, 2006), and iron artifacts (Humphris et al, 2009), which serve both practical and symbolic purposes in their society and evidence their skill of craftsmanship

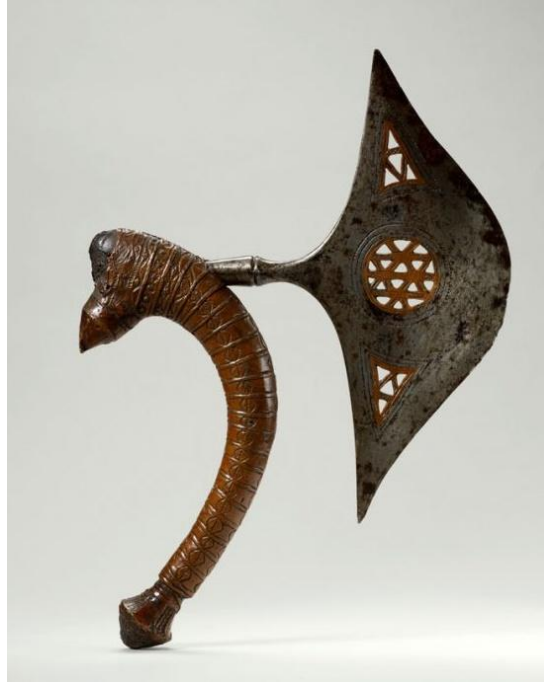


Figure 15: Ceremonial Axe from Lunda Artist from the Democratic Republic of Congo

Source: Online ⁸



Figure 16: The Ireland coat of arms

Source: Online ⁹

⁸ <https://africa.si.edu/exhibitions/current-exhibitions/striking-iron-the-art-of-african-blacksmiths/material/>

⁹ https://en.wikipedia.org/wiki/Coat_of_arms_of_Ireland#/media/File:Coat_of_arms_of_Ireland.svg



Figure 17: Lusekofte sweater

Source: Online¹⁰



Figure 18: Ekyanzi (carved wood and metal milk vessel) from Ankole and Hima cultures

Source: Online¹¹

¹⁰ <https://arnecarlos.com/norwegian-crafts-traditions-with-arne-carlos-a-guide-to-setesdal-airing-schedule-september-2021/>

¹¹ https://www.ebay.com/itm/233029309892?_skw=hima+milk+jug+ekyanzi+uganda+africa&itmmeta



Figure 19: A man dressed in Bark cloth extracting the bark of a *Mutuba* (Ficus tree) tree to make another cloth

Source: Online¹²

These ancient artifacts have retained their significance and meaning over many years (Gray, 2017), passing down their wisdom and techniques to various generations through oral traditions, archeological content, and apprenticeships. The knowledge embodied in these artifacts becomes ingrained in the culture's language over time. In the Baganda culture, traditional ironworks are deeply intertwined in their folk songs, proverbs, idioms, and songs, enhancing the breadth of the Luganda language (Musere, 1998; Nsimbi, 1996). The relevance of Indigenous iron artifacts is further evidenced in the production of other indigenous artifacts like baskets, bark cloth, pottery, spears, and architecture.

Globally, various indigenous societies in major regions such as Africa, Australia, and the Americas consider the use of indigenous designs as an approach to interacting with the environment. The conception of indigenous designs is intricately connected to the customs, principles, and environmental systems of indigenous communities. In their various perspectives, every item is created with specific purposes, which may include spiritual rituals, political objectives, or socio-

¹² <https://ich.unesco.org/en/RL/barkcloth-making-in-uganda-00139>

economic benefits. This highlights the fact that indigenous design principles are rooted in ideals of reinforcing cultural identity, promoting sustainability, and maintaining a harmonious relationship with the natural world. This resonates the reverence for nature through the use of organic material and designs in ways that honor and protect ecological balance (Smith, 2010). In other words, designs of indigenous iron artifacts not only contribute to our understanding and interpretation of our histories but also facilitate the interpretation of the nature of the land.

Utilization of natural resources in the production of artifacts is reflected in the sustainable practices of African societies. Iron working design and production is among the technologies that have long relied on the environment for inspiration and materials. The diversification in the metals, designs, complementary materials, and methods of artifacts created by different artisans in African societies speaks to the complexity and richness of cultural expression within the continent. Thus, the indigenous iron artifact designs in Figure 20 are swords with different cultural backgrounds; some inspired by plants, others by birds, and others by animal forms. Each sword tells a unique story about the society that produced it, showcasing its artistic innovation and vision, craftsmanship, and ingenuity.



Figure 20: A collection of iron African Sword designs

Source: Online¹³

¹³ <https://www.africanhistoryextra.com/p/a-general-history-of-iron-technology>

Figure 20 presents: a sword with an Iron blade, sheath decorated with plant and zoomorphic motifs, is from Dahomey, Benin; an Iron and Ivory sword from **Congo**: Curved Iron sword, Mangbetu, Democratic Republic of Congo: Iron blades made by *Ekonda* smiths, D.R.C. The skills and the conception of artifact production are related to the generally homogeneous groups, such as tribes, clans, or larger families, which form the clan section, whether males or females.

The environment catalyzes creativity and innovation, inspiring artisans to push the boundaries of local designs and explore new possibilities in artifact production. The symbolism and meanings behind the swords created by the distinct African societies reflect the deep-rooted connection between culture and nature, highlighting the importance of preserving traditions and heritage in artistic endeavors (Samuel, 2024).

Designs of indigenous artifacts are in various categories such as iron artifacts, basketry, woodworks, and textiles, among others. Design concepts were developed through collective ideas, not solely depending on one mind. The development of these design ideas largely depended on the need, availability of materials, and labor. This was evident in different societies that practiced ironwork across Africa.

Ironworks is one of the most well-known pre-colonial industries that existed in different African societies. Sometimes the technology of ironworks was accessed through assimilation from one society to another, or developed independently. The design formulation, material collection, forging processes, and distribution of iron artifacts were the gist in enriching empires through cultural exchange, economic growth, and strengthening the military systems, which contributed to the autonomy of communities, authority, command, and control. Samuel's (2024) study found the following:

“The process of ironworking starts with the search and acquisition of iron ores through mining and collecting, followed by the preparation of raw materials including charcoal, followed by the building of the smelting installations, furnaces, tuyeres and crucibles, followed by the smelting itself which reduces the ores to metal, followed by bloom cleaning, smiting, and the forging of the finished product. This was extremely labor-intensive and time-consuming, especially collecting the ore and fuel, which could at times last several weeks or months.” (Samuel, 2024)



Figure 21: Native Iron Smelter of Kigezi, South-western Uganda

Source: Online¹⁴

¹⁴ <http://www.africa2u.org/2018/11/>



Figure 22: Furnace for indigenous Iron smelting in Mali

Photo credit: Cameraman Bernard Augustoni and archaeologist Eric Huysecom

Source: Online

In both Figures 21 and 22, community members of Kigezi and Mali are working together in the iron smelting practice. In Figure 21, the Kiga people of Kigezi in Uganda are captured in the moment of setting up and igniting the furnace to commence iron smelting. In Figure 22 Malian iron smelters are working together on the firing furnace for the extraction of iron from iron ore. Whereas in Figure 21, people of different ages are present, in Figure 22, only old and adult men are present in the setting process. This implies that ironworking in some communities is gendered.

The presence of different age groups in the working process guaranteed the continuity of the ironworking skills since the young smelters could learn from the masters. This further made communities in Africa own the practice; smelting, production, rituals, and commodification. However, word of mouth was another method that was useful in recording the pieces of knowledge regarding the ironworking industry. Muwanguzi (2022) asserts that “The transfer of skilled

knowledge from one generation to the next was done collectively and involved a group of young men gathering at the workshop of the artisan and through observation and participation would learn the trade”. Imparting knowledge and skills related to indigenous technology to the young people ignited the potency for the generations to own the knowledge, to protect and promote iron working. Over time, it fostered their growth in technology and spawned off new creations that could be embraced and deemed useful in meeting societal needs.



Figure 23: Spearhead from the Kuba tribe from the DRC

Source: Online ¹⁵

¹⁵ <https://www.hamillgallery.com/KUBA/KubaSpeartips/Point02.html>



Figure 24: Sword made by a Ngala smith from Congo,

Source: Online¹⁶

The technology of making items out of iron was not an end in itself; blacksmiths took an interest in ideas of dealing with different materials to enhance beauty. For example, in Figure 23, the third spear is decorated with an incising technique where a pattern was systematically applied to make the iron spear look special. In Figure 24, a sword made by the Ngala blacksmiths of Congo has patterned decorations in copper. The making of iron artifacts decorated with different alloys was intended to forge special items that could depict the status of the bearer, different from his or her subjects. As such, the patterns appended and engraved in the artifacts were vehicles of cultural meanings inspired by the environment, spiritual realm symbolism, and sometimes ranks of authority in the society.

Craftsmanship of Indigenous ironworks practice involved community collectivism and integration collaboration (Samuel, 2024); skills are typically transferred within people of the same background, such as families, clans, and communities. However, this differs from the

¹⁶ <https://www.africanhistoryextra.com/p/a-general-history-of-iron-technology>

individualistic and profit-oriented approach to design with universalism, highly centered on Western cultures. Artisans craft indigenous iron items with a broader intention spanning from practical purposes, cultural expression, and infusion with spiritual and ancestral importance (Brown 2009). This incorporates performing rituals, making symbolic material choices, and directing craftsmanship, and other societies like the Baganda have used the iron artifacts for generations in establishing the kingdom, maintaining order, and facilitating their spirituality. They widen the possibility of a deeper understanding of the Baganda as a people to give future informed discussions after understanding of influences, and their knowledge structures around the indigenous ironworks industry of the Baganda in this study.

2.3.1 Manifestation of the kingdom and consolidation of power through Baganda Iron Artifacts

The Baganda are one of the Bantu tribes in Uganda, a country formed by the colonial British, with an established, powerful kingdom that has thrived for over eight hundred (800) years through various economic, political, and social means (Century, 2021; Kasfir, 2019). They are known for preserving one of the most prominent kingdoms in Africa (Green, 2010; Low, 1971; Parker, 2023; Wrigley, 1957), which covered areas from Lake Victoria to Lake Kyoga, bordering Lango territory, River Kafu in the north, and Ankole and Toro in the west, with influence reaching beyond the River Nile in the east and Bukoba near River Kagera in the south west (Médard & Kidari, 2019; Reid, 2001; Rowe, 1966).

Buganda started as a small state called *Muwawa*, facing it as a territory without organisation, with its inhabitants called *Abalasangeye* or *Abatankisi* (Lukenge, 2001; Nagawa & Nuwagaba, 2024; Nannyonga-Tamusuza, 2009). For generations, the territory was ruled over by a significant number of kings from the lineage of Kabaka Tonda (Appendix 13). Some sources assert that this lineage

ended with Kabaka Bemba-Musota, with a list of more than 30 Kings before the leadership was taken over by the current ruling lineage of Kabaka Kintu and his queen Nambi; the founders of the current order of Baganda culture.

Discussions from oral traditions about the advent of the Kingdom of Buganda and the Baganda cultural manifestation have no conclusive stance. There are two theories about the founding of Buganda: the theory of Kintu, the first Muganda, and that of Kato Kimera, who came from the Bunyoro kingdom to establish his dynasty (Century, 2021; Kabanda, 2018; Kemboi, 2020; Schoenmakers, 2017). In the first theory, which is the most common among the Baganda and most narrated in almost all historical sites in the contemporary Buganda affirms that the kingdom of Buganda is believed to have been founded by Kintu whose wife was Nambi the first queen of the Kintu lineage of Kingship in Buganda (Caroline 2019; Kizza, 2011; Sterling et al, 1991; Were, 1982; Yoder, 1988).

The Kintu theory, also a common belief, is highlighted in several legends, proverbs, folk songs, and other oral traditions that have stood the test of time. The Baganda refer to themselves; *Bazukulu ba Kintu ne Nambi* (grandchildren of Kintu and Nambi), *Abaana ba Kintu ne Nambi* (children of Kintu and Nambi), and sometimes *Abaana benda ya Nambi* (children from Nambi's womb). This affirms that the Baganda consider Kintu and Nambi as their founding great-grandparents and leaders (Dipio, 2019; Kirumira, 2022).

Whereas in some documented and non-documented oral traditions about Kintu's lineage of kingship, it is believed that Kimera was a grandson of Kintu; born by his grandson Prince Karemera, a son of Kintu's son of Prince Chwa Nabakka, who was brought back from Bunyoro to inherit the throne in Buganda Kingdom (Kirumira, 2022). Some scholars position him as a twin brother of Isingoma Mpuga Rukidi, the founder of the Babiito dynasty in Bunyoro Kingdom. The

story further reveals that Kato Kimera founded the Buganda Kingdom, a genesis of separation and conquering some parts of the Bunyoro-Kitara Kingdom (Bosco et al., 2020; Kirumira, 2022). Besides the two theories on the founding of the dynasty of the Buganda kingdom, information on the territorial background and boundaries, governance, and social structures of the people are other important components.

During its conception, Buganda was a smaller territory comprising Mawokota, Kyaddondo, Busiro, and Busujju counties. It was also covering some parts of Ssinga and Bulemezi. The territory gradually expanded under the leadership of different kings, hence the formation and acquisition of new counties at the expense of the neighbors (Century, 2021; De Haas, 2019; Earle, 2018; Lubogo, 2022). The counties mentioned in which Buganda had covered some parts were later completely conquered together with other counties such as Buddu, Bugerere, Buruli, Butambala, Buvuma, Buwekula, Kabula, Kkooki, Kyaggwe, Mawogola Sseese, and Buyaga and Bugangayizi, which were later returned to the Bunyoro Kingdom after the referendum (Figure 25).

	County	Headquarters	Chief's Title	Designated Rank	How Acquired
1	Buddu	Masaka	Ppookino	Mutuba II	Annexed by Jjunju from Bunyoro
2	Bugerere	Ntenjeru	Mugerere		Annexed by Semei Kakungulu from Bunyoro
3	Bulemeezi	Ggaga	Kangaawo		Some of it original territory, rest annexed from Bunyoro
4	Buruli	Nakasongola	Kimbugwe		From Bunyoro, 1900 Agreement
5	Busiro	Ssentema	Ssebwana		Original Territory
6	Busujju	Mwera	Kasujju		Original Territory
7	Butambala	Kaabasanda	Katambala		Annexed by Kateregga from Bunyoro
8	Buvuma	Maggyo	Mbuubi		Annexed by Mwanga II
9	Buweekula	Kiryannongo	Luwekula		Annexed by Kamaanya from Bunyoro
10	Ggomba	Kanoni	Kitunzi	Mutuba I	Annexed by Kateregga from Bunyoro
11	Kabula	Kabula	Luwama		Ceded to Buganda from Ankole
12	Kkooki	Rakai	Kaamuswaga		Tributary kingdom, subsumed 1896
13	Kyaddondo	Kasangati	Kaggo	Ssabaddu	Original Territory
14	Kyaggwe	Mukono	Ssekiboobo	Ssabawaali	Annexed by Kimera
15	Mawogola	Ssembabule	Muteesa		Mostly curved out of Buddu, 1900 Agreement
16	Mawokota	Butoolo	Kayima	Musaale	Original Territory
17	Ssesse	Kalangala	Kwebwa	Islands of the Gods	Originally autonomous, became county in 1900
18	Ssinga	Mitiyana	Mukwenda	Ssabagabo	Some of it original territory, rest from Bunyoro
19	Bugangazzi*	Kakumiro	Kiyimba		Given by British, 1896
20	Buyaga*	Kibaale	Kyambalango		Given by British, 1896

Figure 25: The Counties of Buganda

Source: Drafted by the researcher in consideration of gathered information

The Kingdom's territories kept changing from time to time since the kingdom was formed through annexation and conquest (De Haas, 2019; Earle, 2018). The Buganda kingdom's political, social, and economic influence once covered Busoga, areas of the current Kiziba in Tanzania, before boundaries were set by colonialists (Langewiesche, 2022). All former territories have been distribution channels for ironworks to Baganda residents for political, economic, and social activities.

Although iron artefacts were spread all over territories that were owned or influenced by Buganda, this study considers the boundaries of Buganda as stipulated in the 1995 constitution. On the eastern side, Buganda shares a boundary with the Busoga kingdom, the Bunyoro kingdom, and Lake Kyoga in the north; in the west are Toro and Ankole kingdoms, and in the south, Buganda spans into the waters of Lake Victoria (Lake Nalubaale), and the Tanzanian border. This study also acknowledges the fact that even before the establishment of colonialism, which was a precursor to contemporary times, Buganda's influence extended beyond its geographical boundaries through the Luganda language learnt by non-Baganda, peoples' migrations, literary art, performing arts, and visual arts like paintings, photographs, sculptures, digital media, and indigenous crafts.

For centuries, the Kabaka has been the overall leader of all Buganda counties in the trusteeship of his people in different clans, except the islands of Ssesse. The county was reserved for the gods; therefore, it remained semi-autonomous within Buganda until after the 1900 agreement (Low, 2018). Until today, the Baganda still hold the islands of Ssesse in special regard, considering them to be one of the major sources of their great civilization.

The administrative political power structures in Buganda were segmented into different levels in a decentralized system from the Kabaka, Katikiro, and county chiefs, to sub-county, parish, and village levels. Kabaka is the supreme leader with the power to guide norms and cultural practices (Nabulime, 2022; Nakazawa, 2020). This political would cater for all people in the land under Buganda's leadership jurisdiction; the Baganda and non-Baganda (foreign workers and immigrants). The clan system was another rallying point for the indigenous Baganda. The system also had a hierarchy that could connect every *Muganda* to the Kabaka, starting with *Enju, olujja, olunyiriri, omutuba, and essiga*. (Figure 26).

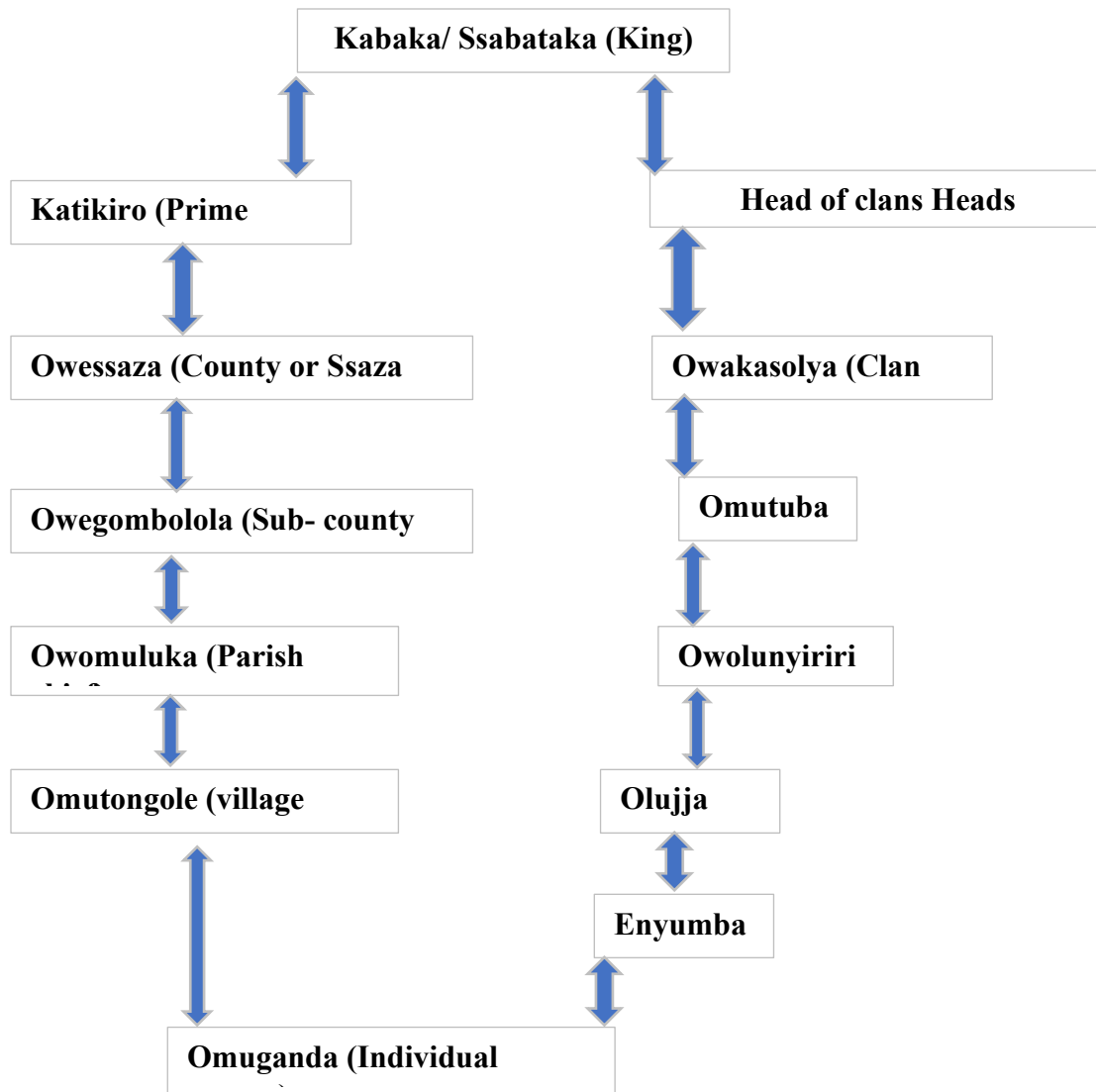


Figure 26: The Baganda hierarchy and communication structure

Source: Researcher

Though leadership in the administrative political power structure would be taken up by anyone as the Kabaka wished, this was different from clan leadership, which largely ascended through inheritance. This was decided on through the will of the deceased or voting by the clan members. The administrative structures were responsible for supporting the Kabaka in his process of governing the Kingdom, and the clan system was responsible for administering activities (also referred to as cultural practice industries) that would support the survival of the kingdom.

The first group of the Baganda (the *Balasa-ngeye*) is believed to have been members belonging to six (6) major clans: the *Ngeye*, *Lugave*, *Mamba namakaka*, *Fumbe*, *Mbogo*, *Mpologoma*, and *Mbwa*. Other forty-six (46) clans joined Buganda in different phases; some came with Kabaka Kintu from the islands and the eastern side, others with Kabaka Kimera when he was coming from Bunyoro to restore the kingship of his grand fathers, and others out grew from already existing clans or joined willingly from other Kingdoms and Chiefdoms due to various unclear reasons (Nuwagaba, 2014). Each of the fifty-two (52) clans has a leadership hierarchy similar to the other, presented in Figure 26. Through their structures, they execute different assigned responsibilities in the kingdom's services.

Archaeological discoveries in Buganda evidence the long-standing presence of indigenous iron smelting technology within the region (Humphris et al, 2009; Humphris, 2013; Reid, 2001). The craft of ironworking in Buganda has persisted over centuries, with limited scholarly documentation on its conception, historical and contemporary relevance. Various studies have shed light on the extensive utilization of iron artifacts in daily life activities in several countries, such as Kkooki, Buddu, and Kyaggwe (Humphris, 2004; Kekimuri, 2019; Kottak, 1972; Iles, 2014; Reid, 2002).

“Although we encountered a small amount of metallurgical (mainly iron) waste at early sites such as Sanzi, iron-smelting waste forms the largest category of evidence for the kingdom itself in the eighteenth and nineteenth centuries. This is surprising, because until recently historians had either assumed that Buganda acquired iron through trade and did not produce it, or they simply ignored the issue. In order to support large military expeditions, to protect territory gained, and to provide the iron tools needed for clearing agricultural land and for pruning banana plants, large quantities of iron would have been

needed. It is not surprising, therefore, that a primary goal of territorial expansion in the eighteenth century was the control of iron production” (Reid, 2012, p. 42).

Reid's assertions challenge the common single-phased narrative driven by findings from available scholarly information, which has affirmed the widespread adoption of iron smelting technology by the Buganda kingdom from its neighboring areas. His position suggests that the Baganda might have been established independently to meet their life needs.

Iron working played a central role in the indigenous society of the Baganda by influencing key domains, including but not limited to healing, rituals, agriculture, and warfare (Figure 27) (Iles, 2009; Reid, 2013; Roscoe, 1911). Therefore, blacksmiths held a special place in the survival of the society, and their products were of great relevance to kingship lineage and authority; spears were used as symbols of protection and sovereignty, and hoes were linked to land and ancestral connections. Thus, the iron industry used to produce tools which were important in other productions; the products that were instrumental in boosting the kingdom's economy. These products were sold to other kingdoms, fostering the establishment of meaning and cultural influence.

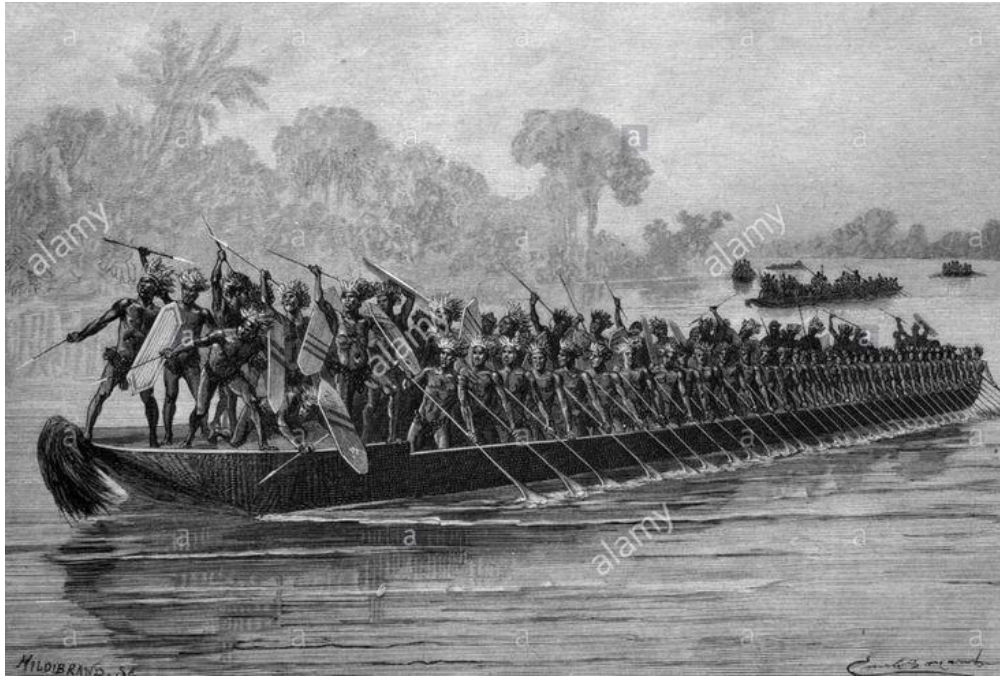


Figure 27: The Buganda Navy

Source: Online

Figure 27 presents a canoe transporting the Buganda Navy. The army, which was responsible for guarding and protecting Buganda's territory on the waters of Lake Victoria. these huge canoes could transport over 90 men with their weapons, spears, and shields.

The establishment of iron smelting sites in different counties of Buganda was a catalyst for the growth of iron production to an industrial level. This not only aided the kingdom in creating iron tools for war and everyday use but also led to the expansion of their trading practice within the kingdom and neighboring kingdoms (Sommerfelt, 2022; Stepanov et al., 2022). The neighboring kingdoms that traded with Baganda included Busoga, Ankole, Kiziba, Bunyoro, and smaller chiefdoms in the islands like Bassesse, the people of Ssesse islands, the Bakoombe people of Koome, and the Bavuma people of Buvuma before being conquered and annexed to Buganda's territory (Kenny, 1974; Soi, 2022; Médard & Kadari, 2019; Ndeda, 2019).

Ironworking played a crucial role in shaping the Buganda kingdom throughout history (Atkinson, 1975; Iles, 2013; Musisi, 1993). As products, their design was motivated by producing locally made iron objects in Buganda was useful in catering for the practical needs of society and facilitating trade. However, the iron creations held profound significance and conveyed deep-rooted values and meanings within the culture of Buganda (Childs, 1991). Thus, blacksmiths' decision-making in design thinking and forming focused on ensuring that the functionality, style, and decoration of these artifacts were suitable for accomplishing the intended objectives. They had to carefully consider the performance of the product. This consisted of adhering to the ergonomic aspect of the product, making the objects comfortable to use, and ensuring the aesthetics. These aspects held significant cultural and symbolic value within the community (Childs, 1991; Humphris et al., 2009; Schmidt, 2009; Schmidt & Mapunda, 1997).

The processes of ironworking incorporate smelting, designing, and forging, and involve the participation of individuals of different genders and age groups (Musisi, 1993). These processes incorporated activities such as searching and mining of iron ore, transportation of iron ore to established locations where furnaces were set, making charcoal for heating iron ore into iron, production and adornment of iron tools. However, there is no acclaimed information on gender roles in the ironworking of the Baganda. The activities were embraced by the Baganda, particularly those of *Kasimba* (Genet clan) and *Ngabi* (antelope clan), and were deeply integrated into their cultures (Kagwa, 1934; Nuwagaba, 2014; Wainwright, 1942). Socially, the integration was evident not only through the physical participation but also in the societal rituals and linguistic aspects, such as vocabulary, proverbs, naming rights, legends, songs, and idioms related to iron works, incorporation of iron-related folktales, among other elements (Kagwa, 1934; Mayanja, 2015;

Nsimbi, 1996). These language components play a vital role in cultural construction among the Baganda in human growth and development.

From a social-political perspective, the ironworks have historically served as significant representations of dominance, control, protection, respect, and group affiliation. These grand structures carried multiple meanings, appearing as compelling symbols of strength, authority, and governance (Atkinson, 2004; Chidume et al., 2021; Kodesh, 2003; Musisi, 1993; Reid, 1999). The ironworks not only represented might and authority but also embodied the very essence of a community's collective identity (Chidume et al., 2021; Humphris, 2013; Nuwagaba, 2014; Reid, 1996).

Economically, the iron products held significant value, which was useful in manifesting trade with neighboring kingdoms like Kiziba, Buhaya, Tooro, Ankole, Busoga, and many others. Iron products served an important role in the barter exchange system, as they were commonly utilized as commodities in barter transactions (Kodesh, 2003; Iles, 2013; Reid, 1996).

Throughout the reigns of various Buganda kings, the kingdom attained an impressive advancement in ironworking technology through territorial expansion. The counties of Buganda, such as Buddu, which was incorporated into the kingdom under the rule of Kabaka Jjunju, Kyaggwe, which was annexed by Kabaka Kimera, and later Kooki, which became a sub-state of Buganda under the authority of Kabaka Mwanga, particularly excelled in this craft (Doyle, 2009; Green, 2010; Kiwanuka, 1969). Undoubtedly, the abundance of iron ore within their territories allowed them to serve as the primary suppliers of this crucial resource to the kingdom's leadership (Stonehouse, 2012). Consequently, these counties, along with a select few others, emerged as the guardians of

ironworks within the grand Buganda Kingdom, skillfully managed by the stewardship of Walukagga of the Kasimba clan (Nuwagaba, 2014, p. 112)

2.4 Disruptions and survival of indigenous iron working

This section of the chapter is linked to objective two of the study. It critically analyses how the factors that led to the decline and survival of indigenous iron artifact designs and their relevance in the contemporary creative space. The profound impact of the coming of missionaries, colonialism, and shifts in political, religious, and socioeconomic orders on iron working and related artifact designs across the globe, with particular focus on Uganda and the Buganda Kingdom, is analysed. Thus, the study provides informed perspectives on how colonial intervention and societal shifts disrupted indigenous iron working practices, leading to socioeconomic and cultural transformation and the approaches to adoption and revitalisation in the modern and post-modern era through interrogating literature and theoretical discussions.

For generations, indigenous iron working has been deemed to be a cornerstone of technological and cultural development in many societies across the globe. In China, the Zhou Dynasty (c 1046-256 BCE) practiced iron production to facilitate the advancement of agricultural and military might (Wagner, 2020). Pleiner (2000) highlights the profound significance of helping societies during the Iron Age to transform and enable them to guarantee the rise of stable and complex political structures. Lechtman (1991) affirms that iron-like materials and forging techniques were used in ceremonial and domestic contexts in the Andean civilisation of pre-Columbian America. Meanwhile, in Africa, societies like the Zulu, Bunyoro, Haya, Kiziba, and others, iron smelting and forging were tied to spiritual, social, and economic structures (Childs and Killick, 1993; Schmid, 1997). However, the survival and continuity of indigenous ironworking were challenged by the advent of colonialism and changes in governance. This was evidenced by the global impact

of such historical disruptions, whose broader patterns and consequences are to be elucidated in this section.

Before the establishment of colonial rule, indigenous communities around the world had managed to smelt iron ore and create iron, which was a primary material for forging strong tools. This, in return, affirmed superiority, heritage, and priority of individual societies. African Kingdoms, such as the Igbo in Nigeria and the Kongo in central Africa, which covered the current northern areas of Angola and the western part Democratic Republic of Congo, were renowned for their metallurgical expertise. The Igbo land's blacksmiths of Nkwerre were adept at producing weapons and agricultural tools, ceremonial tools (Osuala 2021), and similarly, the Kongo produced high-quality tools that were often superior to European imports, highlighting the advanced nature of indigenous African metallurgy (Thornton, 1998). In the case of the Buganda Kingdom in present-day Uganda, they had maintained a long tradition of ironworking. The blacksmiths known as *Abaweesi* held were important in maintaining the practice by being custodians of technical knowledge and recruiting others. With the skills they produced, iron artifact designs were deeply embedded in the cultural and spiritual fabric of the Baganda with an organised system (Kagwa 1934).

After the infiltration of foreign forces into the African kingdoms, a drastic transformation in social, political, religious, and economic life commenced. New goods and cultures found their way to different societies in different phases; trans-Saharan trade connected West Africa to North Africa and the Mediterranean sea from 8th to 16th century through which horses, books, textiles and metal goods were brought to Ghana, Mali and Songhai in exchange of gold, salt ivory and slaves (Levtzion & Hopkins, 2000): Trans-Atlantic Trade of 15th to 19th century involved movement of

enslave Africans to America and brought guns, alcohol, cotton textiles and iron tools from Europe to African coastal regions (Rodney, 1972): Indian Ocean Trade from the 10th to 19th century connecting East Africa with Arabia, Persia and south east Asia good such as ceramics, glass, textiles, spices, luxury goods among others, and African exports were ivory, gold, iron, slaves and exotic animals (Pearson, 2003): Later, the long-distance trade by the 19th century, which was also similar to other trades, though it was more successful in penetrating the interior kingdoms of the African continent. Whereas the foreign forces brought iron goods to the African continent, Africans already had their indigenous iron industries, which could provide them with items. Therefore, a move could set future economic fights.

The foreign groups arrived in Buganda in different groups during the pre-colonial era. Baganda accessed new goods like firearms, mirrors, textiles, ammunition, and other metallic goods in silver and gold. These were received in exchange with slaves, ivory, salt, and minerals like iron. The trade between Buganda and foreign sources was highly dominated by the Swahili coast traders and the Arabs, who used to walk long distances to access societies in the interior of Africa, and barter exchange was the major system of commerce.

As a result, Buganda established trade routes with Kiziba, Busoga, and Ankole, on top of the Bunyoro trade route they had before, which was dominated by back cloth, iron material, and iron tools. These trade routes would supply products bought from Arabs, Indians, and African products from different kingdoms (Ellyne, 1994; Gilbert, 2002; Peter, 2024). However, the Indians came with a new strategy of introducing Indian rupees as a medium of value exchange in trade (Machado, 2014).

The foundation of the colonial era was laid with the coming of Europeans from different nationalities, such as the Portuguese, French, Germans, Belgians, Spanish, Italians, and the British, who started penetrating the interior of Africa with geographic exploration, interest in economic opportunities, and mineral resources. East and Central Africa were visited by various explorers who doubled as spies from the European powers; they included explorers such as John Hannington Speke, Richard Barton, James Grant, Sir Samuel Baker, David Livingstone, Henry Morton Stanley, Gustav Fischer, and Emin Pasha. Other Europeans later came in different categories, such as missionaries, teachers, doctors, and administrators.

Much as the missionaries had a bigger focus on establishing religion and its institutions centrally, the explorers were on a different mission; discovering mineral resources, conducting geographical analysis and mapping the land, studying the dynamics and conflicts in leadership of the continent, which information was vital in laying strategies for their colonial advancement plans. These operations granted them various gains; access to rare technologies like C-section operation, which is still today used in saving their babies and their mothers during complicated deliveries. They got minerals such as gold, rubber, copper, iron, and other rare metals, which they have used to run their industries.

A vast collection of African artifacts, such as masks, regalia, iron tools, jewelry, fetishes, textiles, and woodwork from different societies, was plundered and taken to Europe; these collections have been part of their rare museal under primitive art to date (Adewumi, 2015; McGuire, 1990). Various studies have been done on the collections, where they are, in established museums as their places of exploitation. Europeans collect revenues from their exposure to public view, as echoed by scholars like Nakazibwe:

“...yet other artefacts were confined for life in the ethnographic museums where they serve a noble duty of educating Westerners (and others) about the ingenuity and cultural "primitivism" of the...” (Nakazibwe, 2005, pp. 6-7)

Despite their earlier plans, after the scramble and partitioning of Africa in 1884, they focused on laying strategies to gain total control of territories on the continent. In 1870, only 10% of Africa was formally under European control. By 1914, they had reached almost 90% with only Ethiopia and Liberia retaining sovereignty, along with the Egba, Senusiyya, Mbunda, and Ovambo Kingdoms, which were later conquered.

The Germans colonized various parts of Africa and some parts of Uganda, predominantly in the North around the late 1800s. Later, they lost their colonies, composed of 22 countries, including Uganda. At the beginning of World War 1, their colonies were seized by enemies in the first weeks of the war. By the end of the war in 1918, the Germans had experienced total loss of their colonies and they were officially confiscated in the Versailles treaty after defeat. By the end of German control in some parts of the current Uganda, a significant number of territories, such as Buganda, Bunyoro, Ankole, Busoga, and the far Eastern Uganda, had gradually fallen under the control and influence of the British colonial establishment. Later, the Northern parts of Uganda were taken from the Germans.

Uganda came into existence as a country under British colonial rule, which derived its name from Buganda (BU-ganda / U-ganda), a kingdom that was the first springboard for taking other indigenous states. The kingdom was strategically located and well-established with organized leadership.

“When the British explorers Speke and Stanley first reached Buganda, it was already a highly centralized state, with a king based in a frequently shifting capital of great size, and with regional governors extending his authority over an extensive territory and large population. More importantly, Buganda was expanding. Its armies harassed marginal areas that failed to acknowledge the king's power, and its navies-controlled trade on Nalubaale (Lake Victoria). As a result of the dominance of Buganda, historians assiduously recorded royal oral traditions that promoted its legitimacy, but they did not examine critically how the history of the kingdom was constructed” (Reid, 2012, p. 40).

Whereas some of the colonialists, such as the British, first cooperated with African chiefs and kings, as was with Buganda, a protectorate in an agreement of 1884, later they vied for partial powers, and in some societies, total control was assumed. The evolutionary act from being a protectorate to becoming part of the British colony of East Africa happened swiftly from 1953, during the exile of Kabaka Mutesa II by Andrew Cohen, who was the governor of the colonial government. Even though Mutesa won the case against the British government, which led to his return, he lost his powers. The Buganda agreement of 1955 with the British (famously known as the Hankook agreement, *Endagaano ya wankoko*, and sometimes called Namirembe agreement) stripped him of his power as an absolute monarch and made him a constitutional monarch, a move which reduced his authority. Pushing the Buganda kingdom under the British East African colony made it lose its sovereignty, which consisted of political power and a dent in its identity.

In a move to consolidate their rule in the region, 15 territories were amalgamated to form Uganda (Figure 28). These regional states, such as Buganda (after which Uganda was named), Bunyoro, Kigezi, Ankole, Karamoja, Alur, Acholi, Lango, Ankole, Toro, Sebei, Teso, Busoga, Bugisu, and Bukedi, were combined to create a national identity in leadership under one governance. The

country experienced more decades of colonial rule until it attained its independence on 9th October 1962 (Carter, 1962; Ngabirano, 2022; Zam Zam, 1996). A cause that was initiated through rebellions, strikes, boycotts, and demonstrations. These were organized by Ugandans under their cultural leadership, trade unions, and political parties.



Figure 28: Post-colonial map of Uganda

Source: Online

The amalgamated tribes had a variety of indigenous technologies, which were not limited to categories such as architecture, basketry, woodwork, textile, musical instruments, jewelry, pottery, agriculture, and iron working, among others. These were important practices of influence in the political and socio-economic life of Kingdoms and chiefdoms. In kingdoms like Bunyoro, Buganda, and Ankole, studies show that Iron weapons were important to these tribes, which were

practicing iron working, both as commodities for sale and tools for establishing a strong military for warfare (Moindi, 2023; Reid, 2012). As commodities, iron artifacts served as items of exchange for the material wealth internally and externally, and as weapons, the military used them to guarantee security and expansion of their territories (Peter, 2024).

The power shift was not a mere change in the administration of indigenous societies, but rather marked the beginning of transformations in their social, economic, and political systems. These transformations involved a blending of political, economic, and socio-cultural ideologies. Some indigenous leaders, like the Kabaka of Buganda, Omukama of Toro, and Omugabe of Ankole, collaborated with the colonial administrators to determine what practices were acceptable for their subjects and which ones were not through agreements. This occasioned a mixture of indigenous and foreign perspectives to meet the needs of the community. This integration was particularly evident in areas such as medicine, household crafts, iron weaponry, and agriculture.

The imposition of colonial rule on indigenous societies marked the beginning of significant disruptions of their ironworking practices. The colonial administrations viewed African traditional knowledge and industries as obstacles that could delay their economic and political intentions (Iliffe, 2017; Rodney, 2018). Therefore, they introduced policies and regulations that marginalised and sometimes banned the production of indigenous crafts and practices. This is affirmed by scholars like Osuala (2021), who points out that in Nigeria, the British colonial authorities imposed restricted blacksmithing through an organised process backed up by regulations imposed by colonialists, leading to the decline of the industry in regions like the Nkwere.

The ban on the local industries paved the way for the influx of European goods to be used as substitutes for the indigenous artifacts. Their availability and affordability were guaranteed by

mass production, cheaper costs, and continuous importation of already-made products. In this study's view, this made it difficult for the indigenous blacksmiths to compete, thus leading to a decrease in the demand for their products. The challenging situation was later reinforced by colonial policies that prioritized the extraction and exportation of raw materials over the development of local industries (Falola & Jennings, 2002; Freund, 1984).

Similarly, in Uganda, the Baganda had British colonial rule in the late 19th century, which brought significant changes. Traditional systems were disrupted by introducing new Eurocentric ones through the establishment of the Uganda Protectorate government. The new authorities always disregarded indigenous knowledge systems and promoted European technologies and administrative models. Therefore, traditional crafts such as iron artifact designs were marginalised as colonialist established their supply routes to create a market for their productions (Mamdani, 1996; Reid, 2002; Twaddle, 1993).

Mining operations that disregarded local expertise and traditions were established in many African colonies, including Uganda. The colonial powers primarily geared their economic policies, which were intended to position them well to benefit maximally from the extraction of resources. This focus on resource exploitation most time came at the expense of local industries as their establishments were empowered to monopolise the local. The restructuring of African economies to serve colonial interests was the precursor to indigenous metallurgical marginalization.

In most African colonies, set restrictions the colonial disconnected the supply chain of materials for in-row working, further contributing to the decline of the industry (Yesuf 2022). For example, in colonies like Mali, Burkina Faso, and Nigeria felling of trees, which were crucial in the production of charcoal for iron smelting, was limited through colonial policies and regulations.

Therefore, the policies and regulations implemented by colonial authorities restricted African creatives like the blacksmiths from accessing essential materials for their practices (The Sudan Times, 2024).

The rapid arrival of missionaries before the establishment of colonial government paved the way for British imperialism in Uganda. This process, as noted by Koo (2020) and Meier zu Selhausen (2019), had a significant impact on disrupting the native social-cultural life and hindering the development of indigenous technologies. Moreover, it also worked towards priming the indigenous communities to be potential consumers of European goods in the future.

The missionaries' existence partly influenced the manifestation and consolidation of colonial rule in Uganda. Even after the indigenous Ugandan Kingdoms realized their loss of sovereignty, it was so difficult for them to mobilize, to reinstall their indigenous iron production systems in their kingdoms, and to fight for regaining self-rule. This explains why in the initial phases of the rebellion, Buganda's resistance was characterized by peaceful approaches rather than violence. This approach stemmed from the historical invitation extended by Henry Stanley on behalf of Kabaka Mutesa I of Buganda to the British, as highlighted in the letter he sent to the Kingdom of England. The purpose of the invitation was to request Queen Victoria to send missionaries and teachers who could provide education to his subjects, the Baganda (Musana, 2023; Hartwig, 1968).

The spread of Christianity and Western education was another factor that contributed further to the decline of iron working. The missionaries always demonised traditional practices. They considered them paganish and backward activities, a move which led to their suppression. Ezu-Uzomaka (2019) asserts that the loss of interest in iron-smelting ritual among your generation in the Lejja region of Nigeria emanated from the introduction of Christianity and western education,

which dismissed iron working. In Uganda, the efforts of missionaries aimed at “civilizing” the local population who were dedicated to practicing their practices. the promotion of Western education as an agent of civilisation marginalised indigenous knowledge, thus leading to a generational disconnect from ancestral craft and ideas.

The Eurocentric education gave them different perspectives on life, contrary to what they were used to before, creating people with a hybridised culture; a mixture of European and African values. Establishing misunderstandings between the indigenous leaders and the led, leading to organized disobedience. This could be the reason why, after the arrival and settling of the European missionaries in Uganda, their relationship with the native leadership of Mwanga II did not survive for long after unveiling their ill intentions against the establishment of the Kingdoms and the King’s authority.

The division of African territories through the colonial scramble and partitioning had a significant impact on many strong kingdoms and empires. Particularly, those territories that were affected by the new borders drawn by the colonialists suffered the most. In Uganda, border communities, including the Buganda, Acholi, Teso, Jopadhola, Alur, Lugbara, and Bukonzo, among others, found their indigenous groupings split and families separated. They were incorporated into new national entities like the Democratic Republic of Congo, Kenya, Tanzania, and Sudan. This historical legacy continues to shape the region, with various communities still experiencing the challenges of crossing borders that were arbitrarily established by external powers, denying them access to their indigenous knowledge and social connections. These communities often face immigration restrictions when attempting to visit their cultural leaders as an act of homage and allegiance, or to perform important indigenous cultural rituals that are integral to their identities, including ironworking.

Immigration policies by the new colonial governments in colonized territories had widespread consequences. Other policies, such as the imposition of forced labor and restrictions on immigration, had a significant impact on the indigenous trade routes. As a result, access to mineral resources and raw materials needed for industries like iron works and other indigenous productions was limited. The colonial policies not only disrupted the flow of the indigenous trading system but also hindered the revenue collection for indigenous leaders. Additionally, it made it more difficult for them to obtain special goods from regions that had previously been part of their territories.

The regulation of lasting impacts is still in existence in the 21st century, further establishment of foreign influences in the realms of constitutional governance and education. This emanated from the British's introduction of their languages to double as mediums of instruction in official work sessions and academics in Uganda. As a result, the indigenous populations were increasingly alienated from their cultural roots and networks, fostering a sense of disconnection and disorientation within their societies.

Colonial rulers imposed new names on the unique geographical landmarks of the region, which was the affirmation of the partial work done by their predecessors during exploration. For instance, Lake *Nalubaale* was rechristened as Victoria Lake, Lake *Mutanzi* was changed to Albert Lake, River *Kiyira* was known as the River Nile, and Mountain *Rwezi* was dubbed the Mountains of the Moon. This renaming trend was not limited to lakes and mountains; it also extended to roads, waterfalls, and various other features in the area. A practice that extended to human beings, and now the majority have a Christian-European name as part of their registered characters.

The establishment of Uganda as a colony gave opportunity to internal movements; people relocating from one society and resettling in another. As members of societies migrated from one community to another, they used to share their technologies and artefacts with the new community

of settlement they had joined. Some members joined willingly since they were running from their old homeland for different reasons. Others were captured during wars and brought to Buganda as prisoners of war after their Kingdoms lost to Buganda. This inspired the indigenization of new technologies and designs in local indigenous industries in Buganda, where iron smelting was not an exception.

The designs that were shared with indigenous communities, and after a long period, it would be difficult to tell their origins. They were indigenized based on their functional and aesthetic purposes to the new community, which embraced them. Some of the designs were foreign but domesticated and manipulated using indigenous materials, which sometimes changes the accuracy and functionality, and meanings.

The combination of highlighted effects of colonial policies, economic restructuring, and missionary activities, to a greater extent, contributed to the erosion of cultural practices and the loss of indigenous knowledge (The Sudan Times, 2024). The decline of ironworking was beyond economic issues, but it incorporated the cultural sphere of the society. The loss of skills, rituals, and social structures associated with indigenous practices resulted from the displacement of traditional artifacts (Digital Teachers, 2025). This could have been the same case for Uganda; the marginalisation of blacksmiths and devaluation of their craft led to the decline of transmission of iron working knowledge, hence further decline in interest and practice.

Whereas the influences which resulted from the infiltration of African kingdoms by foreign powers changed the social, political, religious, and economic indigenous settings in various iron societies, the iron working industry remained resilient. The indigenous knowledge of iron works partly survived total extinction and is still evident today in contemporary times, influenced by

modernistic and post-modern settings in society. What happened in Buganda similarly happened to many other indigenous societies in Africa, and the scars of imperialism are still manifested through neo-colonialism and globalization (Mayanja et al, 2024).

Despite the significant social, political, economic, and technological changes that have impacted indigenous societies in Uganda, Africa, and worldwide, Ironworks still stands out as one of the few remnants of indigenous knowledge, deeply embedded in social and cultural identity. Indigenous components of knowledge have been proven by different scholars, such as Mutungi (2015), for their endless relevance in the traditional and contemporary circles of growth and development. Societies in the contemporary era still proudly identify with the supremacy of indigenous ironworks through proverbs, idioms, folktales, and symbolisms (Humphris et al., 2018; Vodyasov, 2018). To some clans in African societies, ironworks play a significant role in their generational naming rights, bride price for the marriage process, practices, and authority (Acero et al., 2018; Kabanda, 2018; Lyaya, 2020; Sarah, 2019).

Small indigenous communities around the globe continue to come together to practice the ancient tradition of iron smelting as a social activity (Iles, 2018; Vodyasov, 2018). The production of iron tools on a small scale, for a variety of purposes, serves to preserve and promote cultural identity (Akubor, 2016). In Uganda, traditional iron artifacts hold symbolic value, representing different beliefs and shared ancestry among various ethnic groups.

The knowledge about indigenous ironworks in some African communities is preserved and passed on to generations through oral tradition and nonformal education systems (Abah et al., 2015; Willis, 2018; Paynter et al., 2015; Yasmin et al., 2017). Despite their bigger role in preserving and passing on technical knowledge related to indigenous practices among the Baganda, oral traditions have their weaknesses. Articulacy and accuracy in information sharing are based on the informer's

ability to articulate matters and the receiver's ability to digest, analyze, and interpret matters (Muraina, 2015; Tuwe, 2016). Therefore, information may keep changing from one generation to another, which may compromise the authenticity. This kind of method in data preservation is not appropriate for this generation for such a treasured practice, hence the need to consider digital and printed text methods of documentation (Eklund, 2017).

The gaps in the complete indigenous knowledge of ironworking over time inspired blacksmiths to come up with innovations (sometimes borrowed from other cultures or developed within their smithies). This necessitates material improvisation and technological evolution. Iron smelting knowledge, which is seemingly unfamiliar to the majority of contemporary blacksmiths in different societies, is replaced with the recycling of scrap metals (Figure 29). The indigenous manual furnaces are gradually being replaced by electric energy, and the mixture of different alloys in the production process is on the rise. The contemporary approaches foster compromise in quality and intrinsic value, disillusioning authenticity.



Figure 29: Contemporary Blacksmith's workshop

Photographer: courtesy of UCASDR

Source: Online

In Figure 26, a blacksmith from the Kyaddondo county of Buganda is recycling a heated-up motor-vehicle spring through a furnace to forge artefacts. This implies that iron working took another direction in contemporary times. This could be after hardships and evolutions experienced by the indigenous iron working industry, emanating from the new settings resulting from the influences of modern technology and scarcity of smelted indigenous iron.

Despite the change in the practice of indigenous ironworks in most African societies (which has largely pushed the indigenous technology towards extinction), there is a handful of surviving skilled blacksmiths around the world. Restoration projects (testing and recording the processes have been done in societies such as Nigeria, Burkina Faso, Benin, Côte d'Ivoire, among others (Gfeller & Eisenberg, 2016; Killick, 2004).

Despite the reduction in the number of masters equipped with the indigenous styles and techniques of iron working, the restoration exercises have exhibited the survival of comprehensive knowledge of the trend; the processing of the iron ore, production of the original designs, historical relevance, and the transformation in roles and embedded meanings, and gender roles. The documentation can be referred to for further developments in contemporary times; however, this is not reflected in various smelting knowledges, more in East Africa, such as that of the Baganda.

The existence of such sources has sustained the cultural restoration in times when indigenous technical skills are highly required. Their existence is important in design manipulation, production of artifacts, and ritualistic activities. On a significant-scale production driven by the continued desire to preserve cultural identity, manifested in naming rights, status, and cultural hierarchy; cultural activities such as hunting, ancestral worship, rituals, and entertainment performances; cultural relevance; meanings, value, and homage (Figures 30,31,32). To a smaller

extent, this has qualified the need to protect complete knowledge about the production of the indigenous iron artifacts in their original shapes and styles.



Figure 30: Okusumika (The heir) in Buganda

Source: Online

Figure 30 presents a moment of installing an heir during the process of performing the last funeral rites for the deceased. Observation on photographic content reveals the use of an iron spear held by the heir dressed with two tied notes of backcloths on his right-hand shoulder, both visualizing a symbol of authority. On his right hand, a woman is kneeling while holding the basket, which has other items in it covered with the back cloth. The indigenous material culture they hold makes

them look different in terms of authority and affirms being appointed by the family or clan, as the practice is in Buganda. This is a common practice performed among the Baganda for every deceased adult Muganda, whether male or female, provided the late died after becoming a father or mother.

A similar idea, but not exact, is performed on the Kabaka as one of the processes of being installed on the throne to lead the Baganda. For generations, since the takeover of the kingship by the lineage of Kintu, the coronation of the Kabaka has become a central role and responsibility of various clans of the Baganda. This incorporates preparing the crown prince, performing rituals, and installing him on the throne. The process requires a collection of artifacts as symbols the visualize his authority (Kekimuri & Wathum, 2024); **(Figure 31-32)**.



Figure 31: Katikkiro Mayanja Nkangi (the Prime Minister) hands over a spear to Kabaka

Photographer: Hannington Sebuliba¹⁷

Source: Online

¹⁷ Sebuliba, July 31, 2018

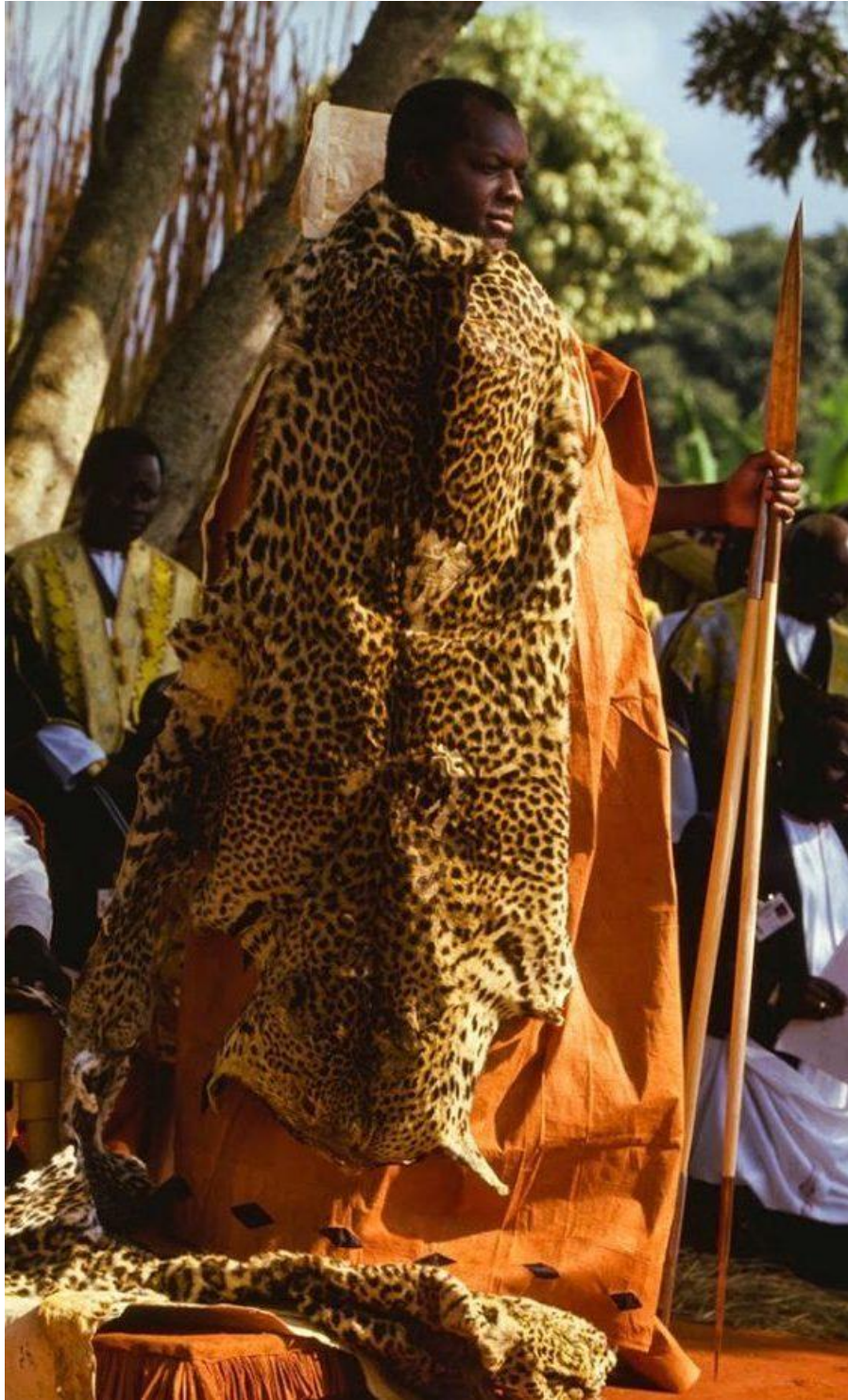


Figure 32: Kabaka Ronald Muwenda Mutebi of Buganda holding a spear during his coronation

Source: Online¹⁸

¹⁸ <https://olulyoolulangiraonline.wordpress.com/the-kings-of-buganda/> Accessed on 21st /09/2024



Figure 33: Royal guards await the King's Arrival.

Photographer: Badru Katumba

Source: Online

Amidst the presence of modern weaponry provided for by the Ugandan government to protect the *Kabaka* of Buganda, the presence of his cultural soldiers (*Abambowa and the Bagalagala*) with indigenous iron weapons is still highly considered (Figure 33). The cordial dual existence in the same function highlights the need to embrace modernity as we put much effort, not forgetting the need to preserve our indigenous ideas; in them, originality and identity are affirmed. Just like iron artefacts like indigenous spears and knives are still significant in performing of last funeral rites, a ritual of succession among the Baganda (Kafumbe, 2018; Reid, 2016). This implies that in this modern postmodern era, Indigenous designs and props are still used as symbols of identifying new authorities replacing the deceased among family members, taking up the responsibilities and leadership of the family, and the identity of origin.

Without the detailed contribution of scholarly studies, the future of such knowledge is on the verge of extinction, yet indigenous iron works as a culture can be recorded and conserved. This is in line with Yasmin et al (2017, p.4) who suggest that, as quoted, "It can also be shared and understood by those from different cultural backgrounds". This will give the opportunity of access to the many mainstream courses in the fields of history and innovation with biased content towards neo-colonialistic and Eurocentric consideration. They are focusing on the perspective of the internationally dominant cultures and ignoring the thousands of medium and minority cultures, like that of the Baganda with fascinating technological ideas (Shay, 2016; Shizha, 2014; Stratton, 2020). As a result, much of the rich content about the indigenous ironworks, production, consumption, and continuity is still preserved through traditional means and therefore minimally documented.

The established museums and other burgeoning musealization centers in Africa and across the world have endeavored to play a crucial role in collecting, preserving, documenting, and presenting indigenous technology and iron artifacts to the public (Knell, 2017; TallBear, 2015). However, for the sake of Buganda, Mayanja et al (2024) affirm that their efforts lack in-depth documentation made available for the public. This can be buttressed by Figure 34, a museum scene where a collection of goddesses, Nakayima, is presented with no profiling information. They further highlight that the content provided is still scanty and lacks detailed analytical information regarding the conception, production, and consumption of indigenous iron works. Other centers where indigenous iron artifacts are housed are the indigenous shrines and traditional places of worship, which are facing destruction and elimination by modernists through conversion to modern religions, government policies, and land grabbing (Bowersox, 2019; Huyssen, 2019; Kekimuri, 2019). Furthermore, musealization centers parade shreds of evidence of materials of

different cultural evolutions and materials to be used as a way of gauging the material sophistication of a given group, not fostering continuity of cultural practices.



Figure 34: Spears in Nakayima's pavilion in the Uganda museum

Source: Researcher (Photograph taken during pilot study)

2.4.1 Modern and Postmodern Perspectives on Design and Material Culture

Studying indigenous iron artifact designs of various societies can be critically augmented using complementary theories. Both modern and post-modern concepts are important in exploring their shifting meanings, symbolics, materialism, and their whole idea of historical relevance, and as designs of contemporary cultural expressions.

According to Woodham (1997) Modernist perspective attributed to enlightenment rationality with emphasis on universalism and functionality through form and material. In this study, anchored on design and visual culture, from modernistic approach emanates esthetics in methodical and ideal forms. This drive believes that good designs communicate a clear, singular message across cultures, contexts, and time. Therefore, through this lens, the indigenous iron artifacts of the Baganda may be interpreted through being considered expressions of coherent cultural values, sophisticated craftsmanship, and symbolic logic. This can be derived through structured analysis through material culture theory; formal, functional, and cultural readings (Prown, 1982).

Conversely, the postmodern perspective rejects the aspect of singular truth highlighted in the modernist perspective, instead embracing pluralism with attribution to context-specific, and sometimes contradictory in the stance interpretations. Lyotard (1984) asserts that Postmodernism posits that cultural ideas are open to multiple readings constructed by the viewer's personality, social and historical context, and discursive frameworks. This approach establishes an understanding of how recontextualization (Figures 35 and 36), reinterpretation in contemporary design discourses (Figure 35), museum displays, and global markets are subjected to indigenous artifacts through appropriation.



Figure 35: The flag of Buganda Kingdom

Source: Online, Buganda website¹⁹



Figure 36: Spears and crossing the shield at the Royal Mile, Mengo, Kampala, Uganda

Source: Online²⁰

¹⁹ www.buganda.or.ug

²⁰ https://www.tripadvisor.com/LocationPhotoDirectLink-g293841-d13431520-i409679990-Kampala_Sightseeing_Bus-Kampala_Central_Region.html

Eclecticism is a key concept embraced by the postmodern design perspective. The attribute advocates for blending styles, symbols, and historical references with openness to contexts. This is a manner that resists hierarchy and puts dominant narratives in check (Jencks, 1987). The characteristic is reflected in the double coding of artifacts, where simultaneous communication of indigenous symbolism to insiders, while different messages to contemporary audiences are sent by the objects (Figure 36). The resulting interpretations often derive dissonant beauty; attention between the past and present, on the other hand, functions and representation, which are sacred and commodified. This gives rise to complex realities in line with cultural realities and transformations.

In the case of indigenous iron artifacts of Baganda, modernist viewpoints are important in examining the aesthetics and technical integrity, analyzing designs as coherent systems of ergonomics, function, and symbolics. Postmodern perspective provided ground for critical reflection on how the indigenous iron artifacts have been appropriated, remixed, and stylized in contemporary contexts, how their pluralistic values are emphasized, and for multiple readings. This hybridization in the analytical perspectives under this study's theoretical framework acknowledges both the historical embeddedness of indigenous knowledge and its present, contested, evolving presence.

By interpreting Modern and Postmodern perspectives, this study applied a layered interpretive strategy that elucidates the eclectic nature of design and visual culture. This was applied while adhering to the sensitive aesthetic and symbolic realms of meaning rooted in the indigenous contexts of iron artifact designs.

2.5 Extracting Embedded Knowledge in indigenous iron artifacts through drawings

This section of the chapter is linked to objective three of the study, largely expounding on the studio perspectives by various scholars on studio approaches for extracting embedded knowledge in the indigenous artifact designs through interpretive and analytical design drawings.

According to Childs and Killik (1993), African ironworking traditions, including those of the Great Lakes region, have their utilitarian aspect fused with sacred meaning. Therefore, extracting and recording the designs of these iron artifacts through interpretive and analytical design drawings is an embodiment of studio-based research. Thus, it stretches beyond their formal qualities and incorporates their historical and ritual significance they carry (Kreamer, 2003).

Studio-based research incorporates practice-based and practice-led research. The former emphasizes generating knowledge through studio explorations by the researcher himself, generating studio lived experiences to make informed interpretations. The latter propels the researcher to analyze other artists' studio experiences through their productions and explanations to generate content for informed conclusions. With those two perspectives, studio-based research is a coherent approach that can be suitable in carrying out investigations aiming to frame an understanding of material culture through indigenous and contemporary states.

Studio-based approach has increasingly been recognized, regarded as a legitimate and rigorous form of academic inquiry in the knowledge realm of art and design. According to Candy and Edmonds (2018), studio-based research emphasizes the production of new knowledge through creative activities, establishing design outputs to be both method and outcome. This framework engages the researcher in reflective making of the artifacts, drawing, and visual experimentations to deal with the research questions, material, cultural practice, and consumption embedded.

Frayling (1993) describes the three approaches of research by artists by distinguishing between research for, into, and through art and design. This study intends to focus on extracting the knowledge embedded within the designs of the indigenous iron artifacts, incorporating their production and usage, it takes Frayling's approach of "through" art and design. It provides for studio possibilities such as interpretive drawing, analytical design drawing, modeling, and reimaging indigenous forms. Therefore, the approach serves as a tool for examining the symbolic, functional, aesthetic, ergonomic, and adaptive aspects of the indigenous iron artifacts of the Baganda.

Visual art practice is more than just a mode of expression but also serves as a form of inquiry, revealing cultural and conceptual knowledge beyond the potential of traditional text-based methods (Sullivan, 2005). In this study, the creation of analytical drawings of the artifacts, such as hoes, spears, rattles, and knives, provides the basis for a deeper understanding and interpretation of their symbolic language, construction logic, and their transformative nature across time. Therefore, the broader themes of resilience and adoption can be analyzed through these approaches by identifying how indigenous design forms can be immortalized and revitalized for sustainable contemporary relevance.

Studio practice provides room for material engagement with theory. This is further elaborated by Niedderer and Roworth-Stokes (2017; p.4), who argue that reflective interaction is easily enabled by studio practice. This is particularly prudent in exploring the material culture theory underlying this study. The method of making design drawings or reconstructing an indigenous iron artifact compels the researcher to think through the object's textures, dimensions, cross sections, and structure rather than just its ethnographic and symbolic interpretations.

Practice-based research approach is also vital in understanding original design concepts and practice-led caters for the adaptation and contemporary design possibilities, laying firm foundations for critical appreciation. The development of a modern interpretation of an indigenous iron spear for decoration is a good example demonstrating how indigenous design ideas can be adapted for new functions and markets. Such critiqued studio outcomes serve as an illustration of how design research documents cultural heritage and activates it in formats that are participatory, future-oriented, and locally grounded.

Studio-based research in the study is considered both a methodology and a lens. It can facilitate embodied learning and creative knowledge production. This makes it a formidable approach for examining the historical relevance, the resilience, and indigenous and contemporary statures of the iron artifacts of the Baganda, within the context of design and visual culture

2.6 Synthesis and Research Gap

Most contemporary blacksmiths have tried to maintain the production of indigenous ironworks as a cultural practice using new alternatives to the materials and tools so that they can still create original designs of iron artifacts by maintaining the original style, size, and forms. The study recognizes different players, such as national and international cultural organizations: museums, cultural institutions, academic institutions, and individual scholars who have documented numerous indigenous ironworks from communities across Africa and the world at large. However, the devoted adherence of the Baganda to their traditions has been scantily documented in several books in Luganda, the language of the Baganda, with few details of formation.

The reviewed related literature reveals significant historical, symbolic, technical, aesthetic, ergonomic, and functional aspects of African indigenous iron artifacts. A few studies have

employed studio-based approaches like interpretive and design drawings for the extraction and interpretation of the indigenous iron artifacts, their dimensions, aesthetics, and functional aspects. This affirms a gap in scholarly work that integrates material culture theory with visual design practice to foster preservation and regeneration of indigenous iron artifacts, especially for Buganda's context. The documentations are appended with a few, and sometimes no, visuals of the artefacts. This study also identified a gap in the available literature, linking artifacts to their visual representations to be better understood by the interested modern community members dealing with the art of smithery. The indigenous processes behind the production of indigenous artefacts are not covered by most writers. This leaves the knowledge about these productions unknown to the current generation, yet it would create a richer repository to inform the artisans' production perspectives. Therefore, this study bridges the gap by combining interpretive and analytical design drawings, utilizing findings guided by a triangulated theoretical framework, to visualise knowledge in the indigenous iron artifact designs of the Baganda.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Overview

This chapter presents the overall strategy that was used in conducting the study. The ontological and epistemological standpoints are explained to give a foundation for framing a suitable research design, which is also elaborated. In line with the study objectives, this chapter further stipulates the study population, study sample, sampling techniques, methods and tools of data collection, data analysis, validity and reliability, and ethical considerations in reassurance of no harm caused in the research process.

3.2 Ontological and epistemic perspectives of this study

The understanding and description of indigenous iron works of the Baganda, particularly their design conception, production, and cultural relevance, demands a deeper interrogation rather than subjecting them to Western elements and principles of design. The ontological and epistemic perspectives derive the understanding of these objects depending on the analytical stance employed (Nichols et al., 2024). The theoretical framework rooted in material culture theory, articulation theory, and adoption theory was important in examining how these artifacts are more than mere tools and how knowledge about them is constructed and interpreted. This section discusses the study's ontological assumptions regarding the existence and significance of ironworks and the epistemological foundations.

Ontology as a philosophical inquiry incorporates interrogating the nature of reality and being (Cordella & Shaikh, 2006; Heidegger, 2008; Vattimo, 2009). In the context of Buganda indigenous artifact designs, ontology addresses the questions of what these artifacts fundamentally are and the kind of conception, consolidation, and status they hold among the Baganda.

Essentially, Baganda iron artifact designs, such as spears, knives, and rattles, are ritual-based objects, functional objects forged with specific utilitarian purposes. However, from a material culture perspective, these objects are not just utilitarian crafts; they also serve as symbols deeply embedded in the social and spiritual fabric of the Baganda life. The status of these artifacts is dual since they exist both as material in physical form and with practical functions to serve and as cultural symbols with attached meanings related to identity, power, and spirituality. For example, the spears and other ceremonial weapons used by the Baganda not only serve the practical role of hunting and warfare but also symbolise the status of authority, class, and social order. The spear for a certain god might be crafted with a particular structure, decoration style, and embellishments that signify his powers and roles, and sometimes land and clan of affiliation, giving the object a social ontology that exceeds its materiality. Furthermore, the process of smelting, design ideation, and forging itself, especially when carried out by skillful blacksmiths, is often viewed as a spiritual act where the transformation of raw materials into tools mirrors spiritual transformations and connections with ancestors and deities.

The ontological perspective of this study suggests that the indigenous iron artifact designs of the Baganda exist simultaneously in multiple realms: they are physical, social, and spiritual entities that carry complex meanings far beyond their material form. This, the multi-layered existential nature, describes the broader world view of the Baganda, where objects are not passive but active components in the cultural and social dynamics of the community.

Epistemology, as a branch of philosophy, unfolds the nature of knowledge and the approaches of its acquisition (Greco, 2017; Pryor, 2001). When studying the indigenous iron artifacts of the Baganda and their designs, key questions arise on how knowledge about these artifacts is constructed, transmitted, validated, and developed. This study examined indigenous knowledge

systems and Western academic frameworks reflected in the design elements and principles, and other related visual intrinsic concepts. Both systems offer valuable but sometimes conflicting epistemological approaches.

The indigenous knowledge systems are largely all-inclusive (Onwu & Mosimege, 2004); often, they merge technical skills with the understanding of the spiritual and social importance of objects and their designs. This can be highlighted in the process of smelting, designing, and forging iron artifacts may involve rituals to ensure that the objects are spiritually pure and capable of fulfilling their intended purposes and are accepted by the gods. This stance of epistemology emphasizes the interconnectedness of material, social, and spiritual realms. In this case, knowledge is not merely about how objects are designed or made but also their role and meanings within the broader conception and consolidation.

Dissimilarly, Western epistemological approaches to the study of Baganda iron artifact designs often rely on empirical research methods, historical documentation, archaeological analysis, and scientific examination of materials (Meyer, 2020). These approaches seek to understand the origins of objects, inspirations, techniques of production, and historical use of artifacts. This is done through a more objective, detached lens. These methods can reveal important information about the material aspects of the items, including types of iron ore used and the evolution of forging techniques. However, Western methods may not fully grasp the Baganda worldview, the symbolic and spiritual meanings that are central to the culture. Therefore, bridging these two knowledge systems, the indigenous and the Western-oriented, is the epistemological challenge.

Anchoring this study on material culture theory provides a framework by acknowledging that objects carry material and cultural significance. The theory recognizes the knowledge about the ironworks of the Baganda as a construction through both indigenous experiences and empirical

analysis. By employing articulation theory, this study offers a more nuanced understanding of the objects through analytical design drawing as an approach to analysis. It allows synthesis of local knowledge by emphasizing not only the social and spiritual meaning of the artifacts as unfolded by other methods, but also augments the physical interpretation of the objects. This complements the scholarly knowledge, which generally focuses on their material and historical characteristics.

From the ontological standpoint of this study, material culture as a theory encourages viewing the indigenous iron artifact designs of the Baganda as multifaceted productions that exist in different dimensions of the physical and the illusion. The artifacts are social components that help to define roles, communicate messages about power, authority, and status (Berger, 2016). They maintain the cultural fabric of the community, for example production of a particular spear for the clan leader goes beyond fulfilling a practical need but also reinforces the leader's authority and connection to the ancestral traditions.

Through integrating these epistemological and ontological approaches, this study can offer a richer and more complete account of the conception, historical consumption, and significance, survival, and contemporary relevance in creative space. Therefore, this background is pertinent for guiding the selection and application of the research design.

3.3 Research Design

The study was descriptive and employed an ethnographic design, which lends itself to qualitative data collection methods. This integration was not only feasible but also highly effective for this study, rooted in immortalizing the indigenous iron artifact designs. Ethnography was employed because the study required interrogating people's individualistic thoughts and interpreting them to make a richer background for the construction of both text and visual narratives (Pérez-Bustos, 2017; Poveda et al, 2018). The focus was on understanding the cultural context of the production

and consumption of iron artifact designs among the Baganda. Visiting iron working sites and smithies was important in providing in-depth information, which could be supplemented and critiqued by users. Therefore, the ethnographic approach was important in enabling access to firsthand information that informed studio explorations to understand the crafted nature of the selected iron artifact designs; the process of smelting and forging, and the essence of their production.

The study's theoretical framework, which comprised material culture theory, articulation theory, and adoption theory, reinforced the ethnographic design. Material culture theory guided the interpretation of iron artifact designs as embodiments of social values, technological skill, cultural identity rather than mere utilitarian objects (Laube, 2021; Sinamai, 2018). Therefore, the theory enabled the interpretation of artifact designs as living materials carrying embedded meanings that reflect relationships between people and objects, and the contribution of material forms to cultural continuity and identity.

The Articulation theory complements by providing a framework for understanding how meanings associated with indigenous iron artifact designs of the Baganda are not fixed but continuously reshaped through realms of social practice, aesthetic, and cultural reinterpretation in modern adaptations (International Journal of Anthropology and Ethnology, 2021; Poveda et al., 2018). Thus, the study was guided through recognition of interaction between indigenous craftsmanship and contemporary creative practices as a dynamic field of negotiation where old and new meanings coexist, evolve and sometimes transform.

In addition, the study was informed by adoption theory in examining how the knowledge in indigenous iron artifact designs survives, adapts and finds relevance with in contemporary creative

spaces. The theory further helped in explaining how artisan and designers selectively adopt and reinterpret designs to align with current aesthetic preferences and economic opportunities while retaining their intrinsic cultural values (Ch'ng et al, 2018).

3.4 Study site and selection

The study was conducted in Buganda, a kingdom that occupies the central and southern part of Uganda (Figure 37). The Baganda form the largest ethnic group in Uganda, with a population of approximately 14 million (Uganda Bureau of Statistics, 2024).

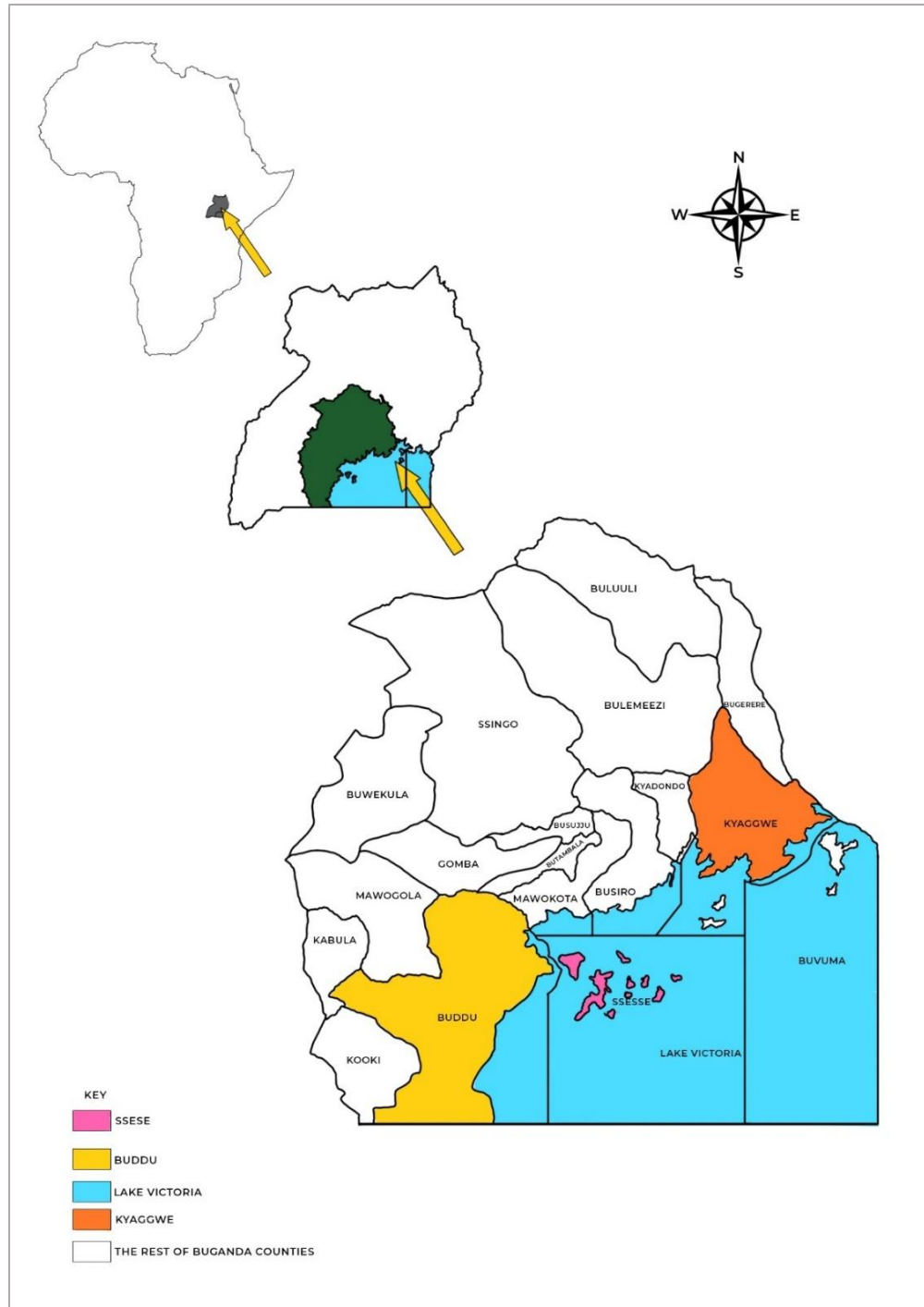


Figure 37: A map of Buganda with the counties where research was conducted

Source: Researcher

The three counties, Buddu, Kyaggwe, and Sseese, were selected to comprise the study area due to their historical prominence in the production of indigenous iron artifact designs, particularly tools

and ceremonial objects. The counties are also vested with the richness of oral histories, historical sites which also double as musealisation centers and groups of blacksmiths holding the skills, knowledge of indigenous iron works among the Baganda. This makes the selected site a scientifically sound choice for extracting embedded knowledge, aesthetic, and symbolic meanings of the artifact designs.

The population in the three selected counties comprises different clans and religions, which shape their beliefs and influence their level of adherence to cultural practices. The most dominant religions include the Anglican church, the Roman Catholics, the Muslims, the Pentecostals, and the Orthodox churches (Earle, 2012). However, the ancestral beliefs and practices which incorporated *Okusamira*, consisting; the praise and worship of the indigenous deities, *Obulaguzi* (Propheying) and *Obusawuzi* (diagnosing and treating), are another form of religion. To the Baganda, ancestral beliefs are still held relevant, and a significant number of them still practice them in secrecy (Kekimuri, 2018; Kiganda, 1998; Rashidah, 2012).

Geographically, the selected counties are not connected by land. They are separated by water, each with its unique population composition; a mixture of the dominant Baganda and other immigrants from other tribes. In contemporary times, the kingdom is heterogeneous, with the Baganda being the main people living with other members from other tribes who willingly migrated or were captured through expansion and assimilated into the Baganda culture and norms. The settlers in Buganda continue to live harmoniously, using Luganda as a unifying language in Buganda.

Kyagwe is located in the far east of the kingdom, with some of its parts in Lake Victoria and some other parts sharing boundaries with the Kingdom of Busoga, which one time, was a tributary state of Buganda. The Basoga and the Baganda share a lot in common regarding cultural practices, materials, artifacts, and languages, among others. The county of Kyagwe got more settlers from

Busoga and the Jopadhola people, who came in different generations as a result of work opportunities; others came as fishermen and settled in the county. There are several cultural sites with a huge collection of indigenous iron artifacts, such as shrines and palaces; the palace of Abalangira be'Bukerere, the palace of Nanfumbambi at Ntenjeru, the palace of Kabaka at Nyenga, the palace of Lukangwa in Mayangayanga, and the place of Kintu at Magonga

The county of Buddu is in the western stronghold of the kingdom, sharing borders with Kabula and Kooki counties of Buganda. Buddu has a cultural museum, and it is a settlement for several ancestral lineages for various clans, such as *Mutima Omuyanja*, *Nte*, *Ngabi*, among others, with their shrines' archeological history. Buddu shares its longest part of the eastern border with Lake Victoria and its southern border with Tanzania. Since the county was conquered from the Bunyoro Kingdom, which also had skilled Blacksmiths, remnants of the Banyoro were assimilated into the Buganda kingdom, and others became Baganda through a ritual of *Okuta omukago*, meaning taking an oath with different clan members who were Baganda. Buddu also has another fraction of its population, which came from Rwanda as workers and others seeking refuge due to the insurgencies in their homeland. The majority dropped their identity and adopted that of the Baganda and intermarried, while a smaller fraction maintained their original cultural identity, and until today, they identify themselves as Banyarwanda.

Ssese County is composed of islands situated deep in Lake Victoria. The islands are populated by the dominant group of the Baganda with cultural characteristics of the Baganda from the Mainland and a smaller fraction of mixed tribes, mainly from Tanzania, Kenya, and the Ankole region. Sometimes the Baganda from Ssese are referred to as *Abokulubisi*, and the Baganda from the mainland are referred to as *Abokulukalu*. *Abokulukalu* tends to refer to the Ssese County as the mother of most of the practices and ideas in Buganda. That is why they always believe that for any

cultural or spiritual challenge they fail to resolve, they should go to Sseese for consultations with the spirits. This may imply why there are many historical cultural sites for the ancestral religion of the Baganda and shrines for different deities, with various iron artifacts in different designs and iron slags as evidence of the indigenous ironworks industry.

The selected counties have historical major and small trading centers such as Masaka, Bukeri-Kanywa, Birinzi in Buddu, and Mukono, Kinanansi, Nkokonjeru, Masaaba, (Iles, 2014; Reid, 2012), and Sseese, where iron products were produced and paraded in open markets for sale, and they could be accessed by different buyers for reselling by traders through other trade routes and household users. The towns still exist in contemporary times in gazetted areas, selling different merchandise, and indigenous iron artifacts are among them, from blacksmiths of different cultural backgrounds. The routes to the different geographical locations in the selected counties required using the available road networks and water routes by boat or ferry at Nakiwogo to cross from Kampala-Entebbe side and Bukakkata landing sites from Buddu side. Sometimes, one can use Kiyindi and Katosi landing sites in Kyagwe and head to the Sseese islands.

3.5 Study Population

Since this ethnographic study was qualitative, it required selecting a wider population comprised of respondents who had experience with the design conception, iron smelting, forging, and consumption of indigenous iron artifacts of the Baganda. Although no available records stipulate the number of people who are involved in the production and consumption of indigenous iron artifact designs of the Baganda, the study population comprised different categories of respondents in Figure 38, selected to gain access to relevant lived information about ironworks (Coe et al., 2021; Creswell & Poth 2017; Hammersley & Atkinson, 2019). This is buttressed by Kekimuri (2018, p.78), who affirms that “The qualitative, interpretive paradigm dictates thick descriptions,

or rich, detailed data, which emerge from a diversity of people, including the vivid portrayal of their experiences, perceptions, feelings, and the meanings they ascribe to their actions.”

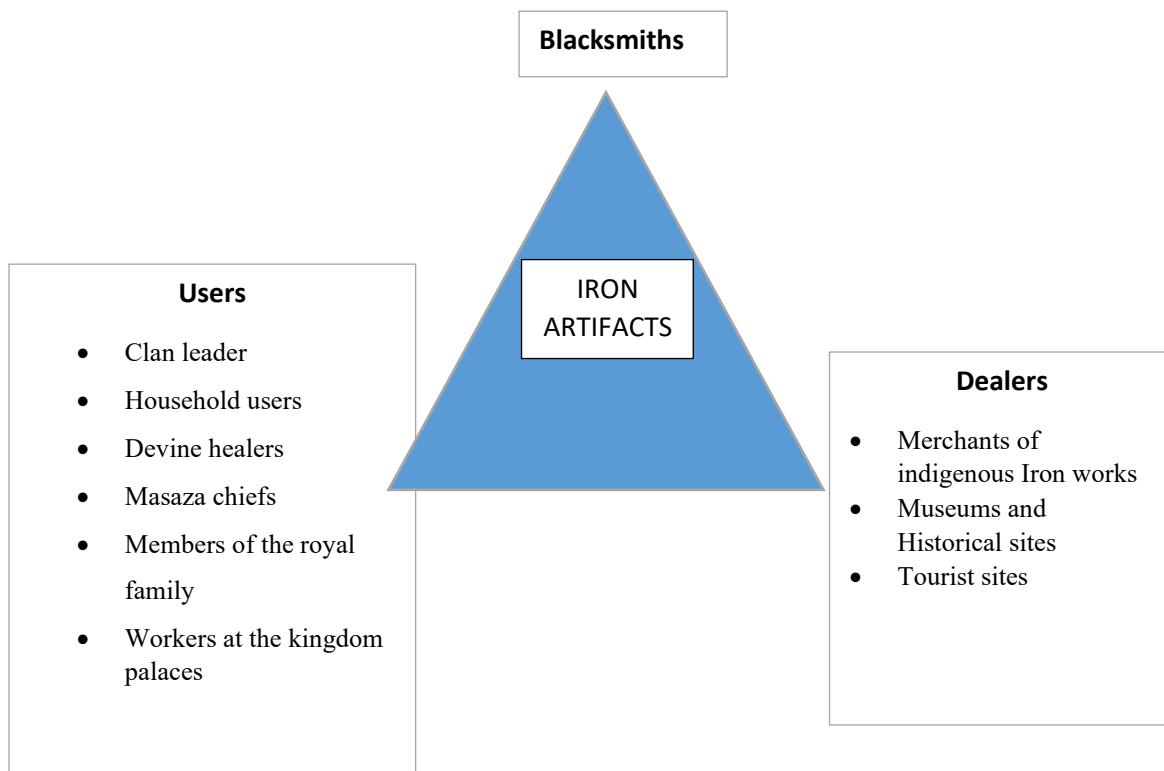


Figure 38: Connections and interconnections among stakeholders

Source: Researcher

The study population, as visualized in Figure 38, consisted of blacksmiths and users. Blacksmiths are an important category of the study population since they are in charge of the knowledge of production processes and smithies where artifacts are manufactured. They direct the smelting and the forging process of crafting iron ore into useful iron artifacts. Although most acclaimed blacksmiths belonged to the *Nte* and *Kasimba* clans as a responsible group of people to handle iron smelting and forging in the Buganda kingdom, most of them died, and others dropped iron smelting due to various circumstances. Therefore, the study also incorporated iron smelters of other clans who might have received training from their maternal uncles, maternal grandfathers of the *Kasimba* and *Nte* clans, through apprenticeship.

The users were selected from groups of divine healers, Buganda Masaza chiefs, people entrusted with duties in the Kingdom palaces, traders of indigenous iron artifacts, members of the royal family, clan leaders, authorities on iron works attached to historical sites in the Buganda Kingdom, and household consumers. The users' category was considered in the study population since it incorporates to narrate the utilitarian and symbolic aspects of the artifacts. They provided information required for the fulfillment of objectives one and two of the study. The exact Figures of the entire population and its demographics are not clear since there was no proper register for acclaimed dealers in iron artifacts as a business.

3.6 Study Sample

The study sample consisted of twenty-seven (27) respondents between the ages of 18 to 90 with experience and a mature level of independence and judgement. Five (5) blacksmiths were selected from different parts of Buddu and Ssese counties of the Buganda kingdom. The sample from the category of users comprised twenty-two (22) participants; two (2) divine healers (1 male and 1 female), two (2) Masaza chiefs of the Buganda kingdom, two (2) people entrusted with duties in the Kingdom palaces (1 male and 1 female), two (2) members of the royal family (1 man and 1 female), three (3) clan leaders, and three (3) authorities on indigenous iron artifact design attached to historical sites in the Buganda Kingdom (2 females and 1 male), eight (8) household users (4 males and 4 females). Since the selected counties in the study site area have settlers from other cultural backgrounds co-existing with the Baganda, the researcher used details of ancestral lineages to identify the right participants for the study. Therefore, during the inclusion and the exclusion criteria, the respondents were asked to recite their paternal and maternal ancestral bloodline following the ancestral lineage (okulamya); Amnaya, *Enyumba*, *Olugya*, *Omutuba*, *Olunyiriri*, *Essiga*, and *Akasolya*.

3.7 Sampling Techniques

Two sampling techniques were employed: purposive and snowball. The purposive sampling technique was utilized in the selection of twenty-two (22) respondents in consideration of their knowledge and experiences with indigenous iron artifacts. The technique was employed in selecting respondents in the user category since they are not rare, they are available, and their addresses are permanent and known (Mujere, 2016).

The Snowball technique was employed in identifying five (5) key respondents in the blacksmith category. The technique is non-probability in nature; respondents recruit future respondents from among their associates. (Naderifar et al, 2017; Sharma, 2017; TenHouten, 2017). The blacksmiths were recruited by tapping into their right networks, since there are few remaining skilled blacksmiths with detailed information about the production process of the indigenous iron artifact designs of the Baganda. They are rare and with no properly recognized directory leading to their addresses. Therefore, it was easier to identify them through the leaders in the Buganda kingdom, the traders dealing in selling indigenous iron artifacts, and sometimes consulting identified blacksmiths.

3.8 Methods and Tools of Data Collection

The study was informed by both primary and secondary data; several approaches were employed in the data collection process. These included library and archival search, semi-structured interviews, photography, observation, and studio experimentation. The highlighted methods are discussed below with their respective tools that were utilized in data extraction.

3.8.1 Library and Archival Search

The data from library sources nurtured the informed perspective of the study by interrogating the available published and unpublished documented knowledge about what is known regarding the

study objectives (Creswell & Creswell, 2017). Therefore, library and archival searches were inevitable in extracting relevant available published information about the study under study objectives one and two. This was important in providing a better context for aligning the analysis of primary data (Clark, 2013).

Resource centers for secondary data included archives such as the National Records Center and Archives, the Uganda Museum, Tadooba Gallery, and libraries in institutions of higher learning, Makerere University, Kyambogo University, and the National Library of Uganda. Different research groups on Baganda, Uganda's history, and indigenous studies were consulted. Other projected information sources included, but not limited to, online publications, newspapers, and televised and radio programs with reflective information on the phenomena under study. The collected data was documented and analyzed using the logbook (Appendix 3) as a tool, in consideration of the study objectives.

3.8.2 Semi-structured Interviews

Semi-structured interviews were conducted on set appointments with respondents, and stimulating materials such as images and iron artifacts were provided to them to facilitate discussions (Barbour, 2008). Interviews conducted on twenty-seven (27) key informants were useful for exploring diverse beliefs, values, understandings, feelings, experiences, and perspectives of various individuals on an issue. They also allowed the study to dig into information about complex issues, learning more about the contextual factors that govern individual experiences (DeJonckheere & Vaughn, 2019). In this case, interview guides (Appendix 4, 5, 6, and 7) with a clear list of questions were used. The questions were flexible enough to allow other relevant themes to emerge during the interview. Hamilton & Bowers (2019) affirms that researchers can use semi-structured interviews to collect new, exploratory data related to a research topic, triangulate other

data sources, or validate findings through member checking. Both opinions drawn from the method are important to this study. The study intended to gather information from respondents with personal experiences, attitudes, perceptions, and beliefs related to the indigenous iron implements. The data provided during interview sessions was recorded in audio and video format to enable the study to transcribe it verbatim.

3.8.3 Participant observation

Participant observation was employed to study the dynamics associated with the production and consumption of the indigenous iron artifact designs, providing a strong foundation for understanding phenomena under investigation. This approach provided an opportunity to see how respondents react to some questions in their emotional and natural settings as opposed to what they answer. This is supported by Robson (2002), who asserts that what people do may differ from what they say they do, and observation provides a reality check. In the same judgment, this method was employed to see beyond what was just said to give room for the extraction of tacit knowledge and also reduce the information gap between what participants said and what they did (National Ethics Advisory Committee, 2012). Several themes were listed on the observation guide list (Appendix 8, and 9), intending to establish whether there was a contradiction between the stories selected objects reflected and what the respondents said; observing the order of objects and how they related to each other, how they were stored or preserved. Participant observation was employed as a parallel method during and after interview sessions to enable triangulation of data.

3.8.4 Photography

Photography as a method of data collection plays a crucial role in data collection for this study related to material culture. Photographs carry meanings that words alone, whether spoken or written, cannot (Alpuim & Ehrenberg, 2023; Buske, 2022; Openshaw, 2024). This implies the

photographs can convey emotions, narratives, and contexts that may be challenging to express through words alone. This further reveals the power of photographs and the ability to store visual information. Photographs convey real-life messages, evoke meanings, and reflections, as well as information and factual data

This study used photographs taken during fieldwork and historical images by other authors to collect evidence that was factual in informing the triangulation process during data analysis; sometimes, while accompanying observations. Photographs taken from fieldwork and during studio experimentation] were useful in capturing moments and processes which were later used for reflective purposes in furthering visual productions. Photographs were important in comparative analysis for similar artifacts from different field collections. Visual records through photography provide important information by revealing intricate details of items under analysis, like texture, patterns, form, and decorating techniques used.

3.8.5 Studio Exploration

This method was employed to cater to the practice-based component of this study, which is intended to use artistic visuals to establish the usage and attributes of selected indigenous iron artifacts of the Baganda (Chandler, 2015). Under this method, interpretive drawings and analytical design drawings were produced. Interpretive drawings were used to visualise interpretations from collected data through interviews under objective one, and therefore materials such as Soot, Canvas, Charcoal, and Acrylic paints were used to register subjective interpretations. Analytical design drawings were utilized to develop an understanding of the selected indigenous iron artifacts and to describe their crafted nature, composition, and appearance. They aid in understanding the artifacts' crafted nature, composition, and appearance, facilitating their study and preservation (Hayon et al, 2024). This provided aesthetic and ergonomic evidence attributed to indigenous iron

implements, considering dimensions, proportions, style, fabrication, and decoration under objective three.

The descriptive aspect of this study was manifested through the hybridization of practice-based and practice-led approaches employed to analyze designs, their relevance, role, and meaning (Goodwin, 2000; Ledin & Machin, 2018; Reavey & Johnson, 2017). As well, the approaches aided the factual and impressionistic cataloging of verbal and non-verbal content regarding the Baganda indigenous iron artifact designs. Under a practice-led approach, the study focused on analysing processes through which the iron artifact designs are manifested, elucidating transformation in the relevance, role, and meaning of ironworks since the 18th century AD.

The practice-based aspect was employed for the artistic analysis of visual attributes embedded in designs of the indigenous iron implements through analytical design drawing (Hayon, et al., 2024; Reavey & Johnson, 2017). The information from practice-led and practice-based approaches enthuses the critical art appreciations, and nurtures a conclusive response to the questions: why were ironworks made? Why the designs they possess? Their functions, ergonomic and aesthetic value, and meanings as highlighted in the study objectives.

3.9 Field work and data collection procedure

The field search was conducted in the three selected counties of Buganda within Uganda, reflected in the geographical scope (section 1.7.2). The researcher spent six months in the field, engaging closely with the blacksmiths and the users of indigenous iron artifact designs. The period of six months was crucial for this ethnographic study to build rapport and obtain deep insights into cultural practices incorporated in production, consumption, and symbolic meanings of the indigenous iron artifact designs (Hammersley, 2019; Pink, 2021). The researcher's presence in the field enabled him to participate in community activities, observed smelting, forging sessions,

storage, usage, and documented conversations that revealed embedded knowledge within the artifacts.

While tracing blacksmiths, the researcher gathered oral traditions, knowledge about ironworking, and social rituals, significance of blacksmithing to the community. This provided him with a comprehensive understanding of the crafted nature of the indigenous iron designs and production. Snowball sampling was important in identifying practicing blacksmiths and those with knowledge about indigenous ironworking as a practice of the Baganda. Thus, providing valuable insights into the material culture and resilience of ironworking traditions.

Tracing the existing indigenous iron smelters was not an easy task to accomplish. This was due to a lack of available documented information about blacksmiths, more so those who use indigenous methodologies. In all counties, there was no documentation about the people who practiced ironworks despite the dedication to the preservation and promotion of cultural heritage. The majority of the contacts the team approached seemed to have no information about blacksmiths, and they were hearing for the first time. Only a few could direct us to the blacksmiths who were using contemporary methods, who also told us several times that there was no one with the knowledge about indigenous iron smelting. The contemporary blacksmiths affirmed that those who knew the indigenous methodology died during wars, and others died after the war. This almost put the project on the verge of impossibility.

Although various respondents from the user category had provided edifying information about the indigenous iron artefact as required under objectives one and two of this study, the puzzle would not be complete without data from indigenous blacksmiths. Their information from the blacksmiths was important in answering key questions from the material culture theory: why were

the artifacts made? and how were they made? Catering for analysis of production processes and the designs of the artifacts.

Some designs, such as spears, arrows, and rattles, were found and used or kept by different Baganda at their various indigenous places of worship and household level. However, other products could not be accessed through the respondents in the user category, nor did the respondents have detailed information about what they owned and how they were made. Most of them directed me to the dealers in these artifacts, who also directed me to contemporary iron workers who had no information about their counterparts.

Blacksmiths with indigenous information were important in this study for the fulfillment of objective three. As forgers of iron designs, their information was also important in establishing studio exploration, informing the design drawing process, which required physical access to the artefacts. This was useful for capturing design dimensions, decorating styles, and the process from iron smelting to forging to the distribution of products.

After failing to access blacksmiths with indigenous knowledge on ironworks through respondents in the user category, one respondent suggested going to the Buganda cultural offices. They were presumed to have networks that could lead me to the right people since they are the custodians of Baganda culture. The officers have tried to conserve cultural information through contemporary means, facilitating radio and TV shows, commissioning of artifacts, establishment of protection of historical sites, and working with local musealization centers.

The authorities in Mengo granted me permission in writing (Appendix 11), to access data from all important places in the kingdom. I started visiting county headquarters in the three selected counties in the geographical scope of this study, such as Kyaggwe, Buddu, and Ssese. In Kyagwe

county headquarters, I was informed that the only indigenous blacksmith who was known to them had died, and they did not have information about the existence of other blacksmiths in the county. In Ssesse County, the information was not available. However, the contacted authorities did not object to the possibility of having surviving blacksmiths with indigenous technology. In Buddu, the authorities I contacted informed me of having the original artefacts in the county's museum, but they did not have blacksmiths with indigenous knowledge systems. However, this was refuted later when I got in contact with blacksmiths in Buddu County.

After failing to access the blacksmiths with indigenous methods of iron works in the three counties, I resorted to considering other counties, Wakiso and Kyaddondo, so that I could start tracing the network of blacksmiths from there. These two counties were identified not because they have an acclaimed history of iron working but because they have the biggest number of historical sites, palaces of current and deceased kings of Buganda, and their tombs with a vast collection of indigenous artefacts. On another note, the two counties are experiencing high-growing population due to rural-urban migration, as one of the major reasons, it was very possible to get traces of some blacksmiths. However, the county's authorities kept pointing to the counties I selected in the geographical scope. Then I revisited the offices of the Ministry of Culture, Palaces, Tombs, and Security of the Buganda kingdom at Bulange Mengo. The contact person in Mengo advised me to use the clan system, more so the clans responsible for the custodianship of iron works in Buganda. Like earlier in the literature, I had only the Kasimba clan highlighted with the skill and responsibility for ironworks in Buganda. To my surprise, I was told that the Nte clan are the founders of iron smelting in Buganda, and they were among the participants in the cultural exhibition at Mengo palace.

In the exhibition at the Mengo place, many clans and other private organizations were showcasing their production. A significant number of clans had set up their stalls in the tents with displays containing their productions and key profiling information about their clans; the information contained images of totems, secondary totem, clan leaders, brief clan history, the cultural practices, clan mottos, and some highlighting their clan's responsibility to the Kabaka the fountain of honor. Some had the information on their banners, and others on flyers.

Among the many clans and counties, I tried to locate tents for the two clans and three counties I had on my list, associated with the indigenous iron works of the Baganda. However, only the Nte clan had participated, and the Kasimba clan had not participated in the exhibition. On the exhibition side of the counties, only Kyaggwe and Buddu had exhibited; Ssesse did not participate. Whereas various clans and counties had showcased some indigenous iron artifacts, only two tents in the exhibition had affirmed blacksmithing as their major cultural practice; these were Kyaggwe county and the Nte clan. The rest of the other exhibitors only used them as aids in explaining concepts related to their clans, emphasizing their role and utilitarian aspect. However, I had reached out to Kyaggwe county authorities before coming to the exhibition, and they could not provide me with information leading to the blacksmiths in the county. The display had a variety of indigenous iron artifacts, the tools and other equipment, with minimal profiling information about the iron artifacts, but not the production process.

One of the exhibitors, on behalf of the *Nte* clan, took us through the history of their clan and promised to initiate our connection with the indigenous blacksmith at Mulema Hill. I was informed, they managed to resume iron smelting as a clan, and their smithies are active. The date was set for both of us to go to Mulema in Buddu.

On our way to and after reaching Mulema (Figure 39), the mobile phone was used to record Global Positioning System (GPS) coordinates since it was my first time going there. I realized the information would be useful in tracing the contacts in this region for future use in the study.

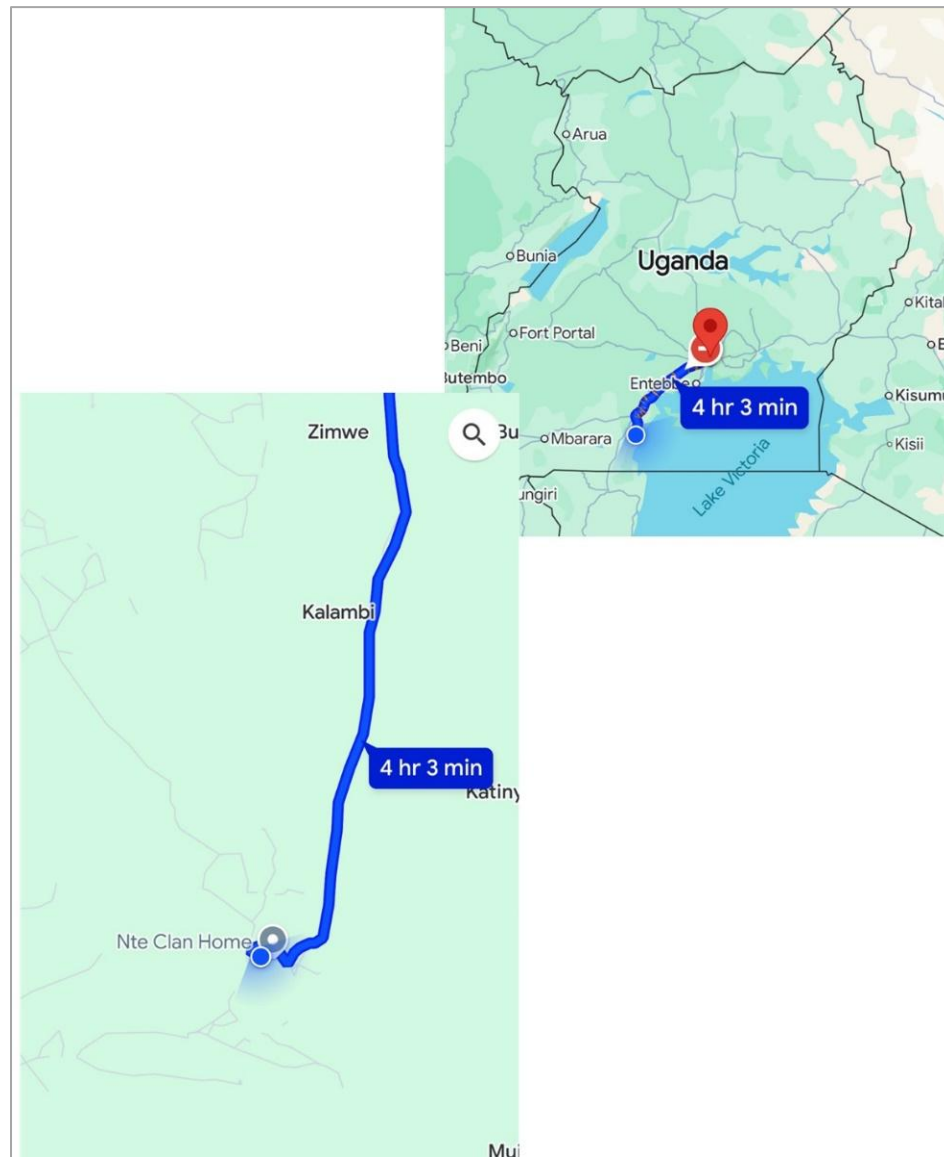


Figure 39: Screenshots of a map showing the location of Mulema and nearby areas

Source: Google Maps (screenshots taken by the Researcher during fieldwork)

The established contacts with the blacksmiths of the Nte clan provided me with an opportunity to access their colleagues and clanmates in Kabugenyi and Kalungu, Buddu County. The blacksmiths in Kalungu linked me to the retired blacksmiths who are clan members of Nvubu, Kasimba, and

Omitima-omuyanja in Ssesse County, and that was the end of the chain of finding blacksmiths. Whereas I was able to find a blacksmith with old smelting and forging techniques, I could not find any in Kyaggwe County. However, the county was rich in evidence of iron working with plenty of iron ore, slags, and dilapidated old furnaces and clay bellows at Matale.

3.10 Data Analysis

The analysis of collected data followed a qualitative content analysis approach through which the researcher engaged in the process of transcribing, coding, categorising, and interpreting data to establish embedded aesthetic and cultural symbolic meanings (Heilmann, 2018; Karpas, 2021). The approach was employed on collected data through interviews, observations, and studio exploration, which incorporated photographs, analytical design drawings, respondents' experience stories, and the language they use to make sense of their practices.

Open coding was utilised to identify recurring concepts, actions, and expressions in all textual and visual materials concerning the artifact designs, productions, and usage. Coding was both inductive and deductive; the former emerged from the participants' natural language and observed actions, and the latter was guided by the study objectives and theoretical lenses of material culture theory, articulation theory, and adoption theory. Therefore, through the philosophical perspectives, the researcher managed to trace how artifacts mediate social meanings, how indigenous design knowledge connects to contemporary practices, and how design attributes have been reinterpreted and sometimes retained by contemporary creatives (Braun & Clarke, 2019; Toyé et al., 2020).

Themes were used in the process of collapsing categorised, grouped open codes, which presented deeper cultural and technical patterns; historicity, functionality, symbolic meanings, survival, continuity, adaptation, and others. Visual data, such as photographs and the drawings created through studio exploration, were coded for their formal compositions and interpretive elements, allowing

visual evidence to complement textual interpretations (Ledin & Machin, 2018; Pink, 2021). Study objectives were utilised in developing thematic clusters for refined corresponding data categories.

The content analysis approach was useful in the integration and interpretation of different sources: visual, verbal, and contextual. Therefore, the creation of a coherent understanding of how the indigenous iron artifact designs of the Baganda function as carriers of embedded knowledge was achieved. Triangulation, peer debriefing, and reflexive engagement with data throughout the coding process was important for the enhancement of credibility and trustworthiness during data analysis (Best et al., 2022; Fearnley, 2022; Lincoln & Guba, 1985).

3.11 Validity and Reliability

To ensure the validity of the qualitative data of this study, I considered components such as honesty, depth, richness, and the scope of the data attained. Participants were selected, considering the extent of triangulation, the disinterestedness, and the objectivity. (Coleman, 2022; Creswell & Miller, 2000).

To attain richer information for this study, various methods of data collection were employed to collect varied data. The methods, in particular, such as interviews and observations, provided enormous data. The intensive personal involvement and the in-depth responses from individuals guaranteed a sufficient level of validity and reliability (Cohen et al, 2007).

Triangulation was conducted for the convergence among different sources of information under set themes (Creswell & Miller, 2000, p. 126). I also considered the participant checklist and collaborated with the willing participants at different intervals to carry out retesting of the tools and compare the findings.

Reliability can be regarded as a relationship between the researcher's recorded data and what occurs in the natural setting that is being researched, such as the degree of accuracy and comprehensiveness of coverage (Cohen et al., 2007). Engaging multiple methods, such as observation, interviews, and studio exploration, led to a more valid, reliable, and diverse construction of realities (Schoonenboom, & Johnson, 2017). Since I employed the participant observation method in the data collection process, and spent most of the time on the different activities where data was generated, especially during smelting, forging, and usage of the iron artefacts.

Reliability in qualitative research manifests dependability, confirmability, transferability, and consistency (Cohen et al. 2007; Lincoln & Guba 1985). In this sense, the dependability of the data was ensured by involving several participants on a particular theme. This was also done by using several methods. There was some repeatability of data from different methods and different people, as seen in the presentation chapter. This laid a foundation for informed interpretations, discussions, and conclusions.

3.12 Ethical Considerations

This ethnographic study required one year of participation in ironworks-related activities, observing the participants and the processes, and conducting interviews (Murphy and Dingwall, 2007). Therefore, I had to adhere to the primary ethical research principle of “no harm” since the study involved both humans and artifacts as data sources. Ethical issues related to morality, legality, informed consent, respect for intellectual property, confidentiality, and responsible management of collected data were observed (Arifin, 2018; Cleland, 2022). Many respondents liked not exposing their inner emotions and stories about their cultural practices, rituals, and beliefs. They were more concerned about the secrecy and safety of their treasured belongings.

To guarantee the legality of this study, I had to follow relevant guidance and procedures as highlighted by research regulatory bodies; after seeking approval of the proposal from the Kyambogo University Graduate Board, Bishop Stuart University Research Ethics Committee, and the Uganda National Council of Science and Technology. This was a starting point to ensure no harm to their persona and artifacts. I further held prior meetings with the participants and local authorities to seek consent before conducting interview sessions and site visits. The purpose of the study and other necessary details were explained to participants in the local language, Luganda (Appendix 2), since it was their first language. Thus, protection was assured before securing their consent (Gajjar, 2013, P. 30).

I acquired formal consent from willing respondents and owners of selected artifacts. Respondents received a consent request letter written in English (Appendix 1) and another copy in the local language (Appendix 2) for those who do not understand English. Visual informed consent from respondents who cannot read and write was secured through video recording before participation in the study (Lie & Witteveen, 2017). Permission was sought from owners of copyrighted artefacts before access (Gajjar, 2013, P. 9), and non-copyrighted product owners had to guide me and the research assistants about the approach of interacting with their artifacts and the sites at large to prevent possible risks from mishandling. During and after data collection, their details had to be kept confidential, and the collected data was documented with code names to conceal the details of respondents.

Clearance was obtained from the Uganda National Council of Science and Technology (UNCST). Permission was acquired from the management of institutions whose libraries and archives were accessed. Makerere University, Buganda Kingdom (Appendix 11), Uganda Museum, National

archives, and other district governing bodies and the Local council systems where identified respondents reside or operate from.

CHAPTER FOUR: PRESENTATION AND DISCUSSION OF STUDY FINDINGS

4.1 Overview

These study findings are presented based on the collected data from the field to immortalize the knowledge embedded in indigenous iron artifacts of the Baganda, while providing visual interpretations of designs and usage for posterity. Anchored in material culture theory from an interpretivist and subjective perspective, the discussion explores how indigenous iron artifact designs have been assigned, reinterpreted, and negotiated within different historical and contemporary contexts. Therefore, this chapter presents and discusses study findings from the qualitative data collected through semi-structured interviews, participant observation, photography, and studio exploration. The data analysis was guided by thematic coding from identified recurring patterns and their relationships in line with the set study objectives.

The data is presented and discussed simultaneously since the findings required immediate interpretation and contextualization due to their complexity. Visual data, which was collected through photographic analysis, subjective interpretations, and design drawings developed through studio explorations, revealed patterns in design and usage similar to findings generated from data collected using other methods. Therefore, visual content was presented to buttress textual content in the presentation and discussion stances of this chapter. Such visual evidence enhances the narratives and provides tangible links to the findings. The respondents were coded using the most dominant letters of the population categories: Blacksmiths (Bs), Historical sites (Hs), Clan leader (Cl), Household users (Hu), Divine healers (Dh), Masaza chiefs (Bm), members of the royal family (Rf), and workers at the kingdom palaces (Kp). The three major themes developed from the study objectives respectively: Historical establishment and relevance of Indigenous ironworking of the

Baganda, survival and their significance in the contemporary creative space, and design conception, smelting, and production of indigenous iron artifacts of the Baganda.

4.2 Historical establishment and relevance of the Indigenous ironworking of the Baganda

The historical relevance of indigenous iron artifact designs among the Baganda of Uganda provides a rich avenue for understanding their technological advancements, socio-economic and political structures, and symbolic meanings. This section of the chapter focuses on study findings on the multifaceted nature of the indigenous ironworks centering on the historical consumption of the indigenous iron artifact designs, using interpretive drawings to reconstruct their design, function, and significance. The verbatim from interviews with respondents, and data from participant observation are used to give the advent and establishment of the ironworking industry among the Baganda. The study further reflects on how indigenous iron works were spiritually, politically, socially, and economically relevant to the Baganda. The photographic and subjective visual interpretations are provided for a better analysis and discussion of findings.

The field findings reveal that Ironworking is one of the oldest and most important technologies in the culture of the Baganda. It has been practiced by their forefathers for ages. All respondents in Hs and Bs categories affirmed that iron working is an important technology that transformed the Baganda society from using rids, sharp sticks, and stones to make tools for activities of their daily life. These tools categorically include, but are not limited to, weapons for defense, tools for skinning animals, tools for agricultural purposes, and the making of other material culture. The inventions of fire and the extraction of iron from iron ore changed the life of the Baganda because it enabled them to transfer some of their designs made in old materials into iron, which was more efficient in terms of functionality. This is a declaration that ironworking technology was important in enabling the Baganda to reproduce, manipulate, and modify of designs of invented tools and

others copied from their neighbors; accessed through trading and plunder. The importance of iron artifacts to the Baganda ascertains why iron working is one of the key cultural practices they have kept for generations (Kagwa, 1934; Humphris & Lles, 2013; Iles, 2013; Reid, 1996; Reid, 2012).

4.2.1 The advent of ironworking Technology in Buganda

From pre-colonial to contemporary times, the Baganda possessed a rich cultural heritage that is intricately tied to their mastery of ironworking, bark cloth making, fishing, architecture, basketry, and others. Indigenous iron artifacts have played a critical role in contributing to shaping their society, serving both practical and symbolic functions.

Despite the importance of ironworking technology among the Baganda, it is not clear when the Baganda started practicing ironworking. The study findings, however, reflected two major accounts commonly reechoed in the oral traditions of the Baganda and a few publications; ironworking was technology from out with in (Kagwa, 1934; Iles, 2016; Iles, 2013) and the second one affirms that it was a hybrid of local invention and later empowered by foreign ideas from Buganda's neighbors (Reid, 2012).

In the first account, field findings from the Bs respondents dominantly of the Nte clan in Mulema, Bigo-byamugenyi, and Kalungu in Buddu county, revealed that iron working technology was brought to Buganda by their clan. This claim is also reflected in the oral traditions of the Kasimba clan interviewed leaders; the process of forming metals from the stones to make purposeful objects, based on the intended designs, such as a knife, spear, Empiima, among others, was copied from Bunyoro. They further stated that in the early days, the Baganda used to import iron tools from their neighbors, Bunyoro and Karagwe, in addition to the significant quantities they used to produce in Buganda. This implies that, much as the Baganda used to access iron from Bunyoro, it

was done to attain a supply for the high demand, which could not be met with the small production from within Buganda.

Respondents (Bs) from Nte clan in Mulema, Bigo-byamugenyi, and Kalungu in Buddu County revealed that the narrative of Iron smelting is intricately woven into the rich ancestry tapestry of Nte clan history. It is commonly acknowledged by numerous respondents from Buddu. Their Legend has it that the clan migrated from the Bunyoro kingdom under the esteemed leadership of Katongole Magatto, a formidable warrior who also served as the prime minister of Bunyoro before their departure. Katongole and his people were hunters, cattle keepers, skilled blacksmiths and smelters, renowned for their skills in the technology of extracting iron from iron ore, craftsmanship, and dedication to their craft. Hunting was important for them to get hides and meat, grazing cows for milk, and exchanging for other items from other people and ironworks. The clan members claim to have introduced iron smelting in Buganda upon their arrival; “We came with fire and iron design craftsmanship. Our clan is among the remains of the Chwezi people from Bunyoro (*Abagabogabo*)”

Their peaceful existence was disrupted when an albino was born into Katongole's family, prompting fears of persecution from their enemies, who saw this as his opportunity to challenge the *Omukama* (King) of the Bunyoro kingdom. Therefore, the verdict was passed to kill him. To secure their safety and protect their life, Katongole left Bunyoro to seek refuge in Buganda. Despite his reputation as a skilled mercenary who participated in numerous wars between tribes, even an adventurous voyage as far as Abyssinia (present-day Ethiopia), Katongole and his people eventually found solace and a sense of belonging at Mulema hill and Bigo-byamugenyi in Buddu.

This is a stand that has been kept for a long time through their lineage's oral history. The respondents provided the narration about their coming to Buganda, similarly with no contradictions, yet they were interviewed in separate palaces such as Mulema, Bigo-byamugenyi, Kamugenyi, and Kalungu. This implies that they value ironworking technology, and it defines their ancestry. It was not a practice merely adopted by their forefathers but rather their identity and spirituality as members of the Baganda people, and the current chief blacksmiths of the current Kabaka Muwenda Mutebi II. This was further evident in one of the architectural structures (Figure 39).



Figure 40: Iron works smithy at Mulema, Buddu

Source: Researcher

The researcher was informed that the lower part was made out of iron slags, and they are preserving it for their future clan museum. Since the slags However, currently the structure is used as their main smithy with old items crafted out of smelted iron ore; the old method of iron working. The iron artifacts are highly cherished by the clan members and other Baganda who access the premises for spiritual healing. This resonates with an assumption that material culture plays a crucial role in nurturing and reflecting ancestral values and practices (Hales & Hodos, 2010). The blacksmiths at Mulema identify themselves with the collection of iron artifacts. According to their oral traditions, they believe that the artifacts were produced by some of their great-grandfathers next to the generation of clan founder Katongole Magatto. Their collection in the future planned museum comprises various tools used in iron smelting, forging, and iron artifacts, claiming to have kept them for generations. Part of this collection will be presented later in the coming sections of this chapter.

The legend of the Nte clan further reveals that when they arrived in Buganda, they collaborated with other members from the community, in addition to the longtime allies of the Ngabi clan, who came with them from Bunyoro. They identified particularly the strong men who were essential for the smelting process, extracting iron as a material from iron ore.

Disputes arose between the Nte clan and the Ngabi clan regarding the ownership of Mulema hill, which was the center of iron smelting in the region. The members of the Ngabi clan, their longtime allies who learnt iron working from the Nte clan's smithies due to their collaboration, attempted to claim ownership. This led to disputes, hence tensions between the two clans. However, the Ngabi clan failed to prove their rightful ownership as ordered by the Kabaka to provide a clan member willing to die for the hill. As a result, the Ngabi clan lost the case and relocated to Bunyuma, a nearby location to Mulema Hill. However, when I accessed Bunyuma, the settlement of the Ngabi

clan, there were huts and prayer places, altars of their clan spiritual installations, with discarded remnants of indigenous iron smelting technology. There were no traces of ongoing ironworking at their settlement, and it was at the Nte clan settlement.

The shift in location was a significant change for the Ngabi clan members, affecting their ironworking activities and relationships with other clans. Their migration also influenced the dynamics of iron smelting in the region and the distribution of resources among the different clans. The findings further reveal that the repercussions of this dispute and relocation were felt by both the Ngabi clan and the Nte clan, as it altered the traditional practices and alliances within the indigenous ironworking community. The historical significance of these events highlights the importance of land ownership and territorial disputes among the Buganda clans, which determines the ability to access the materials for iron working and the market. This chapter in Buganda's history reflects the complexities of clan relationships and the impact of decisions made by ruling authorities like the Kabaka.

The oral traditions of the Nte clan blacksmiths also assert that the members of the Mutima-Omuyanjanja Clan were members of their clan, but they eventually split apart. This division occurred because of misunderstandings that arose from an incestuous act between the two cousins, whose fathers were blood brothers. During that era, incest was considered a grave taboo and was punishable by death. When the time came for the couple to face their sentence, one of the fathers could not bear the pain of seeing his child killed. This act of refusing to follow the law of the land led him to renounce his ties with the Nte clan. Instead, he declared that the cow's heart would serve as the totem for his family members, with the rest of the cow to be consumed by his new clanmates. This implies that since the clan members of Omutima-omuyanjanja were members of the Nte clan, ironworking technology was part of their practices, and they should have in-depth knowledge of

it. However, when the researcher interacted with some of the clan leaders to see if there were any of the existing blacksmiths with indigenous knowledge from within their clan, they did not deny the story about their ancestral ties with the Nte. However, Participant C1 affirmed that they do not know of any iron worker from their clan during his interview:

“Iron working is one of our historically acclaimed cultural practices but we don’t know why it’s no longer vibrant in our clan [...] some of our artifacts were lost during the crisis of 66 and in the wars of the 70s till 80s; some were stolen when we had run for refuge to Masaka and others like special spiritual places and smithies with their furnaces for iron smelting were miss handled by new settlers. We used to have the furnace remains, they’re near our great-grandfather’s house, but the place is too bushy, I cannot even locate it”.

(Participant C1 1)

The respondent was not clear whether his grandfather practiced ironworking as a cultural activity, holistically inherited from the forefathers. Secondly, he could not highlight a significant period when the remaining furnace was built and the circumstances behind its setting. There could have been a possibility of him learning the practice from other blacksmiths, possibly from Karagwe or other clans that had learnt ironworking independently from the Nte clan, and where possible, through other avenues.

It is not clear whether members of these clans that share ancestral confections with the Nte clan completely stopped practicing iron working as a result of being a weakened population or environmental influences, or external forces from their new neighbors. On the other hand, these former members and allies of the Nte clan might have spread the ironworking technology to other clans they interacted with, along the way in their new formations, settlements, intermarriages, and as part of paying allegiances to a new leader. Members with similar ethnic characteristics often

share similar material culture, which can lead to a sense of belonging and reinforce relationships (Yulianto et al. 2023).

Kagwa (1934) asserts that the Kasimba clan was a major group of Baganda, which is highly regarded as one of the main clans responsible for iron working in Buganda. For generations, names such as Kabazzi and Walukagga have been acclaimed for blacksmiths with mastery skills of iron working among the Baganda. They are popularly highlighted in the Baganda legends and some publications (Bosire, 1999; Wainwright, 1942; Kasule, 2018). The study findings ascertain that the Kasimba clan members learnt ironworking technology from the Nte clan. They first accessed the technology of iron works under the mentorship of members from the Nte clan, eventually becoming some of the principal clans renowned for their skilled iron craftsmanship within the kingdom. Following the appointment of Walukagga as the chief blacksmith by the Kabaka, they have held this esteemed position alongside the Nte clan interchangeably through generations.

The appointment of Walukagga as the Kabaka's chief blacksmith is steeped in a tale that has been passed down through generations of the Baganda both orally and inspiring modern writings of theatrical performances (Kibuuka, 1985). This captivating story was recited in another twist by blacksmiths of the Nte and Ngabi clans, shedding light on the legendary Figure of Walukagga with similarities to the above-cited scholars.

The respondents narrate that Walukagga, a trader, purchased a stunningly designed hand ban from the skilled blacksmiths, presenting it as “*Amakula*” (a gift for the Kabaka). The exquisite beauty and impeccable craftsmanship of the item captivated the Kabaka and his court, sparking jealousy in one of his envious servant leaders who harbored ill intentions towards Walukagga. The servant leader cautioned the Kabaka that the intelligence and strategic thinking of Walukagga could pose a threat to the Kingdom in the future. He persuaded the Kabaka to devise a plan to eliminate him.

Although the Kabaka was convinced that removing Walukagga was necessary for the long-term safety of the Kingdom, he was unsure of a plausible reason for his demise. The servant leader proposed a scheme to task Walukagga with creating iron soldiers, citing the Kabaka's frustration of losing his men in warfare. This request seemed implausible given the technological limitations of the time and Walukagga's unfamiliarity with iron working, as he was a mere trader. Nevertheless, Walukagga surprisingly did not oppose the suggestion and asked for time to think of the methodology.

On his way back home, he encountered a mentally unstable individual whom he had always looked down upon whenever he passed by. Walukagga found himself confused, pondering why the King was unjust to him and how he could come up with such an idea. The mad man, noticing Walukagga muttering to himself, chuckled and inquired about the reason behind his monologue. Initially hesitant, Walukagga eventually opened up to the madman, realizing that he had no one else to confide in regarding the potentially life-threatening predicament he was facing. It was from this situation that the Baganda people coined a proverb: "*Wodiza Omulalu mu kyama nga ayogera obulungi gwolaba?*" which translates to, by the time you seek counsel from the madman, you have run out of people with sober minds.

After hearing Walukagga's tale, the madman offered some advice: Return to the Kabaka and assure him that the task can indeed be accomplished. I have obtained the necessary metal for crafting the iron you desire, but there are certain fundamentals required for the commencement of the process. Specifically, I need eight pots filled with tears, as only tears, not water, can effectively cool the special metals during the working process. Additionally, special charcoal is essential for heating the metals, as this task is meant for the creation of extraordinary men. Therefore, it requires seven sacks of charcoal derived from human hair. The challenge ahead is arduous, and the Kabaka

will face difficulties in proving his worth. The Kabaka was unable to fulfil Walukagga's demands, despite his attempts to instruct the Baganda to grow their hair and weep to gather the required pots of tears and charcoal. Unable to meet these challenging requests, with fear for his people to run mad, the Kabaka felt ashamed and was deemed a failure. To rectify the situation, he appointed Walukagga as his chief blacksmith.

This first account, drawn on study findings from oral traditions, narrated by the blacksmiths and leaders of the Nte clan, clearly highlights the clan's connectivity to other clans, which were also skilled with the technology of iron working in their ancestral lineage. Though the practice seems to have declined in their clans, the narratives still highlight the major role played by the clan systems in the establishment of ironworking among the Baganda, as highlighted in the literature review of this study. The findings further declare the genesis of iron working in Buddu and how it was spread around the region; however, it does not clearly on the establishment of iron working sites in other Kyaggwe and Ssese.

The second account, as supported by field findings, ascertains that the iron working in Kyaggwe and Ssese were civilizations that could have developed independently, on their own. Their establishment could have been earlier than the establishment of iron sites in Buddu and other iron sites, or later. The history of the advent of iron smelting in Kyagwe and Ssese is not clear because this study found no clan claiming it for their cultural pride, nor a conclusive scholarly study declaring their chronology.

The study findings from field-collected data from interviews with Cl, Bm, Hs, and Bs from Kyagwe and Ssese reveal that ironworking practice in the two counties might have been established independently. This is highlighted from the story of Kabaka Kintu, the first Muganda

who had gone into exile in the islands to mobilize fighters to end the reign of Bemba-Musota. Kintu mobilized a strong army composed of fighters from Ssesse, Kyaggwe, and beyond areas of Bugisu in the Eastern side of the kingdom. Kintu and his army needed fighting weapons, and it is believed that the blacksmiths among those who were mobilized started ironworking sites to produce enough weapons in Kyaggwe and Ssesse. In that time, Buganda was just a small state with few counties and six founding clans; however, Kintu's company had mobilized several clans from different lands other than Buganda. In the interview with participant Bs5, a seasoned blacksmith, he insisted that:

"In Kyaggwe, iron working was already established, though it could not produce enough weapons for a long time, and most of the Blacksmiths ran into exile during Kabaka Kimera's move to subdue the Kyaggwe residents who had started rebelling against the crown". (Participant Bs5

This implies that during Kabaka Kimera's coming from Bunyoro to inherit the throne of his grandfather Chaw Nabakka, he found Buganda territory with disorganized leadership. His efforts to win back the parts of the kingdom's territories in Kyaggwe in one way or the other destabilized the ironworking groups in the county, and eventually it was weakened. Participant in the category of Hs category, a historian and attendant to a historical site in Ssesse county, affirmed this in his interview:

"It is Kabaka Mawanda who persuaded a man called Kakonge (that name is common among the Nte or Ngabi clan members), a Munyoro from Buddu, and took him to Namumira in Kyaggwe to empower the iron smelting and blacksmithing practice in Kyaggwe [...] the county was rich in materials; iron ore and the forests which could provide special trees for good charcoal required in iron smelting. When Kabaka Jjunju

captured Buddu then he got many skilled blacksmiths in iron smelting who joined the kingdom, and the kingdom took possession of their smithies together with all their collections.” (Participant Hs2)

This statement conveys two important implications. Firstly, it suggests that the iron works industry in Kyagwe county was supported but not initiated by immigrants from Bunyoro. The immigrants of the Nte and Ngabi clans, specifically those who chose to settle in the county of Buddu, known for its plentiful iron ore and good weather, established iron working in Buddu. In contrast, Kyaggwe, as one of the acclaimed counties with a long history of iron works in Buganda, according to scholars such as Reid (2012), was not reflected in their legend as one of their settlements. Yet Kyaggwe had been inhabited by the Baganda for a longer time than Buddu before the immigrants of the Nte and Ngabi clans and Kabaka Kimera’s arrival in Buganda. This answers a perplexing question in the realm of indigenous ironworking of the Baganda; Kyaggwe early blacksmiths were not introduced to ironworking technology by the immigrants from Bunyoro. It is strongly believed that they independently established their ironworking industry before the coming of immigrants from Bunyoro. The immigrant blacksmiths from Bunyoro only contributed towards improving to ironworks in Kyaggwe with seemingly advanced iron smelting designs and forging techniques. This was encouraged by the gap in weaponry, which arose from the Baganda's need to possess sufficient iron weapons to surpass their adversaries from Bunyoro.

The Banyoro had a more advanced army, which was instrumental in blocking Buganda’s desired expansion and plunder. Buganda also required iron weapons and other tools to equip its formidable army to maintain security within its borders, which were surrounded by rival territories. The army was also important in upholding control over the clan systems, comprising individuals from diverse backgrounds. This necessity could not solely rely on imports but rather on the

establishment of a local industry. This stance is maintained by the presence of various iron smelting sites, as indicated by the respondents and archaeological findings (Reid, 2012; Muwanguzi, 2022). Kyagwe is a county that could easily be accessed from the mainland, endowed with plenty of necessary materials for ironworking, and closer to the dominant counties of leadership in the Buganda kingdom, such as Busiro and Kyaddondo. The county was in a better position to develop its iron production. Consequently, a larger number of spears used to conquer iron-rich county of Buddu were manufactured from Kyaggwe.

Ssesse's long history of producing skilled fighters for the expansion wars of Buganda was instrumental in bringing it to the corridors of power and technology among the Buganda. Most of the respondents regarded Ssesse as the precursor of Buganda's civilization. They asserted that most of the important cultural practices in Buganda started from Ssesse. The field findings from the interviews and observations affirm that iron working in Ssesse could have developed independently, with influence from Karagwe Immigrants who had established trade routes on Lake Victoria. This was highlighted in several responses, from which an argument refuting the possibility that the Iron working on the island to have been introduced by the Banyoro. They were based on the fact that, since time immemorial, the island belonged to the gods (Balubaale) and it was forbidden to bring a sheep on the island. Logically, this corresponded with the data obtained from the blacksmith in Buddu, who revealed that the Sheep skin is very important in making barrows and which we are yet to see in one of the sections of 4.3 on design and production of artifacts in this chapter. The bellows (Figure 65) are key in heating furnaces. Further observations were made on the remains of the ancient bellows. The designs of the bellows were different from the bellows stationed on the iron smelting sites of the Nte clan in Mulema and Bigo-byamugenyi. It would have been

possible to argue that smelting of iron was done from the mainland and metal was ferried from the mainland; however, the existence of iron slags.

The difference in the iron of the Bunyoro inspired iron-making county, Buddu, and Ssesse is revealed in the narrations for the preparation process of iron smelting; in terms of plant materials put in the furnace were also different. For example, smelters in Buddu highlighted the use of banana plants in the smelting process, and the blacksmiths in Ssesse emphasized the use of reeds and papyrus, which is similar to that of Kyaggwe highlighted by Iles (2014).

The findings imply that the establishment of ironworks in Buddu was based on the settling of the Nte clan members from Bunyoro. The technology and the art of forming artifacts from Bunyoro were just used to reinforce and evolve ironworking in other Buganda iron-making counties like Kyaggwe and Ssesse. Much as there is no substantial archaeological evidence to confirm this, slight differences between Buddu and Kyaggwe iron civilizations in terms of the historical narrations, materials, and furnace making are recognized in the archeological study of Iles (2014).

The advent and establishment of ironworking technology did not only mark a transformative era in different civilizations around the world as highlighted in different scholarly work such as (Holl et al 2009; Ndasauka, 2024; Nicodemi, 2004; Nordland, 2022; Rackham et al, 2017) but also, to a larger extent it was a transformative era in material culture for the Baganda. The production here refers to the iron artifacts that influenced agricultural productivity, warfare, and artistic expression. The artistic aspect of these artifact designs at many times could be used to solve the question of identity for status and occupation, as the finding in this section highlights. Like in other parts of the world, societies develop similar technologies, artifacts, rituals, and cultural practices separately due to shared human needs and problem-solving strategies. This could have been similar to Buganda's indigenous iron works. This positionality is further reechoed by scholars such as

Steward (1972), White (1949), and Hastorf (2003) who argue that cultural evolution is shaped by environmental and functional factors rather than direct diffusion. Killick (2009) affirms that evidence of iron working sites like Termit in Niger and Buhaya in Tanzania and other parts of Uganda suggests dependent iron development similar to the Hattites' iron civilization (Wertime, 1973) and the Chinese iron civilization (Wagner, 1993). Despite the similarity in the designs of the artifacts made by blacksmiths of Sseese, Kyaggwe, and Buddu, these iron production centers in Buganda grew independently and were later unified by the political and social connections among the Baganda

Oral traditions and personal narratives from the field suggest that iron smelting and forging of iron artifacts were introduced to Buganda through different groupings in Kyagwe and Sseese, and Buganda seemingly was established after the iron working civilizations in the two counties. Other groups that transformed iron working in Buganda were: the Nte clan that came with new ideas from Bunyoro, and traders from neighboring iron-making territories like Kiziba. The ironworking became central to societal development.

The findings further imply that the decision made by the Kabaka initiated the authoritative access to the knowledge of ironworking by Walukagga and his fellow clan members, orchestrated the ordering of iron production and blacksmithing in Buganda. Walukagga and the Kasimba clan took charge of ironworking, ultimately becoming the guardians of iron smelting in Buganda (Kafumbe, 2018). The practice soon became one of the major activities for the Kasimba clan, overshadowing other clans. This is evident to date; most scholars who have endeavored to highlight the practice of iron working in Buganda in their works highlight the Kasimba clan as the only authority in the Buganda Kingdom.

Irrespective of the historical differences vested in the advent of knowledge about the indigenous ironworks among the Baganda, the blacksmiths were all unified in the production of identical designs of iron artifacts, which were of high significance to the Baganda and their neighboring states. Historically, the practice had key power-playing forces that determined the direction of its progress in the production of iron artifacts and consumption. This could be reflected in the study findings, which revealed the historical significance of ironworks to the Baganda and their kingdom. This is further elaborated and generally hinged on the spiritual symbolism, politically motivated needs, social relevance, and economic vibrancy of the Baganda through the centuries.

4.2.2 Visual narratives; Symbolism and spiritual functions of Iron artifact designs

The study findings highlight that the indigenous iron works of the Baganda are deeply intertwined with their spirituality and religious beliefs, reflecting the intricate relationship between material culture and belief systems. Among the Baganda, iron objects often carry significant symbolic, ritualistic, and utilitarian meanings. As reflected in the ontological perspective of this study in section 3.2; for the Baganda, iron artifacts were more than a utilitarian material culture; they held symbolic and sacred significance that connected them to their cosmology, ancestral spirits, and social structures.

The connection between these artifacts and the Baganda gods highlights their role not just as material objects but as profound conduits of cultural and spiritual expression with powers from deities. Blacksmith affirmed that these artefacts embody the spiritual and symbolic meanings of their culture of the Baganda. That is why they produce ritual objects like spears, knives, rattles of different designs to be used in ceremonies as symbols of power and authority for their deities, such as Kibuuka, Nalubowa, Lubowa, Mukasa, among others. On the linguistic side, ironworks are part

of their language formation; proverbs, idioms, metaphors, and naming rights for their members. Extrinsically, these artifacts, like spears and arrows, may be used as symbols of resistance,

The data collected through observation during field visits to the divine healers in their shrine and household users' home environments revealed a similarity between the designs of iron artifacts used and the deities they are dedicated to. All artifacts were kept in specially designated places in the shrine's corner and sometimes displayed on the altar. The priest did not allow anybody to touch those artifacts, claiming they are reserved only for the deities and those permitted. In householders' homes, the artifacts are put in a special corner not supposed to be reached by everybody.

The deities of the Baganda have a large number of designs of iron artifacts dedicated to them. For example, a significant number of deities had more than one spear: *Effumu etabaazi* (A spear for war), *Effumu eriyigga* (A spear for hunting), *Effumu ekuumi* (A spear for defence), and *Effumu eryempewo* (the fetish spear). These spears were designed in consideration of the different works of their deities, and these works are also reflected in the physical realm of life for the Baganda, as highlighted in chapter two of this study. Some gods in the higher ranks among the deities, such as Kiwanuka and Mukasa, have Enyondo (harmers), Mukasa and Ddungu have Endege (Rattles), the goddesses, such as Nalubowa, Nansasi, Nagadya, knives for food preparation and other related feminine work, and male gods like Muwanga, Nabinene had bigger knives for extracting the bark of the tree for back cloth making and cutting meat.

All these artefacts have rituals associated with them. The rituals keep on differing depending on which deity the artifact belongs to. For example, the big knives of Muwanga and Nabinene resemble in design but differ in rituals; Nabinene's knife can be used to cut meat, and it is forbidden to use Muwanga's knife to cut meat. The respondent Bs2 affirmed that if you use Muwanga's knife

to cut meat, all the back cloths you will make using that knife their quality will not be of good. This implies that the rituals are accustomed to the artifacts of various deities and intended to keep the artifacts pure and keep them strictly for the purpose they are intended for. Some of the most common iron designs dedicated to the spiritual realm are presented in Figures 42 and 44 to 52, respectively. Some explain how they are used by the blacksmiths and priests in reflection of the god they are dedicated to.



Figure 41: Rattles (Endege)

Source: Photograph taken by the Researcher during field work

The artifacts in Figure 40 are shell-like forms resembling bean pods with a hole and a metallic ball-like piece inside that makes the sound whenever shaken. The rattles are also used in traditional ways of speaking to the gods. This is so common with those worshipping Ddungu, the god commonly famous for blessing hunters, more so when they are leaving for work and sometimes for a journey intended to seek something hidden. The user picks up the rattles, one in each hand, and shakes them at once from both sides of the holder's head. The believer recites what they want

the deity Ddungu to hunt for them, and later they are thrown to roll as they release a metallic clicky sound (Figure 42). However, some priests revealed that they are also used as fetishes and casements for powers serving the *Balubaale*, commonly known as *Mayembe* (Horns) (Figure 41).



Figure 42: Ganda fetish with iron rattles as one of the components in the Uganda museum display

Source: Researcher; photographs taken during fieldwork

Figure 41 presents a fetish from the Baganda aligned in the Uganda museum. The artifact is an assemblage of different units made out of various materials: rattles from iron, cowrie shells, the horn, and animal hides. The combination of various materials demonstrates the connectivity of different knowledge in the performance of rituals and constructing intertwining meanings about the nature of the deity.



Figure 43: *Mukebezi*

Size: 4.5 x 6 feet

Material: soot, Acrylic on canvas

Artist: Researcher

Source: Researcher from studio experimentation

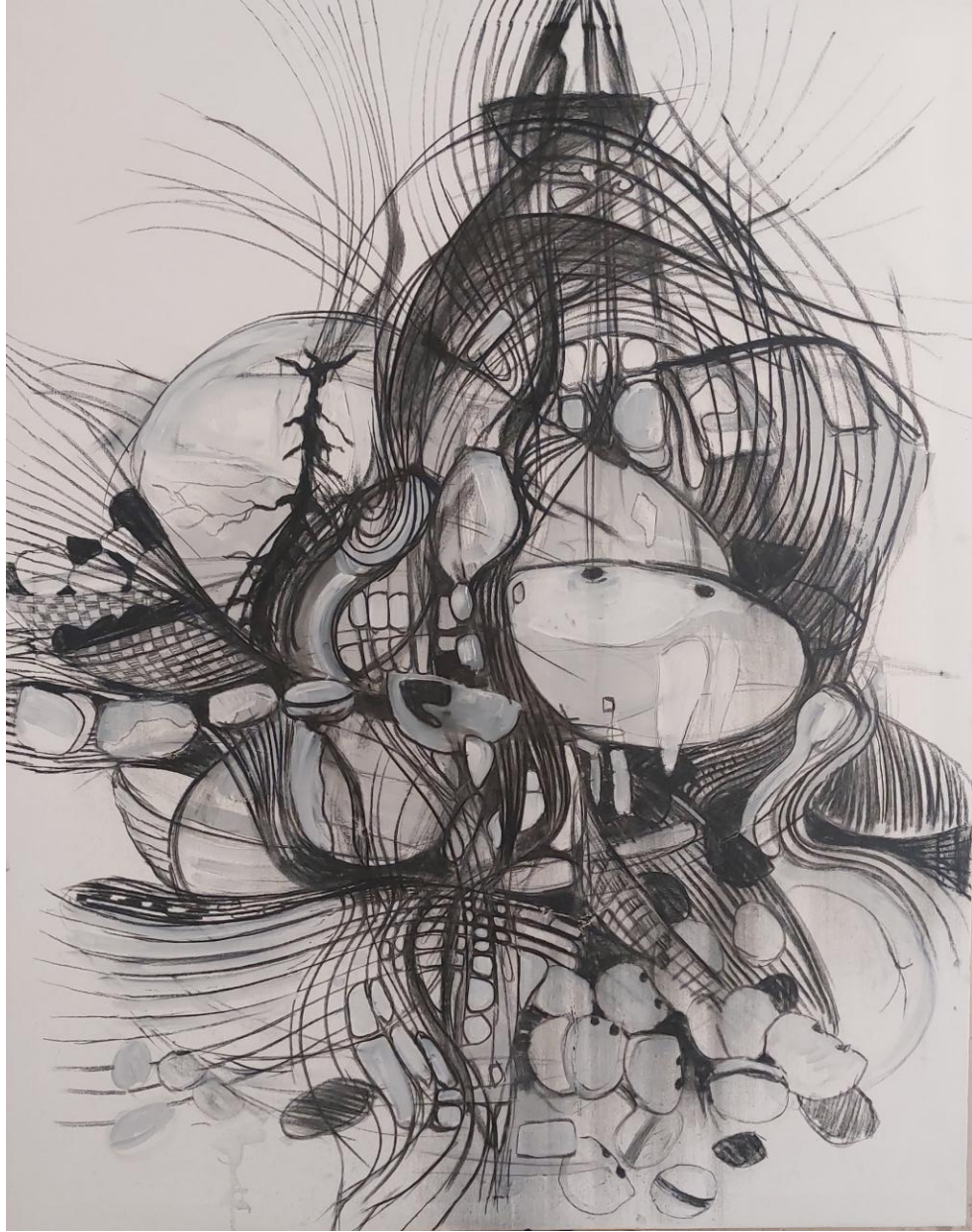


Figure 44: Zogedde

Size: 4.5 x 6 feet

Material: soot, charcoal, and paint on canvas

Artist: Researcher

Source: Researcher from studio experimentation

Figures 42 and 43 above visualize the oratory nature of rattles during spiritual consultations. The composition has a sound-like character with patches and lines forming a whirlwind form with

powers depicted by the established cracks. In the process of making indigenous ironworks, most of the blacksmiths perform rituals to seek guidance from the gods, which they regard as supernatural powers whose presence manifests in the whirlwind of lines pointing to different directions, referring to various opinions on the nature of material, designs, and production techniques. The major objects in the composition have different symbolisms that they carry. The rattles represent the iron fetishes in which spirits are stored after consultations, the gourds and the baskets represent the packaging systems used to carry and store different gifts for the gods, such as alcohol and food, and iron tools. The drawing is inspired by the narration by most respondents among the blacksmiths that making consultations with the gods was important for those in pursuit of new ideas, protection, and blessings for favors and economic gains.

The other forms of iron artifacts comprise spears, which are dedicated to different gods. They vary in size, structure, form, thickness, and decoration techniques. The difference in designs articulates the powers and special gifts of nature from those deities. The blacksmiths and the divine healers revealed that most of them, sometimes referred to as *Bajjajja* or *Balubaale* during the interviews, were human beings with supernatural powers. They were using this artifact to do a lot of extraordinary activities, which made them different from the rest of the Baganda. They could use their powers to do special healings, prophesy, fight with higher records of success, such as Nende and Kibuuka Omumbaale are gods of war, sons of Kabaka Wanema: Muwanga, revealer of the sources of challenges: Mukasa, the god of the lake, fertility, and health and prosperity: Bulamu and Kinene for life: Nalwanga, the goddess of beauty and aesthetics revered by artists and musicians, and dancers: Nagadya deals with marriage and harvest; Walumbe, a Figure of death.

Other deities comprised departed Kings (*Bassekabaka*) whose powers and supremacy outlived their human lives, such as Kabaka Mulema and Tonda, who is believed to be the leading Figure in

the establishment of a territory, Muwawa, which later became Buganda, and he is considered to be the father of most deities. It is believed that study respondents that when these superhumans passed on, they were believed to have become gods since sometimes they could appear to human beings through visions and dreams and other different ways as they wished. As highlighted by Adolf et al (2024) and Kekimuri (2024), the Baganda were inspired and sometimes commanded by the deities through different interactions. The deities could order the subjects to make more artifacts dedicated to them. The production could either be guided by those they were using when they were still humans or picked ideas given to them through dreamlike visions.

The respondents further added that the designs of Iron artifacts reveal the deities the barer confides in and somehow highlight the nature of challenges he or she suppressed with. This reveals the kind of rituals that person has to perform for the deities identified by the Iron artifact he possesses. For example, most followers of Mukasa do not eat fish, and those who confides in Muwanga do not use his big knife to cut meat and other gods their artifacts cannot be touched by a woman in her periods or a man who has slept with any woman in the past nine (9) days. The artifacts manifested their presence and constructed a belief of being watched over and protected by most believers. Most believers used to buy these artifacts, considering their unique designs as they wished and sometimes as they were instructed by the intended deities.



Figure 45: Spear of Jjajja Kayima (Effumu elyekyanga)

Source: Photographs taken by the Researcher during fieldwork

Figure 44 presents the spear dedicated to Kayima. It is visually characterized by the two sharpened sides with a sharp tip. The spear has a pressed back on either side of a protruding line, like a midrib of a leaf. It has a hollow section at the bottom where the user can fix a wooden shaft. The spear design was common in worship places in Ssesse and Buddu.

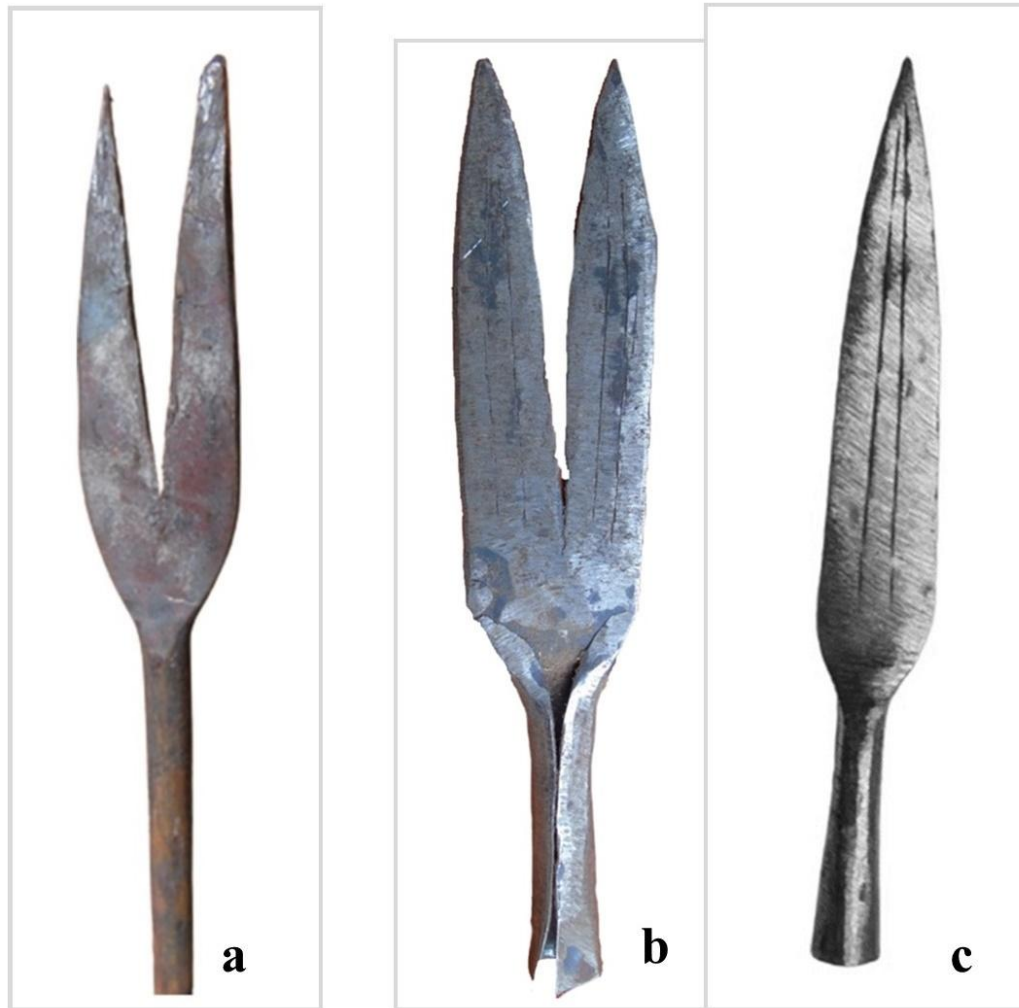


Figure 46: Spear of (a) Kaliisa, (b) Muwanga, and (c) Muwanga

Source: Source: Photographs taken during fieldwork

The spearhead in Figure 46 (a) is dedicated to Kaliisa. Its features are similar to those of **Kayima**, with sharp-edged sides with a sharp, pointed tip. However, this one has a back marked by an incised line to mark the middle. It has a hole in its lower neck-like part where the user can fix a wooden shaft.

The spearhead in Figure 46 (b) belongs to Muwanga. It has two tongues with sharp, pointed tips, with a V shape in between them. The artifact is generally smooth, and its shaft is metallic with a sharp, pointed bottom. The spearhead in Figure 46 (c) belongs to Muwanga of Nsenene Kaleegwa.

It has two tongues with a V-shaped space in the middle. Both with incised double line markings in the middle. At its bottom is a hole section where the user can fix a wooden or metallic shaft for easy utilization. The features of this spear make it a hybrid of Muwanga (Figure 46 b) and that of Kaliisa (Figure 46 c).



Figure 47: Kabaka Mulema

Source: Photographs taken during fieldwork

The spear in Figure 47 (a) is dedicated to Kabaka Mulema. It has two tongues, each one bending in an opposite direction with a slightly curved V-shaped gap between. The spear resembles that of Muwanga. It has a metallic shaft with a sharp, pointed bottom. The spear in Figure 47 (b) is dedicated to the Bamweyana deity, originating from Ssese; however, also common among the mainland Baganda. Its head has three tongues; the two small tongues bend towards opposite sides,

with the dominant one in the middle. The gentle curves marking the outer edges of the spearhead fade gently into the metallic shaft with a sharp pointed ending at the bottom, like Figure 48.

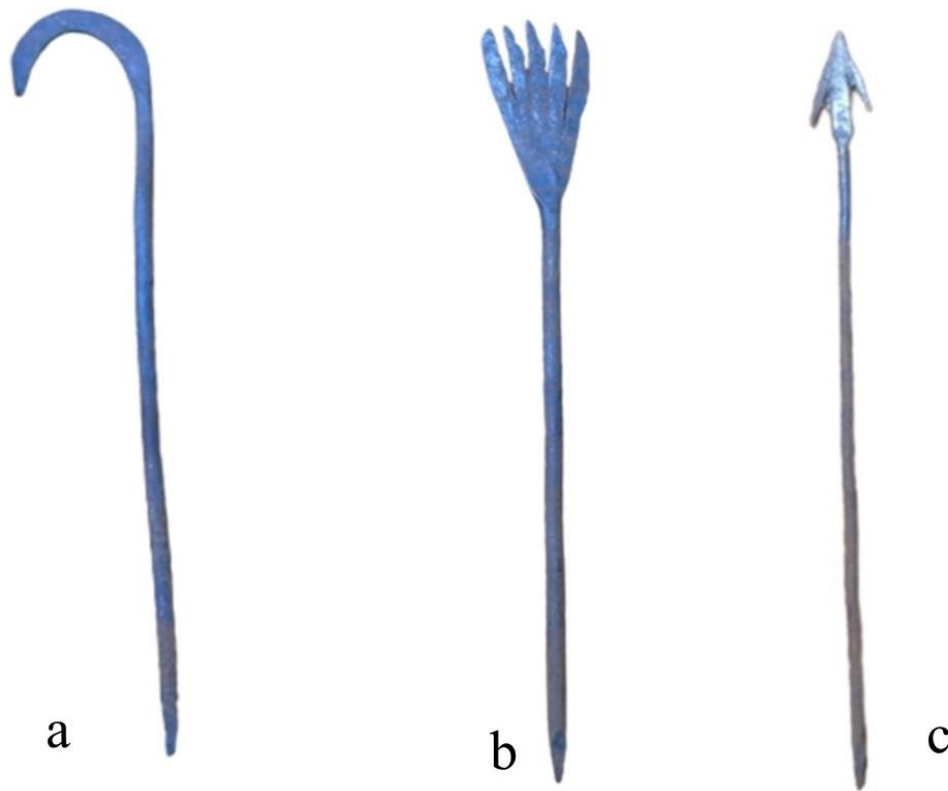


Figure 48: (a) Empenduzo (hook), (b)Bulamu, and (c) Arrow

Source: Photographs taken from fieldwork

Figure 48 above presents other common spears found among the household users and the divine healers. Spear “a” had no specific deity despite its unique design; most of the bearers call it *Empenduzo*, meaning a spear-like tool used to draw things closer. Most bearers link it to blessings for knowledge and economic transformation. Spear “b” is for the deity Bulamu, god of life. It is characterized by five tongues stemming from one neck, with ages gently connecting to the metallic bottom pointed shaft. Object “c” is an arrow not dedicated to any special god but used by any of them in the spiritual realm. Respondent at the historical sites narrated that the arrows were some

of the first iron-made tools on a small scale in the period when the Baganda were still called the *Balasangeye*, but when the need for fighting and hunting equipment rose, they started importing more from their neighbors, like Bunyoro.



Figure 49: (a) *Effumu ettabaazi* (Spear for war) and (b) Nakibajo or Kiwuuga

Source: Source: Photographs taken during fieldwork

Figure 49 presents to you spears commonly identified as (a) *Effumu ettabaazi* and (b) *Effumu erya nakibajjo* or *Kiwuuga*. These are the most common spears among the Baganda. They are used by many for self-defense, in some functions such as installing the heir during performing the last funeral rites for the deceased, hunting activities, and warfare. It was a common spear to every

household, shrines, and cultural historical sites, paraded as one of the artifacts for spiritual ancestral worship and the physical life of the Baganda. These spears do not have special markings in the middle like others; the spear head has a leaf-like shape with the middle line created with slanting sides to the sharp edges. It has a socket below the neck where a wooden shaft can be fixed.

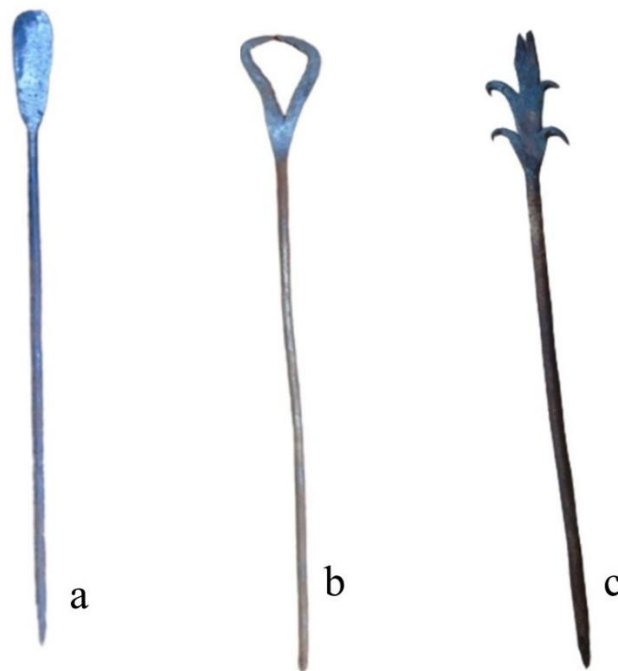


Figure 50: Spear Anonymous

Source: Photographs taken during fieldwork

Among the many spears, there were those whose deities were not clear; to whom they belonged (Figure 50). The designs were placed near the old fireplaces I accessed at Ssesse Islands on Bugala Island. These places had no standby priest attending to it, despite the many people who used to come and worship before the deserted fireplace under a huge tree. My interviews with the blacksmith of Ssesse revealed that the space has been in existence for ages, and people come from different places of the Buganda mainland and other islands to worship as they are directed by the spirits. These designs were neither in Buddu nor Kyaggwe; therefore, there was no easier way of

getting triangulated information, which could make it easier to know what they are and their purpose as iron artifact designs.



Figure 51: In the presence of the gods.

Size: 4.5 x 6 feet.

Material: Charcoal and paint on canvas.

Artist: Researcher

Source: Photographed by the researcher from his studio exploration.

Considering inspiration from collected data through observation and interviews, the drawing in Figure 51 captures moments when people visit ancestral places of worship to consult the deities

over identified and unidentified life challenges. The composition has two most conspicuous Figures: the male and the female intertwined in the forest of overlapping spear shafts representing the messages delivered to both the priest in the male Figure and the patient who is a female Figure; most of the time are given different roles in solving the identified problem. The head above the female's twisted hair on the right side of the composition, in a light silhouette form, represents the helper who is also often available to serve as an altar boy. The spearheads with different structures, each one representing a different deity in the top part of the composition. The deities are presented in the form of their spear designs, ready to listen to the patients' life challenges. The lines represent the sound and vibration frequency manifested by their presence as felt by man. The presence of all these spears together in the composition depicts that these deities work together or sometimes independently, depending on the nature of the challenge the patient is facing.

Data from observation indicates that even in the spiritual world where these artifacts are dedicated to, the functionality and identity conveyed by objects are important. For example, all spears had shafts or sockets where wooden shafts could be fixed. The shaft comprehends the utilitarian aspect of the spear so that the user can use it easily while performing different tasks. This affirms the physical nature of material culture being extended in the spiritual realm of life with similar functions, messages, interpretations, and meanings (Henshilwood, 2009; Poyer, 1989; Russell, 1997).

The designs and the material aspect of iron artifacts in Buganda carried profound symbolic and spiritual meanings, manifested in their visual appearances and usage. Artifacts such as spears, rattles, knives, and harpoons were imbued with spiritual powers and status by deities. They were used for protection, ceremonial purposes, and rituals. The visual narratives through interpretive

drawings capture the artifacts' designs, revealing their aesthetic and functional dimensions, reflecting physical to spiritual imaginations.

Material culture theory suggests that the meaning of artifacts extends beyond their materiality to the values and beliefs associated with them (Poyer, 1989). This is irrespective of being developed by humanistic lived experiences or the deities in the spiritual realm. From the subjective viewpoint, humanistic experiences are constructed through the functions of aesthetic value and emotions of those who crafted and use them in meeting their needs (Dant, 1999; Morgan, 2010). The beliefs around the design of artifacts and spirituality are socially constructed and attached to the designs. Based on the study findings, legends about artifacts' materiality and their appearances over time are created and narrated to different generations until people believe them. They get manifested and become an energy that drives groupings of people who perform several rituals, which become part of their identities. Therefore, many believe that without experiencing, they buy artifacts and gift them to the deities for favors. In the end, the artifacts become symbols of the existence of deities and are sometimes turned into fetishes to be kept in ancestral worshiping places, and sometimes kept in people's homes.

4.2.3 Victories won and life protected: Political influence and Militaristic Significance of Iron artifacts

The data collected through interviews implies that, similarly to the contribution of the deities in the production and consumption of iron artifact designs, the political establishment of the Kingdom was also paramount in establishing the iron working industry among the Baganda. The political leadership in Buganda, which is headed by the Kabaka, strategically regulated and guided the ironworking business among the Baganda. The Kabakas (Kings) had absolute power over all businesses that were being conducted in the kingdom since they governed the kingdom under the

trusteeship of the Baganda. The leadership had the power to allocate land for any important activity since it was under their custody, allocate a labor force where need would arise, bless, amend stop any cultural activities and norms that indigenous iron working was not exceptional.

In the interviews with members of the royal family, clan leaders, and attendants at the historical sites on different arranged appointments, they were all in agreement that the Kabakas, such as Mawanda and Nakibinge, boosted the practice of iron working in Buganda. Kabaka Mawanda instructed Kakonge from Buddu to teach his advanced skills of iron craftsmanship from Bunyoro to the iron smelters and the blacksmiths community in Namumira, Kyaggwe. This was a springboard for establishing other ironworking sites in Kyaggwe. During the regime of Kabaka Nakibinge, the blacksmiths got close to the center of power. This also enabled the Kabaka to easily organize them in formidable groupings with established leadership in selected counties.

The activities in the groupings of blacksmiths were closely monitored by Kabaka and his trusted men from the Masaza leadership and the clan system. This, therefore, was strengthened by the leaders themselves who used to appoint. For example, Walukagga of the Kasimba clan, who was a notably skilled blacksmith he is one of the historical blacksmiths Buganda has ever had. He was the leader of the royal blacksmiths and used to work from the village called Kibuga in Butambala County. By the time I carried out field work activities, I endeavored to visit this village and interact with family members of his lineage. However, there was no active indigenous ironworking taking place. Among other counties which had chief blacksmiths were: Kayiwa of Kobe was in charge of blacksmiths from Mawokota, Bamungiriza of Mamba led the blacksmiths of Kyaggwe, Mutagobya of Nte yekikuggu was in charge of Buddu, Nankyama of Lugave clan was in charge of blacksmiths in Bulemeezi, Wamala of Ngeye clan was the leader of blacksmiths in Singo, Sserugooti of Mamba clan was in charge of blacksmiths in Busiro.

The leadership organization among the blacksmiths was not only intended to develop and strengthen the iron working industry but also to make it easier for the Kabaka to assign a wage he wanted to build and equip his mighty army, and also to collect taxes from the products made. Blacksmith leaders were acting on his behalf to collect the artifacts, which were to be delivered to the Kabaka after a certain period. This also set up competition among the blacksmiths to see who produces better items than others to please the Kabaka with unique collections.

The Kasimba clan leader, Omutaka Kabazzi of Kyango in Mawokota County, is one of the most acclaimed blacksmiths in Buganda. He made a special axe which they named after him. He used the axe to make advanced boats for Kabaka Nakibinge when he was leaving the mainland to go to the Ssese Islands to get Kyobe-kyomubazzi, commonly known as Kibuuka in the Luganda legend of *Kibuuka omumbaale*, to come and fight alongside the Baganda attacking Bunyoro in some parts of Mawokota and Ssinga. The fleets were also instrumental in establishing Buganda's control of Lake Nalubaale (Lake Victoria) with a strong navy. Kabazzi also made a beautiful spear, which was admired by Kabaka Nakibinge, and he gave it to him. The spear was later useful in discovering the Kabaka's body, who had disappeared without a trace. The stranger found the remains of Kabaka Nakibinge in the pit and took the spear, which he identified when he had attended the palace party. He was arrested and asked about the whereabouts of the Kabaka, and he took them to the pit from which he had picked it. This implies that designs of iron artifacts were not only for the utilitarian role but also served as agents of identity. This means their designs can be customized and utilized by different dignitaries and special people in the community, and sometimes used to convey visual meanings which could be communicated to the led.

Iron artifacts like weapons were highly valued by the kingship for the protection of the kingdom and facilitating the military in wars intended for expanding the Kingdom. That is why designs such

as arrows and fighting spears dominated the Kabaka's collection and the iron industry. Due to an increase in demand for sophisticated weapons, smelted iron became highly needed and led to the opening up of the importation route from Bunyoro and other neighbors in Kiziba. This is because the available iron could not meet the needed quantities. Consequently, Kabaka Nakibinge's wife used to sharpen reeds and give them to her husband and his men while fighting his enemies whenever they ran out of spears.

Iron artifacts are some of the most important items in the collection of artifacts used in crowning the prince to the throne among the Baganda. For generations, iron artifact designs have become symbols entwined in the reaffirmation of Kabaka's coronation and authority. The respondents in the Rf and Bm categories affirm that Kasujju Lubinga, the responsible leader for protecting the princess waiting to be enthroned, submits the crown prince to the Katikiro. The Katikiro presents him to the public and hands him over to the head of the Mamba-Nankere clan, who prepares him before taking up the throne. Mugema of the Nkima clan is the one responsible for crowning the King together with Kasujju from the Lugave clan. Mugema ties a note of a cow hide on the right-hand side, and Kasujju dresses him in a note of a leopard skin and the Barkcloth on the left-hand side and the Barkcloth and gives him *Empiima* made by Mutalaga from the Nvubu clan as a symbol of authority to direct and lead the Baganda.

Empiima resembles a knife with a spine like a spear and cuts on both sides. And it is fixed in the wooden shaft using a sharp end on its bottom; a method similar to the one used for a knife. *Empiima* Nalwangala, one of the symbols of authority handed over to the Kabaka on his coronation day it is ironic. It symbolizes affirmation to the Kabaka to always be strong while he is leading the Baganda without fear or favor. These affirmations are similar to those reechoed to the heir of

commoners, and for them, they take an oath, holding a spear. However, in the Lugave clans, the head of *Amasiga* is given *Empiima*

In addition to the *Empiima*, the respondents further highlight that the harmer is another indigenous iron artifact of the Baganda. The Kabaka uses the hammer called *Kalya-bugalula*, meaning it destroys and remakes. This reflects the powers enshrined in the Kabaka as a title. Meaning he can give powers to whoever he wants, and at the same time, he can withdraw those powers and transfer them to another person. Kabaka is also linked to the spears, such as Kawawa and others, which are kept by his men and the shield called Kamaanyi; these were instruments of authority the Kabaka used to give his men as symbols of authority to lead his army in the declared campaigns; these men were either Masaza chiefs, clan leaders or his other trusted aides and generals.

The findings further reveal that blacksmiths headed by Mutalaga of the Nvubu clan were responsible for making and dressing the Kabaka's wife with *Engaga*, which are bangles crafted from iron, and decoratively embellished with hides and feathers. This jewelry was accompanied by *Emisagga*, which was more used as a fan for chasing flies and drawing fresh air. These were special items used as symbols of political status, and were not for everybody in the society. This implies that iron artifacts were agents of hierarchy and status among the royals.

The blacksmiths and respondents at the historical sites in Kyaggwe and Ssesse counties affirmed that the establishment of the iron working industry among the Baganda was one of the major contributors to the establishment of a stronger army. Through Kabaka's organizations of blacksmiths, he managed to acquire plenty of iron weapons, which were very important in different generations; spears, *empiima*, arrows, shields, among others (Figure 54).



Figure 522: Shields and spears

Size: 4.5 x 6 feet.

Materials: Soot and Charcoal on Canvas

Artist: Researcher

Source: Photograph taken during studio exploration

The drawing in Figure 52 visualizes the militaristic formation of the Baganda in a panoramic view, at the charged moment of combat readiness. Spears and shields held by a forest of men, whose heads were depicted in dark silhouettes. The blurry effect caused by soot effects represents motion, power, frequency of enchantments, and spiritual energy. Men in Buganda were responsible for fighting wars, which were intended to defend the kingdom and sometimes to attack the enemy territories. The armies were organized in army districts and sections, a tradition which was

mentioned by different Kabakas as commanders in chief, such as Kateragga, Jjunju, Kamanya, Ssuna, Muteesa I, among others (Figure 53).



Figure 53: Muddu awulira...

Size: 4.5 x 6 feet

Material: Soot, charcoal, and paint on canvas

Artist: Researcher

Source: Photograph taken by the researcher during studio experimentation

The army districts were subdivided into smaller units to be sent to different missions were led by commanders selected by chiefs entrusted with powers from the Kabaka. The armies could be sent

to attack neighbors and conquer the lands for territorial expansion, plunder different artifacts and slaves, and subdue any rebellion within the kingdom for order restoration. For example, Kabaka Kayemba, after conquering Buvuma and making Mbuubi the Ssaza chief, Kabaka Kamanya led the invasion against the Lango people via Bulondoganyi. Mutesa I sent a fleet to Ukelewe Island and helped the local ruler, Lukonge, to overcome the rebellion. Kabaka Ssuuna II led the Baganda and invaded Kiziba during the expansion wars, and he died on his way back to Buganda due to a disease called *Kawaali* (chicken pox) after the victory against Buzongola Kingdom. They nicknamed the campaign *Olutalo lwe Ddekabusa*, which translates to the battle of Ddekabusa. Other places invaded for expansion were Karagwe and Burundi; however, these territories were lost during the drawing of new boundaries by the colonialists, and these days, the people who stay in those territories are a mixture of Baganda and other cultures and commonly known as waganda Kyaka.

These territories used to give contributions in terms of wages, taxes, and gifts. Kibulala in Ssinga was the headquarters of the Bunyoro Kingdom, but later it was taken over by the Baganda through conquest, and most of Buganda's territorial counties are former Bunyoro territories. Some of these counties still have former princes who joined Buganda after conquest and annexation.

Iron artifacts played a significant role in establishing a strong historical foundation of Buganda's political and military (Reid, 2007). This is evident in the study findings: iron artifacts, designs are considered to be weapons and regalia, the capacities in which they were used, and insignia of power. Artifacts such as Arrows, spears, and shields not only served as instruments of warfare but also served as symbols of homage, prestige, and authority. The subjective interpretive drawings under this section reconstruct the impression of these objects, visualizing their craftsmanship and envisioned symbolism. Iron artifacts were closely linked to the power of the Kabaka and chiefs.

Weapons and regalia, as objects made from iron, symbolized authority and were integral to their rule.

The supply of iron artifacts in the weaponry category also affirmed a strengthened political hierarchy, with the ruling class often controlling access to these valuable items. The Kabaka's leadership used iron weapons, such as spears, arrows, and shields, to equip different units such as *Abambowa* (regular army), *Abagalagala* (King's guards), *Empingu* (The navy), and other special units to build and defend their kingdom. These groups of armies in their respective districts played a crucial role in the expansion of the kingdom, ensuring Buganda's dominance in the region. Iron weapons were also regarded as a symbol of strength and unity of the Baganda military. This reinforced their political power and influence in the region (Heath, 2004; Reid, 1996).

Material culture theory qualifies artifacts as instruments that symbolize power, the reflection of interest and agency of social-political structures that produced and utilized them (Bennett & Joyce, 2013). Standing from the subjective and interpretivist point of view, this study argues that the meanings of the militaristic iron artifact designs are understood through personal and collective experiences and memory; as instruments of conquest, they later transformed to serve as symbols of heritage for cultural identity, buttress meanings in the legends, power struggles and victories, and political discourse. The oral traditions and historical narratives accessed during data collection from older respondents provide insights into how these iron artifacts were perceived and related within the historical context. Although the data for objective two in a broader section of 4.3 of this study elaborates on how their meanings later shifted through generations under the influence of colonialism, modernization, and contemporary reinterpretation.

4.2.4 Iron Artifacts and the Social- economic symbolic relevance

The social life of the Baganda and their practices was highly nurtured by clans and county systems (Sekiswa, 2023). This was reflected in their responsibilities as citizens of their kingdom and subjects of the king. That is why, for iron working, most practicing clans have their clan settlement in counties where iron ore was plentiful to enable them to easily fulfill their citizenry responsibility. Several clans were involved in ironworking as their primary cultural practice and occupation. This is reflected from its conception in the introduction phase of the practice in the early times, or later they learnt them from other clans with time, as reflected in section 4.2.1 of this study. Field work findings reveal that the acclaimed clans embodying the practice of iron working among the Baganda are: Nte clan, with various smelting sites in Mulema, Bigo-byagenyi, Kalungu in Buddu, and Kyango in Singo county. Other clans are the *Ngabi* clan, *Nvubu* clan, the *Omitima-omuyanja* (heart clan), and the *Kasimba* clan, with seemingly no established smelting sites for the activity at the clan level, but individual extended families in some clans practice it as a ritual.

Among all these clans with a history of iron working, the Nte clan is considered to be the pioneers of iron smelting in Buddu, with the assistance of their allies from the Ngabi clan. Their contribution toward upscaling the iron practice with new techniques from Bunyoro through their member Kakonge cannot be underrated. The Mulema smithy is seen as the prominent space for iron smelting since their clan head, Katongole Magatto, the chief blacksmith, was buried. Until today, the practice is still done occasionally for clan rituals other clan members who want to receive training.

This is the same state in other clans with a history of iron working, though it is done at a smaller scale and mostly using old steel metals (scrap metals). Some blacksmiths recycle the old original metals from the iron ore, and others use imported iron sheets. This implies that, much as the

practice is still conducted, the part of the technology of iron working (iron smelting) has been eroded in most clans among the Baganda. It is close to extinction and remains with few ironworking centers, such as Mulema. For example, data from observation in the smithies captured the use of scrap metals, imported iron sheets, and the recycling of artifacts from iron ore. This affirms the absence of skills for iron smelting. However, the skills of forging the indigenous iron designs of the Baganda are still largely available.

The presence of ironworking among some Baganda who associate themselves with the technology is still reflected in their clan mottoes (*Emibala*). Hence, reaffirming it as a lifetime activity for the members of that particular clan (Nagawa & Nuwagaba, 2024). It is an act of identity, prestige, and honor among the Baganda. Blacksmiths from the Nte clan frequently referred to their motto, which goes;

“Wante wante talina kabi. Ekyuma akiridde n’omukemba (omusaala) agulidde. Mbadde ngaleeta, Omusumba aganyedde. Bwembirya, bwembiwoza, binsanga mu ssasa.”
(Participants Bs1, 2, and 3)

This is literally interpreted as: Mr/ Ms. Cow is peaceful. He/she has eaten the metal and the payment. I was bringing milk. And the shepherd drank it. As I eat them, I cool them as well. They find me in the smithy.

The motto reminds clan members of their ancestral work among the Baganda; iron working as a cultural and income activity, and their other practices and their benefits, such as raising cattle, since it reflects milk, which was consumed by the shepherd. *Emibala* enriches and preserves the oral tradition associated with the clan (Kizza, 2010). The data from interviews with the Cl

respondents affirm that wherever there is a function for gathered clan members, it is recited, reaffirming the beliefs, cultural practices, and responsibilities of the clan to the kingdom.

Field findings revealed that Iron artifacts were occasionally used as symbols for identification in Buganda. Some designs could explain the bearer's occupation, role, and importance in society. For example, some spears were designated for the special leaders, identifying them from the rest of the community members. The blacksmiths were not limited in the rights of movement throughout the kingdom; they were not easily arrested since they could easily be identified with a small hammer in their hands. The hammer, as a symbol of their work, not only protected them from the authorities but also was a promotion of their skill, and they received orders for their productions on demand. Iron working was a good economic venture for all blacksmiths in the Baganda community. They were highly respected and valued people in the kingdom. This was emanating from the importance and value of their practice. For example, in an interview with the Bs category, they narrated that blacksmiths were some of the richest people in the land. They used to amass this wealth from the shares they used to collect from whatever artifact they used to produce; sometimes, they could ask for payment. The rewards culturally known as *Omukenba* (refer to their Nte recited totem in this section above) at first used to be in terms of barter exchange with items such as alcohol, *Matooke*, Bark cloth, *Gonja*, dried meat, land, women for the hand of marriage, animals, artifacts like baskets and pots (Figure 54).



Figure 54: Amaanyi gomukemba

Size: 4.5 x 6 feet

Material: Soot, charcoal, and paint on canvas

Artist: Researcher

Source: Photograph taken by the researcher during studio experimentation

As generations changed also items for *Omukemba* changed; from cowrie shells and later to the current currency notes. Their narration is similar to Kagwa's (1934) affirmation that the *Omukemba* used to be a reward to the blacksmiths and could be in various forms of valuable things. This motivated blacksmiths since they could access other valuable products, which were important for

their lives and provided for their families. It also facilitated their productions since some of the received raw materials like charcoal, labor, iron ore, and smelted iron. This implies that this conditioned them to keep the practice of ironworking alive and come up with innovations that used to change the industry; new technology and designs.

The naming sessions of several clans of the Baganda that practice ironworking are sometimes informed by the tools, materials, and production associated with iron smelting and forging. For example, Nankumbi, as the name for the Ngeye clan, inspired by a hoe, Nandege and Ssendege are inspired by rattles, Nansasi from the Nte clan inspired by metallic sparks, Kaweesi and Nakaweesi from the Nte clan inspired by the skill of forging, Ssempjja and Nampjja inspired by a stone (*oluyijja*) from where metals are cut from, Nankero and Ssenkero drawn from the shafts that transfer air from the bellows to the furnace, Kabazzi for the members of the Kasimba clan reflects an axe.

Furthermore, other clans like Fumbe indirectly reference ironworking in their naming traditions. Examples of these names include, but are not limited to, Kaweesa, Kitya-Muweesi, Nakaweesa, Nakaweesi, among others. These names serve as a reminder of the significance of ironworking in Baganda culture. The members of the Ngabi clan, for instance, use the name Yiga, from *Yiga okuweesa* translates to "to learn how to forge." This name reflects their dedication to mastering the processes involved in ironworking, elaborated in section 4.4.1 of this chapter

Naming was a very important aspect in the clans of the Baganda. This was done either at a household level or at a clan level (Kagwa, 1934; Roscoe, 1911). Clans have different names with variant inspirations; history, ancestral work, spiritual, and others. The study findings reveal that iron works inspired names were not only important in identifying individuals' background in terms of clan groupings, but their sources and meaning amounted to a complete system reflecting the

important aspects of designs, tools, and processes for the entire indigenous technology used in iron working. This is evident in the technology of iron working is entwined in the social-economic life of the Baganda. One to bear a cultural name rewards him or her with the responsibility to reflect on the meanings embedded in it and choose to practice it or inform others.

Whereas among the names inspired by iron works of the Baganda are crafted in reflection of male and female genders, iron smelting and forging were activities set as a preserve for men in Buganda. During fieldwork, the researcher found out that women do not practice ironworking. There was no clear reason as to why they were not allowed to practice ironworking. However, blacksmiths from the Nte clan narrated that in ancient times, women also worked with the men. Katongole Magatto, the great-grandfather of the Nte clan, used to work with his sister Nansasi in the same smithy. Due to occupational challenges caused by the ironic hot sparks (*Ensasi or Amagambira*) from hammered hot metals in the process of shaping iron forms to achieve the intended designs, their thighs used to burn. This made them abandon active work in the smithy and start participating in supportive roles like food preparation, overseeing other activities outside the smithy. Until today, the fireplace dedicated to the female deity Nansasi has always been set outside the indigenous smithy. The legend has it that Nansasi is one of the greatest female blacksmiths who protects and guides the blacksmith from the Nte clan.

The study findings reveal a record of great relevance of indigenous iron artifact designs among the Baganda. The Artifacts were used in both household and communal activities, which were important in shaping culture and meeting the needs of the time. One artifact would be used in various tasks. For example, the rattles were useful in teaching toddlers to learn how to walk and in dancing performances by the adults.

For the toddlers, the rattles were useful in motivating them while learning how to walk. They could produce interesting sounds with each step a child took. This stimulated them to make more movements in the walking postures. Furthermore, the rattles were used in body shaping when the children were still in their early age, between one and two (2) years. This was useful to condition the demarcation of joints separating body parts, such as the calf from the ankles. This depicts the important roles of the rattles in human growth and development among the Baganda. The respondents affirm that the role of rattles in body shaping is evidenced in the adults who were conditioned under this practice. However, this was slowly discouraged as the Baganda accepted foreign religions and took an interest in Western culture and its solution to their needs. In an interview with a participant under the household user category, he asserted that:

“In the early 1990s, I started seeing the use of imported plastic rattles and shoes that make sound for toddlers replacing our rattles [...] surprisingly, the Baganda buy these shoes so expensively. They no longer use rattles to shape toddlers’ legs due to their scarcity; now they use imported cotton and nylon threads”. (Participant Hu2)

This statement resonated with data collected through observation. A significant number of respondents from the household user category born in the late 1980s and 1990s could not tell the name of the rattle, others had never seen it, and others identified it with satanic practices. Most of the toddlers had cotton thread around their ankles and wrists. The minority who knew the role of using rattles in the growth and development of a child could not easily access them since they had no iron blacksmith and dealers within their community.



Figure 55: Summoned by the dancer's spirits

Size: 4.5 x 6 feet

Material: Soot, Charcoal, and Paint on Canvas

Artist: Researcher

Source: Photograph taken by the researcher during studio experimentation

Figure 55 visualizes another significant role of rattles in the indigenous music and dance performances of the Baganda. The center of a composition is dominated by the leg of a dancer in motion, tied with rattles in the bean pod-like shapes. There is also a group of women in dancing

motion with rattles around their ankles, similar to the leg in the center. The wavy aspect created by the soot material emphasizes the character of the rattle as a sounding iron artifact. The motion and body postures are intended to exhibit joy, life, and continuity of the artifact and dancing culture. The dances were for entertainment and educational purposes for both the royals and the commoners. As a musical instrument, the rattles, once shaken, are idiomatic with their colicky and bell-like sound, accompanying the percussion sounds, and in dance, they reecho the footwork of the choreographers. This is a common feature in dances like *Bakisimba*, *Nankasa*, *Muwogola*, *Maggunju*, *Masajjambwa*, and *Masejjere*.

Other important iron artifacts in the lives of the Baganda are the knives. Study field findings revealed that knives were tools that were supposed to be in every homestead of a Muganda. Used by both teenagers, the youth, and the elderly. The knives were important instruments of power and depicted responsibility. When the girl grew up or transformed into a wife, it was among the very important gifts given to her by the family members, more so the paternal aunt or the grandmother. These were important family members who offered counseling and guidance to the yet-to-be and newly married ladies. A female participant under the household user category confirmed during the interview:

“This knife, I treasure it so much, it was given to me by my deceased Senga (paternal Aunt). She told me as a Muganda woman, you must make sure that there is food prepared in the home for feeding your husband, children, relatives, and visitors; never let your people sleep hungry”. (Participant Hu3)

This puts the knife in the position of an important tool in the life of a family and homestead among the Baganda. However, in reflection of the data collected through observation, the knife was clean no evidence of having been used in food preparation or any kind of work. When that observation

was raised to the barer, why does the knife look new and is kept in the higher section of the cupboard in the basket? She replied, revealing that this is not just a knife but a remembrance of my aunt's words. They still echo in my mind, and they have been a strong pillar on which I have managed to sustain and keep my marriage for 40 years now. This highlights that iron forms to some Baganda; these tools assumed the status of souvenirs and commemorate the stride of getting married and the responsibility.

The narrations of souveniring and responsibility were further reflected in the interviews with other female respondents. They gave similar reflections about the knives, but brought up other iron artifacts among the gifts given to a newly married lady, such as the hoe, rattles, *olusoloby*, needles, and *Ebiwabyo* (See Figure 56). The narrated importance of the rattles and the knives is not different from the first respondent, but the hoes and *Ekiwabyo* had other symbolic meanings. The hoe was reminding the lady of her responsibility to grow enough food for her home, hard work re-echoing a proverb of the Baganda, which goes "*Enkumbi enywera yerima*," literally translates to "the hoe that is strongly fixed is the one that digs". *Olusoloby*, *Ekiwabyo*, and *Akambe Ka Nagadya* for fertility (Figure 57). The artifacts were also used as garden tools in pruning the plants, more so bananas, which are a staple food for the Baganda.



Figure 56: The Knife, Axe, and Hoe
Source: Photograph taken during fieldwork in Buddu



Figure 57: The knife of Nagadya
County of collection: Buddu



Figure 58: Kyossimb'onaanya

Size: 4.5 x 6 feet

Material: soot, charcoal, and paint on canvas

Artist: Researcher

Source: Photograph taken by the researcher during studio experimentation

Figure 58 envisions moments of serenity, food harvesting, and preparation. The banana forms are used to represent foods, and knives are presented in a patterned way that emphasizes movement, supremacy, and their prowess in function. The women are: the aunt and the yet-to-be-married woman in the training session represent the user category, which is highly dominated by young ladies since food preparation is a feminine gender role among the Baganda. The sticks represent the small firewood cut and collected during food harvesting, sometimes from the food crops or the smaller branches of trees within the garden.

The blacksmiths emphasized that iron artifacts were important in hunting. Just like how the establishment of iron products improved the agricultural practice among the Baganda, as knives were important in making food to feed the family members, so the hoes were important in clearing the soil and cultivating crops. The hunters used spears to kill the animals, while the bells were for the most trusted hunting dogs, useful in signaling direction for follow-up, since both the hunted animal and the dogs could run faster than the humans.

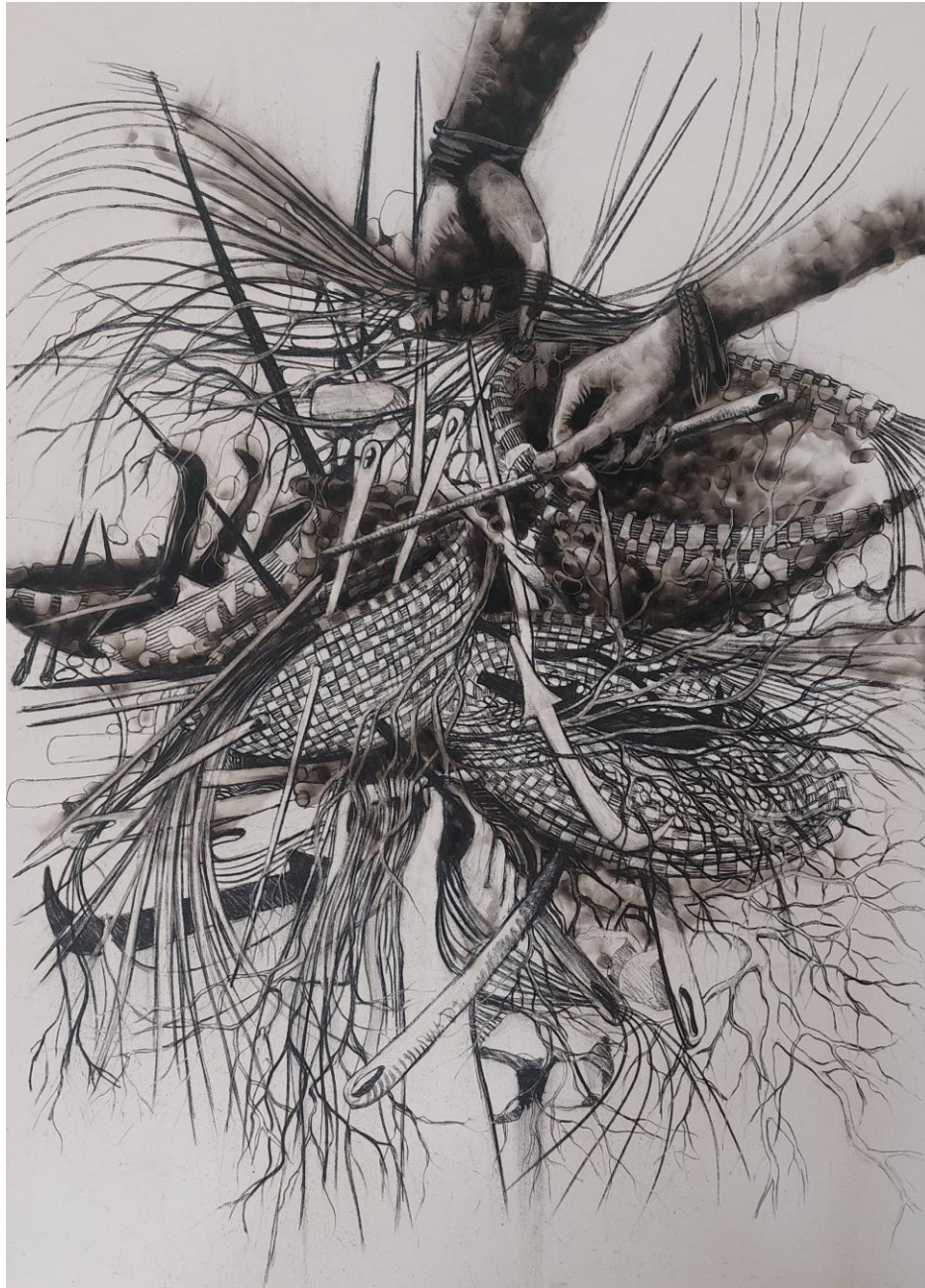


Figure 59: Nabuuma the weaver

Size: 4.5 x 6 feet

Material: soot, charcoal, and paint on canvas

Artist: Researcher

Source: Photograph taken by the researcher during studio experimentation

The needles were other important tools given to ladies as gifts. Among the Baganda, sewing and weaving were largely considered to be feminine activities; therefore, most relatives and other community members used to find it prudent to gift a needle to a married woman. The needle was

an important tool for stitching clothes and weaving important artifacts like baskets and mats. This would help the wife to produce clothes for dressing the husband, children, and the home inmates. The baskets were important artifacts for food storage and preparation, and the mats were for sitting on. All crafts produced by the lady using the iron tools, like a needle and the knife could serve as sources of income since they could be consumed by other society members.

The barkcloth-making industry was also established on the flourishing of the iron industry; blacksmiths in Mulema and Bunyuma claimed the significant contribution of iron in the advancement of barkcloth production among the Baganda. It is the god Muwanga who introduced the idea of Bark cloth, making the blacksmiths accustomed to producing his daggers, which were similar in appearance to the knives for food preparation. They narrated that this tool was specifically for extracting bark from the tree from which Barkcloth was made.

The use of iron artifacts in crucial life activities among the Baganda reveals how indigenous iron working was pivotal in the development and transformation of society's technological advancements and innovations. These innovations would later contribute to the social and economic development of the Baganda, since iron artifacts would enable them to produce more artifacts for home use and items of trading within and outside their territory. This made the Baganda economically grow stronger and extend their culture and technological influences in other neighboring kingdoms, which are still evident in contemporary times, as can be traced through material culture, linguistic, and oral tradition pieces of evidence.

The role of indigenous iron artifacts in pre-industrial societies extends far beyond their functional utility as tools, weapons, and designs of representation and identity. Among the Baganda of Uganda, iron artifacts were not merely practical items but also served as a form of currency and a

potent symbol of wealth and status. This elaborates the dual role of iron artifacts, using material culture theory to analyze how they were embedded in economic, social, and cultural systems.

As a form of currency, indigenous iron artifacts facilitated trade within and outside the Buganda Kingdom. For instance, hoes were often exchanged for agricultural produce, livestock, other special items, and sometimes used to clear labor wages. This was also highlighted in the study findings where all blacksmiths narrated a story of Kalemeera, the father of Kabaka Kimera and a grandson of Kabaka Kintu, who was charged and given a punishment by paying a fine for the crime he was accused of crime and Kalemeera went to Bunyoro and worked the hoes were used as a currency of payment though he died on the way coming back to Buganda to sell them and pay the fine. The standardization of certain iron artifacts in terms of size and design intricacy underscored their use as a medium of exchange, not only to the blacksmiths but also to the rest of society. This standardization reflects the functional aspect of material culture, where the object is shaped by its role in the societal systems

Moreover, the durability of iron compared to other materials like cowrie shells and beads made it better reliable store of value. The aesthetic value attached as the attribute of design, durability, and practical utility gave the iron artifacts a dual role. They were not only symbols of wealth but also tools for wealth generation, particularly in the Baganda and nearby communities, irrespective of being agrarian or nomadic.

Beyond the economic utility, iron artifacts were potent symbols of wealth and social status. Among the Baganda, the ownership of numerous iron artifacts indicated an individual's prosperity and influence; they could have control and command. This would also reflect on their harvest and other

forms of income. Wealthier individuals, such as chiefs and clan leaders, often displayed their influence through large collections of iron tools and weapons.

The symbolic value of iron artifacts also extended to their use in ceremonial and ritual contexts. For example, spears and knives were often presented as gifts on a friendship level during weddings, coronations, and other significant social events. These gifts were not only expressions of goodwill but also statements of the giver's wealth status. This is further reflected in the legend of Kabaka Nakibinge and Omutaka Kabazzi of the Kasimba clan and the story of Walukagga (presented in this chapter, section 4.2.1). Kabaka used to receive iron artifacts as gifts from his men as an act of strengthening the relationship with the leadership.

In some cases, iron artifacts were embedded with deeper cultural meanings. For example, the craftsmanship and the design of the particular artifact could signify the technical mastery of the smith, a highly respected Figure in the Baganda society. Kabazzi and Katongole made special items which were used by the royal leaders, and this was fundamental in helping them to maintain their position as chief blacksmiths for the Kabaka, a prestige they enjoy to date. The blacksmith's ability to transform raw iron into functional and aesthetically pleasing objects was seen as almost magical, further elevating the status of iron artifacts

Material culture theory provides a lens through which to understand how iron artifacts functioned as both economic and symbolic objects. The theory postulates that objects are not inert but are instead active participants in cultural systems. In the case of the Baganda, iron artifacts were not merely tools or commodities but were integral to the construction of social identity and the reinforcement of hierarchical structures.

The production and exchange of iron artifacts were embedded in a complex network of social relations. For example, blacksmiths occupied a unique position in society, often serving as intermediaries between different clans and communities. The artifacts they produced were not only practical but also carried the cultural weight of their origins, reflecting the skills, traditions, and values of their creators.

The use of indigenous iron artifacts as a currency and symbols of wealth highlights their varied relevance in Buganda society. Through their economic utility and symbolic power, these artifacts transcended their material form to become central to the social and cultural fabric of the community. Material culture theory helps in illuminating this dual role, revealing how objects can both shape and be shaped by the societies that use them.

In examining the historical and cultural relevance of iron artifacts, the study gained a deeper understanding of the resilience of indigenous knowledge systems and how material objects can encapsulate complex relationships between economy, culture, and identity. This exploration underscores the enduring relevance of studying indigenous artifacts as a means of preserving and celebrating cultural heritage

This study argues that, beyond serving as productions for warfare, regalia, and fetishes for the deities, iron artifacts of the Baganda played an important role in trade, wealth accumulation, food production, and social organization. Iron artifacts were essential tools for agriculture, hunting, and household use. The subjective interpretation in the presented drawings under this section highlights the functional variation of the captured artifacts and the adaptations in use. The study's point of view is in line with material culture theory, which underscores how objects gain interpretations and meanings emanating from social use and exchange. With an interpretivist perspective, this study argues that economic value and the symbolic relevance of the iron artifacts were not static

but shaped by personal experiences, functionality, aesthetic attachment, and communal interactions as subjects of linguistic discussions. External forces through colonial encounters, globalization, and shifts in functionality and market demands have influenced how these iron artifacts and their designs are perceived and utilized.

4.3 Survival and continuity of the indigenous ironworks of the Baganda

In this section, the section elaborates on the extent to which Baganda indigenous iron artifacts have survived. Therefore, study findings for objective two from data collected through interviews and observation are presented and discussed. The section focuses on the factors that influenced the decline in iron smelting, survival, and continuity of forging, transformation of iron working technology, and adoption of indigenous iron artifacts in contemporary creative spaces.

4.3.1 Declining of iron smelting continuity of forging

“The art of blacksmithing that dates back many centuries before the advent of the white man in Buganda, is one of those occupations that were evocative of the different norms and practices of pre-colonial Buganda.” Muwanguzi (June, 2022). This affirmation reechoes the findings in the broader section 4.2 above, which focuses on the historical relevance of the iron artifact designs to the Baganda, and the unyielding zeal to hold on to the continuity of iron working. However, the study findings for objective two reveal that the indigenous ironworking industry is one of the major sectors which influenced by the transformative revolution that emanated from the changes in the social, economic, political, and religious life of the Baganda.

In the pre-colonial period, indigenous smelting was a big business in Buganda. It was an independent industry within the indigenous ironworking systems of the Baganda. The study findings reveal that smelting and forging were done separately. Smelting could be learned by anybody to extract iron from iron ore, and forging was a technical skill reserved for the

blacksmiths. Most times, the blacksmiths were using iron produced by others from within the Baganda society, and the imported iron from the neighboring states such as Kiziba, Buzongora, and Bunyoro.

Smelting of iron in Buganda was an activity which thrived under the influence of social-economic interests and but was controlled by political settings. Strong men, together with their helpers, sometimes selected from family members, used to smelt iron ore to acquire iron and sell it to the blacksmiths, who in return could reward them with iron tools or other items. The rewards could later be exchanged for other goods with other community members within and outside Buganda. One respondent, Bs5, asserted that his grandfather had to smelt iron, which he sold to the blacksmiths of Bigo-byamugenyi, who had to give him hoes and spears in return, but when he failed, he compensated him with a piece of land in Sembabule. This assertion reveals how precious iron was to the Baganda. It was one of the commodities that could uplift one's livelihood.

On the state's side, iron was another form of *Amakula* (gifts for the Kabaka) which could be taken by the Kabaka's subjects to the place and sometimes used to pay tax to the Kingdom. The iron blocks taken to the palaces were used by the Kabaka's blacksmiths, who had their smithies established not far away from his palace. From the iron they used to make special items for the royal family, such as knives, regalia, shields, *engaga*, *emisagga*, spears, arrows, ornaments, which the Kabaka gave to his strong men to symbolize their ranks.

The data collected from interviews with the Bs and Bm respondent categories reveal the decline of iron smelting after the Baganda succumbed to the foreign forces. The precious indigenous technology of iron smelting in Buganda gradually declined in production, and the knowledge started vanishing with the death of skilled blacksmiths and experienced iron smelters. The foreign forces of change in the social, economic, political, and religious life of the Baganda emanated from

new influences in pre and post-colonial periods, such as trading with other international players, power shifting for the kingdom to the colonial masters, new land policies, adoption of new foreign religions, modern education, political instabilities, globalization, and others.

The gradual change started with the infiltration of the kingdom by new forces, which came to Buganda through the trading of slaves and goods, and others were explorers and missionaries. The coastal Swahili came with the Arabs, and the Europeans joined later. The respondent narrated that along came new technology, which could replace the tools and the indigenous ideas. Though these tools were expensive, but were more sophisticated and efficient than those which were produced locally. Bs3 gave an example of the importation of guns by the Arabs, and the King was the first one to acquire a gun, and in exchange, he gave them slaves and ivory. Other goods, such as mirrors, needles, knives, hoes, saucepans, among others, were brought in to substitute for locally made products.

The importation of new technologies and goods undermined the higher scale of local production of iron. The Kabaka and some other members of the high class started maintaining their higher status by acquiring foreign goods. Bs1 highlighted how guns started replacing spears and shields, and in production, iron ore was replaced by iron sheets. Consequently, reduction in the demand for locally smelted iron since most of the iron artifacts were increasingly being replaced with foreign goods.

After Buganda interacted with foreign powers, the next phase was to gradually lose its sovereignty. The Europeans started organizing themselves by accessing the masses and downplaying the authority of the Kabaka. This was a move to weaken the Baganda to lose confidence in their King and start conniving with the whites. As they were preparing for the final takeover of Buganda's full control.

The Buganda occupation was a move enabled by the Kings and the subjects on the divide and rule tactic, as they pushed assimilation from another angle. Bm2 highlighted the rapid acceptance of the Baganda to adopt English and take it as a measure of intelligence. Also in the 1900 Buganda agreement, Article 22, which highlighted the use of English in its interpretation. On the other hand, Bs1 underscored the quick learning of Luganda by the missionaries to conduct covert research about Buganda and train interpreters for future use by colonialists. This was done through getting close to locals who had no idea about the true intentions of the Europeans and ended up disclosing important information. The Europeans learned the language and transformed it into a textual format, and later taught some leaders how to read and write it.

Colonialism resulted from a relationship the Baganda had with Europeans. This was an occupation by will; it was a give-and-take. Once a strong kingdom thriving on internally producing iron artifacts from iron locally smelted and the rest collected from its neighbors, it started acquiring a few guns and signing agreements for protection with its future oppressors. The once self-protected gigantic kingdom started accepting promises of protection from its enemies.

Some members in the leadership of the kingdom accepted the peace pacts with the Europeans because they had promises of guaranteeing their safety and leadership. This could also help them to use the opportunity to fulfil their selfish dreams under the compromised powers of the Kabaka. Bs4 highlighted the betrayal of Kabaka Mwanga by his prime minister, who conspired with the British for his arrest with Omukama Kabalega of Bunyoro, and installed a young Kabaka Daudi Chwa on the throne. This gave the three legends to rule in favor of the British. It was during this time that the 1900 agreement was signed and led to the introduction of new policies which were undermining the Kabaka's absolute powers by sharing authoritative powers with the Queen of England on Buganda affairs. Through review of archived documents and interviews with the Bm

category of respondents, the study accessed some of the articles that were compromising Buganda's sovereignty. The settings manifested in the 1900 agreement, which greatly affected Buganda's production activities, such as iron working, were maintained by the governments that followed the colonial government after independence, with inspirations drawn from the current constitution of the same agreement.

The data from interviews ascertain that the 1900 Buganda agreement was the first legal document in Uganda signed between the Buganda and the British government of Her Majesty the Queen of England. The leadership under the young Kabaka of Buganda, Sir Daudi Chwa II, was represented by chiefs such as Apollo Kagwa, Nuhu Mbogo, Zakaria Kisingiri, and chiefs of different counties of Buganda, highlighted in chapter two of this study, and some clan heads. The British government was represented by Sir Harry Johnston. The British had wanted to establish their rule in the protectorate, so they had to start with the strongest of all in the region, which was the Baganda of the Buganda region.

Bm 2 highlights article 1 of the agreement as the beginning of the weakening of Buganda. The article led to the demarcation of boundaries. This was in line with Article 9 of the same agreement, which established the creation of 20 administrative units for central activities. He adds that whereas the British highlighted the need for easy administration but the hidden agenda was to stop Buganda's expansionist theory. For generations, the theory had been maintained by different kings of Buganda, such as Jjunju, Kateregga, Mutesa I, Ssuna II, Mwanga, and others. The theory was more of an unwritten master plan to expand the kingdom's political influence, authority, and occupation into other regions. This warranted no more wars between Buganda and its neighbor, and therefore, the reduction in the need for smelted iron for making weapons. These articles could have been the inspiration for the current Article 177 of Uganda's constitution, which enacts the

formation of districts, highlighting their regions and natives. This also enabled the fulfillment of Article 3, Buganda, which was focusing on putting on the same ranking as other regions in the protectorate.

. Bm 1 and 3 highlighted that the agreement reduced the Kabaka's historical powers and the sovereignty of the Baganda over their kingdom and threatened its survival. In Article 6 of the 1900 agreement, the Baganda and their King were conditioned to surrender the royalty and be submissive to Her Majesty's government for Her Majesty's government to recognize the king of Buganda as a native ruler of his people. The article was laying a foundation for the British government to establish its power and authority in the political, social, and economic fabrics of Baganda and dictate as they wished. The agreement, once signed, granted the British a firm grip on Buganda. A similar manner is reflected in Article 246 of the current constitution that structures the re-institution of cultural leaders and the allegiance they must pay to the republican government. The reduction of Kabaka's powers reflected on the influence he had in directing indigenous industrious production and motives of mobilizing masses, like in iron smelting and forging.

All respondents mentioned the introduction of new land policies, which were enshrined in Article 15 of the agreement; Buganda land was divided into crown and mile. Mile land, meaning land meant for all the Baganda, but crown land remained for the British government. The British focused on dividing Buganda land because it was the greatest means of production. Therefore, dividing land gained them control over the means of production. This weakened the Buganda establishment and empowered the colonial rule since the new policies were taking large portions of land from Buganda to be owned by the British, who had other agendas divergent from the indigenous settings of the Baganda. This article could have been one of the key inspirations for

Article 237 in the current constitution of Uganda, which provides for land ownership in Uganda. This is reflected in the interviews with Bs1 and 4.

Bm3 affirmed that the taxation aspect of the agreement was for further weakening of Buganda and its industrial operations. The respondent reflected on Article 12 of the agreement, which provided for policies of taxation. Through this article, the whites introduced the hut and gun tax. The taxation of guns was a move introduced because they were afraid of further resistance, which would easily be facilitated by duplicated guns and spare parts of the imported ones through iron smelting and forging. The availability of smelted iron and skilled blacksmiths had made it possible for the Baganda to start duplicating guns and produce spare parts for the imported ones, as well as spears. This was a threat to the British's safety. Therefore, their need to document everybody who owns a gun to be known would help them to control guns and other weapons. This would limit access to weapons among people by regulating licenses. There was no need for the expansion of the local iron smelting industry since demand and supply of iron products like weapons were under limited access and control. The spirit of Article 12 of the 1900 Buganda agreement is reflected in Article 152 of the current constitution.

Bm1 further pointed out Article 2 of 1900, which demanded Baganda give up their position of tax collection to the British; this was taking over the economic system. Article 4 ordered the submission of taxes collected by the Baganda to one central pool and to use it for the development of the rest of the protectorate. The remains would be given to Buganda and shared amongst themselves. This was giving the British a grip on Buganda's finances, and Buganda had to give up on its industrial development plans. These articles have been made live in the current times by Article 153, which established a pool of consolidated fund, which means.

The agreement in Article 17 also gave the British power to preserve forestry, the environment, and wetlands. This marked the beginning of restrictions on cutting down trees and encroaching on government wetlands for material collection. The Baganda needed special trees to make charcoal for iron smelting and forging, and the wet lands could provide materials like papyrus and clay, as elaborated in section 4.4.1 of this chapter. The government used the army and police to suppress the collection of materials from gazette areas of the government; some were punished and others were imprisoned; charcoal burning was criminalized. This article hindered easy access to materials by iron smelters. These measures are still available to date; they are provided for in Article 245 of Uganda's current constitution.

The agreement in Article 16 declared all mineral resources to be under the British government, irrespective of being under the soils of mile land or crown land. This could limit the iron smelters and the blacksmiths' access to materials for their productions. Currently, Article 244 of Uganda's constitution still enshrines this article, and most of the controlling regulations are still enforced by the government of Uganda.

Whereas the importation of iron tools, which were gradually substituting locally made iron artifacts, was a big blow to the indigenous iron-smelting industry, the practice continued since the new goods could not be afforded by everyone in Buganda. However, the establishment of colonialism and the new policies in Buganda were another blow to the smelting industry. The new land and tax policies in the 1900 agreement made their work difficult. Bs 2 and 5 inform the study that land was distributed to a few Baganda who became land lords with absolute powers. Some iron smelters lost their authority over the land they occupied to the new landlords. You could not access someone's property to mine materials and cut trees to prepare charcoal for iron smelting. Iron smelters and blacksmiths had to face heavy taxes from the new landlords, the kingdom, and

the British government. This demotivated many who could not cope with the new rules. In an interview with a participant under the blacksmith category, he stated that:

“Wherever we used to get iron ore from was intentionally occupied by the military and police barracks, churches and their monasteries, prisons, schools, and hospitals. Other sites are taken up by the political Figures and rich influential people, and they use the land for their firms and stone quarries, where we are not allowed to access. This left us with no option but to largely use imported metals as substitutes, hence slowly eliminating the indigenous smelting of iron ore”. (Participant Bs 4)

The field findings further reveal that religion was another instrumental factor contributing to the decline of iron smelting. All respondents in the Bs and Bm categories agree that the Christian missionaries came with the new style of understanding God (Katonda) and declared all other African deities and their artifacts satanic and unworthy to be recognized- the blacksmith and the iron smelters turned to them for favors and guidance. This indirectly discouraged the new converts to Christianity from continuing with the practice and also discouraged their children and other relatives from learning the knowledge. This led to a shift in people’s mindset and started replacing the locally produced artifacts with foreign goods.

Some converted populace abandoned the ancestral religion, burnt down shrines, and other places of worship. Some offered land where iron ore was mined for the missionary establishments, such as churches, monasteries, schools, and hospitals. This, in return, became agents of total occupation of the colonialists against the African culture and norms. European names were adopted with no meanings, furthering imperialistic tendencies, dropping the local names with African cultural attachments. Bm3 asserted that Most Baganda became mentally and spiritually hybrids of

European and African culture; you live in Africa with your heart resting in England and the English heaven. Hence, the establishment of a new cultural breed.

The rapid domination of Christianity as a new faith was later accompanied by a new style of education in declining ironworking through a reduced labor force and the introduction of new knowledge. The missionary schools were rapidly established, and this was a turning point for Buganda's education system. Buganda evolved from her informal system of education with the indigenous style, which was manifested through oral traditions and apprenticeship, delivering content associated with the environment and cultural knowledge and skills to the Christianized one, dominated by Eurocentric ideas. Most chiefs and converts took their children to missionary schools, where indigenous knowledge was given no chance to thrive. Children were not given a chance to experience and gain theoretical knowledge from communities, more so, knowledge related to indigenous industrial production. The education they received prepared them to work in offices to push the white man's interest. They were not allowed to speak indigenous languages and were branded the vernacular and unacceptable.

Contrary to the above argument from field data, the researcher landed on a few books written in Luganda in the early 1990s. The local language was probably taught, but not on a large scale, or the elite Baganda later decided to document these pertinent issues in their indigenous language to maintain absolute meaning. Though this does not remove the narrative driven by the respondents that a lot of knowledge was lost without documentation, and the documented one had distorted meanings, since it was largely written by foreigners who could not understand the deeper meanings of various linked concepts among the Baganda.

The new graduates of the modern education introduced by the Europeans could easily cope with the Western culture, goods, and religion. They became agents of Western ideas, and most of them

detested African indigenous ideas. A bigger fraction of them became a market for Western productions, a state that largely exists in contemporary times.

The political instabilities experienced by the Baganda not only make them experience power shifts in the leadership but also take the lives of many and destruction of technology. Where political instabilities before and after independence ravaged Uganda at large, the Baganda recorded a bigger number of losses in life and resources, and displacement. The respondents in the Bs and Bm categories all recognized the negative impacts of the wars that followed the formation of Uganda. They highlighted that many of the blacksmiths and the smelters died during the war between Kabaka Mwanga and the British at Bulingugwe island; others died in the final battle between the British against the alliance of Mwanga and Kabalega of Bunyoro. The independence struggles inspired by the need for self-rule of Africans elsewhere on the continent started in Uganda, and the blacksmiths were targeted since some could produce weapons and gun spares. Iron working received strict measures, many blacksmiths were arrested, and others had their thumbs and fingers cut off as a move to disable them from continuing with the practice of iron works.

The crisis of 1966 is one of the insurgencies that most elderly respondents vowed never to forget. The misunderstandings between Kabaka Mutesa II, the first President of the Republic of Uganda, and Apollo Milton Obote, the Prime Minister, were disastrous to the Kingdom's establishment. It destroyed the Kingdom's properties, killing and imprisonment skilled Kabaka's men, and a blacksmith, one of the key targets, and later the kingdom was abolished. In an interview with a participant, a master blacksmith, he reflectively narrated how he witnessed the crisis, could not hold back his tears in the interview session. He said:

“I remember everything that was done to us by those evil forces [...] and we were living in the Kabaka’s palace in Mengo with my father and grandfather, who were some of the Kabaka’s blacksmiths, and I was receiving training from them and other masters as an apprentice. The fighting started in the morning with heavy fire from guns and tanks. My father and grandfather called me out, put up resistance against the invaders. I quickly picked up my spear and shield to go and defend my King. However, as soon as I moved out, I saw the bodies of my father and my grandfather, and other people known to me lying down in the pool of blood. Some houses were burning in flames, and soldiers were everywhere, and others were walking in through Wanakaki (the main gate), towards Twekobe (The main building in the Palace). I was arrested and disarmed, and detained in Luzira prisons. I was later released after Idi Amin overthrew Obote. I later relocated to Buddu and resumed our ancestral practice of iron working. And I trained others, now we are working together”. (Participant Bs 5)

The above narration for the life experience not only identifies with his life, but similar emotional stories were narrated by the respondents with facial expressions of pain and sadness, and some had to first pose for the interview. Observational data implies that the crisis was more than just a struggle for political power but a destruction of part of the generation its life, technology, and property, which would have been instrumental in informing the current generation.

The 1966 crisis, as commonly referred to by many, was not the end of political instabilities in Uganda. It was later followed by the 1971 coup of General Idi Amin Dada (president), the 1979 Liberation war dominated by the Tanzanian forces and other factions of rebels, such as Kikoosi Marumu of Apollo Milton Obote, Front for National Salvation (FRONASA) led by Yoweri Kaguta Museveni, Save Uganda Movement (SUM) led by Akena p’Ojok. They all together formed an

armed establishment dubbed Uganda National Liberation Front (UNLA) (Museveni, 2020). The respondents asserted that their taking of power was expected to take the situation back to normal; however, the groups in UNLA (*Abakombozi*) became a nightmare to the people of Buganda. They were worse than Idi Amin Dada. They witnessed extrajudicial killings from both Tanzanian and Ugandan rebel factions, disappearances without a trace, confiscation of property, and raping of women. Bs2 was arrested along with two sons and one brother by UNLF soldiers in 1980, suspecting them of making weapons, and he was the only one to survive; the rest were killed, and the bodies were never buried. Most blacksmiths went into hiding, as the freedom to practice their occupation had ended during Idi Amin's regime.

In the 1980, division among the Baganda erupted based on political parties, Uganda People's Congress (UPC), Democratic Party (DP), Conservative Party (CP), and Uganda Patriotic Movement (UPM). Uganda was getting ready for elections, which were rigged. Another phase of insurgencies from 1981 to 1986 unfolded, sparked off by different rebel groups such as Uganda Freedom Movement (UFM) led by Andrew Lutakome Kayiira, Federal Democratic Movement (FEDEMU) led by Captain Kwanga, Uganda National Rescue Front (UNRF) by General Moses Ali, and Uganda Freedom Fighters (UFF) of Professor Yusuf Lule. Popular Resistance Army (PRA) led by Yoweri Kaguta Museveni, who later joined hands with other rebel groups to form the National Resistance Army (NRA) fighting UNLA led by President Apollo Milton Obote, and later led by President Tito Okello Lutwa after the 1985 coup. The rebel group General. Museveni led until taking over power. Peace prevailed for a long time, and the blacksmiths resumed their work, indigenous smelting remained a preserve of special products for the Kabaka and deities, and their rest scrap metal became the fundamental material as reflected in section 4.3.3. However, in the current days, iron workers have been challenged again with criminality associated with

Bijambiya (panga) attacks, and sometimes they fear being mistaken by security operatives and the public.

The absence of insurgencies in Uganda paved the way for agents of globalization to grow their roots in Uganda. These comprised, but were not limited to, popular culture, universalism, cultural change and avant-garde, language, mass media, and advanced technology. These have been agents of change in the social and economic lives of the Baganda. The blacksmiths highlighted their concern about the new trends which have come with “modernity” (as a way of leaving and technological advancements). This was highlighted in the interview I had with a Participant in the blacksmith:

“The society is broken; most parents no longer want their children to learn indigenous knowledge, and most schools don’t even mention it. I was shocked when my grandchild told me that before the coming of the whites to Uganda, we did not have technology and innovation. This statement proved ignorance of my sibling about great technologies like Iron smelting and forging, basket weaving, backcloth making, domestication of animals, architecture, music and musical instruments, and pottery, to mention but a few. The ideas were a result of reflection, counting, analysis, creativity, invention, and innovation of the Baganda”. (Participant Bs2)

The environment the Baganda experienced since the infiltration of foreign powers has not enabled indigenous technology like iron smelting to flourish. The new goods and technology gradually took a bigger percentage of the market, replacing the local ones, with only locally made products to be rethought during Amin’s regime. Their occupation by the missionaries and colonialists only left the Baganda with scars of menticide with little appreciation of locally made products, more so

from iron ore. The foreign powers were later replaced by new Ugandan republican leaders whose interest was in power rather than rejuvenation and promotion of locally made ideas, a situation that still stands to date. Most leaders choose to lay a good foundation by working as agents of neo-colonialism and modernization, and pay less attention to the immortalization of indigenous ideas like iron works. However, even though iron smelting, as one of the major fractions of knowledge embedded in iron artifacts, declined and lost popularity, the forging of iron designs survived and is still relevant to date.

Whereas the political, social, economic, and religious environments discussed above contributed to a generally tense environment in Buganda, Iron smelting declined, and forging was maintained to a larger extent. Several factors facilitated the preservation and continuity of forging iron artifacts among the Baganda. To date, blacksmiths still craft the same old designs of artifacts, which they supply to the dealers who sell them to different clients for different purposes.

The restoration of kingdoms in Uganda was a strong opportunity for all indigenous technologies to be rejuvenated in production and purpose. The field findings revealed that clan leaders and elderly men with knowledge of specific indigenous practices networked again for the restoration and renovation of historical places related to the kingdom. Iron artifacts were in high demand since most of them were stolen by scrap collectors, and others were demolished by different intruders. The restorations of these ideas were seen as a remake of the lost past. For example, for generations, the Baganda made indigenous iron artifacts as a preserve of cultural practice, a source of income for their survival, and identity. The historical relevance of Iron as discussed in the general section 4.2 of this chapter, had laid the foundation for the continuity. Even in the dark days marked by the absence of the kingdom, forging of indigenous iron artifacts continued through different periods to date, providing the necessary tools for survival. This was possible due to the different settings

in the Kingdom, such as the strong clan leadership, the needs that used to emanate from the new life transformations, rituals, discovery of materials, and availability of skilled senior blacksmiths.

Furthermore, the Baganda had long inhabited the central region of Uganda, a fertile area that has historically facilitated agricultural prosperity and trade of the kingdom and the country at large. The abundance of iron ore in the region had earlier enabled the development of sophisticated designs. Blacksmiths, known locally as *Abaweesi*, were highly regarded artisans whose skills were considered for coming up with metallic functional solutions whenever a scarcity of imported garden tools occurred in Uganda. These craftsmen were central to the production of tools, weapons, and ceremonial objects referred to as *Magezi-maganda* (indigenous knowledge and technology), which were indispensable to Baganda society and could easily compete with imported objects. The respondent Bs1 said, “To date, my clients bypass the hardware to come and buy my magezi-maganda knives and hoes. They claim the latter lasts longer. This affirms the competitiveness of forged artifacts in the current globalized market”. However, study findings, through observation, identified that the variant foreign designs were manipulated with local forging techniques alongside indigenous iron artifact designs. It was not clear whether the artifacts were called magezi-maganda because of the locality where they are made from or the maker, or the techniques used to duplicate them.

The historical influence blacksmiths had on the kingdom leadership in Buganda played a key role in the survival of the forging of iron artifacts. The kingdom leadership was the key custodians of the most important technological practices, among which ironworks were. The head of the royal craftsmen was appointed as the second-in-command position that was hereditary from a clan. He led men of different clan backgrounds, among them were the blacksmiths of the Nvubu clan, who were the makers of royal shields and the bracelets, anklets, and other ornaments for the king’s

wives. The members of the Ente clan used to produce weapons and agricultural tools. This is supported by Médard & Doyle (2007), who assert that the royal craftsmen were highly protected, exempted from paying taxes, labor duties, and given land for settlement and their blacksmithing activities. The Bs 2 further narrate that they had the power to designate working stations for iron works in different counties where iron ore was in reach through providing land and assigning labor resources, leadership, and workers. Since the forging of iron artifacts supported important activities such as security, defense, agriculture, woodwork, architecture, hunting, and the production of water vessels (woodwork), the standardization and assurance of its continuity had to be guaranteed by the state powers.

The Buganda's loyalty towards the Kabaka's chain of leadership from the Kabaka through the chiefs to the *Batongole* (Kingdom leaders at the village level) would ensure communication and implementation of his orders. For example, through his men, the Kabaka would designate the mobilization of fighters and weapons from selected counties, and every man in the selected county would work hard in the fulfillment of the quota assigned to them. The higher level of submission to the centralized power played an instrumental role in establishing and sustaining the forging of iron artifacts in Buganda, which required numbers in terms of labor leadership. However, in the absence of the kingdom, Blacksmith continued producing the artifact using methods that didn't require a huge number of resources as it was in the past. The production scale was low the demand was also very low.

The blacksmiths further narrate that with the Kabaka's involvement and the industrialization of iron working in Buganda provided for all necessary items for various activities. The study argues that this, in turn, contributed to the establishment of a strong, independent kingdom, politically, socially, and economically. This made Buganda more industrious than its neighbors and attracted

more groups of people to seek settlements in Buganda, abandoning their original lands of origin. Many clans came as groups seeking economic transformation, and others wanted to be protected against persecution from their homelands of origin.

The study findings further reveal how the victorious campaigns were instrumental in helping Buganda to attain more territory with plenty of materials for iron working. Counties like Buddu were conquered, and Koki was annexed from Bunyoro; they had rich iron ore and other unique skills in the production of iron artifacts. This not only increases the quantity of iron artifacts produced but also improves the quality of the production. This, in return, attracted many buyers from nearby kingdoms, which had weaker iron working industries like Buzongola, Karagwe, Ankole, Teso, Bukedi, and Busoga. They accessed the iron weapon to establish and guard their territories from external invaders.

Continued practice of ancestral religion was another key factor in keeping forging of iron artifacts among the Baganda. The religious practices are greatly related to iron technology as a spiritual knowledge, and the return of iron working provides artifacts for setting up and maintaining the props in the establishments. Indigenous iron artifacts were considered a divine gift by different generations, as part of the community's spiritual heritage. Most of the forged productions were motivated by the quest to make special items for the gods in seek of recognition and popularity. Blacksmiths had a special space in Baganda society, simultaneously feared and respected for their perceived ability to manipulate both the physical and spiritual worlds. Bm2 in an interview highlighted that “the secrecy surrounding blacksmith’s craftsmanship underscored its sacred nature, it is only discovered through apprenticeship, starting with undergoing initiation rites to gain access to this specialized knowledge.

The continuous recruitment process was a system directed by the political system and clans. The gods could also influence the recruitment process by sending their chosen ones. Respondent Bm4 claimed that he is a blacksmith in bloodline and spirit; he was chosen by the spirits to make special regalia for special deities. He shares dreams with his clients, who are guided by the deities, which dictate the design to be produced in vision. Apart from the clans mentioned earlier who had mastered the forging of iron artifacts in their clan history, there were also members of other clans who gained access to ironworking through various means, such as communal collaboration, assimilation, and family connections. This was a bigger contributor to preserving and promoting the indigenous iron technology among the Baganda since there was an increase in skilled labor. Consequently, this contributed to the reduction of importing iron objects from its neighbors_ but rather exporting its surplus.

In the case of communal collaboration and assimilation, individuals from the same community would come together with the clan master of iron working to learn the trade; some would start by smelting iron ore and then bring it to established blacksmiths and sale it as raw material for further processing in the main smithy activities before he could join active chain of forging, and distribution of products. Another approach was to directly enter into training through apprenticeship, which was commonly accepted to be a practice among family members or close friends of the blacksmith's family. Those belonging to the family ties category could only learnt the craft if they were children of female members (*Abajjwa*) of a clan practicing ironworks. These children would acquire skills from their maternal family members, like uncles, aunts, or grandfathers, who were involved in the family smithy.

Recruitment methods such as those described above are still being utilized in the traditional ironworks smithies that continue to exist. During my visits to several smithies, I observed a labor

force of different-aged males collaborating on various tasks. This workforce included boys under the age of ten assisting with small tasks, teenagers serving as spanner-boys handling less technical responsibilities, young adults engaging in physically demanding tasks such as firing and shaping hot iron for forging, and older individuals assuming supervisory positions within the smithies.

This setting was a foundation for higher possibilities of Indigenous peoples forging continuity since the knowledge was being shared among males of different age groups. When masters were questioned about the age diversity within the workforce, they explained that workers come from different family backgrounds and join the smithies to acquire skills and expertise from experienced masters. Some mentioned that they were currently teaching their children, daughters' sons, and granddaughters' sons the art of indigenous iron working. Whenever they get holidays from school, they come to Smithies to learn it as a holiday activity. They declared that this craft demands a great deal of physical energy and includes a range of activities that must be carried out efficiently, necessitating the involvement of workers of all ages for optimal results.

The availability of surviving skilled blacksmiths was another significant contribution to the continuity of the forging system of the Baganda for ages. It was always in the master's interest to train a young master who would become the pillar of the smithy in his time of old age or when he departed. These young masters, most of the time, could come from his children, brothers, and sometimes the children of other relatives in the extended family. This would consolidate the deceased master's legacy and continuity of the practice within the family, clan, and the county at large. The clan heads ascertained that sometimes the gods would choose whoever they wanted from the *Bazzukulu* (grandchildren) to take up the responsibility of iron working at the clan's smithy. This was a common practice for most of the smithies established on the foundation of the clan's lineage and on a ritual basis to honor the gods.

The blacksmiths (Bs2, 3, and 5) commended the role of oral traditions in the survival and continuity of knowledge incorporated in forging and designs of artifacts of the Baganda. As a method of preserving historical ideas in indigenous societies such as Buganda, it provided legends, proverbs, victorious stories, poems with elements of indigenous knowledge, and iron working was not an exception. These components of stored knowledge played an instrumental role in facilitating the continuity of iron working in Buganda. This was continuously done through storytelling near a fireplace at night (ekyoto) where family members used to discuss with the young generation about scientific management of the society, leadership, spirituality, cultural activities, and the victorious campaigns of Buganda.

The fireplace conversation helped the young ones to learn from the elders who passed messages through legends, proverbs, and idioms; the story of Walukagga the blacksmith and the story of Kabazzi who crafted a good axe, and the special spear admired by Kabaka Nakibinge have been told many times to one generation after another. The victorious wars not only highlight the art of war and the skills of Kibuuka Omumbaale, Nende, and Mukasa, the gods of the Baganda, used against their enemies, but also re-echo the urgency and the need always to be prepared with enough weapons to fight, protect, and expand the territories. This inspired the young people to realize their obligations and roles to play in the development of societal transformation. The storytelling moments around the fireplace would reveal the technical knowledge to the young. This would create an opening to the understanding of material properties to be considered in the selection, mixing, and application during iron working processes, the rituals to do, the designs to produce and for whom, how to access materials, and family legends with the practices and mastery.

The Baganda strongly adhered to cherishing and feeling proud of their culture and passed it on to different generations. The Kabaka, the gods, and the social clan leadership were responsible for

the custodianship, conservation, and promotion of cultural practices until the coming of foreign groupings, which came with the new teachings, technology, and material substitutes to the existing technology at the time. This was revealed by the blacksmith, who affirmed that the iron working in Buganda, like other technologies. Some of the indigenous technological ideas were borrowed and incorporated into the new productions brought by the Indians and the British, such as guns, factory machines, engines, and tools serving different purposes.

The blacksmiths further narrated that their skills were used in duplicating imported items like source pans, needles, gun spare parts, and other designs. These artifacts were accessed through the Swahili traders, the Arabs, and the British, who first came as explorers, later followed by missionaries and the colonial administrators. The guns were used in hunting, home security, and warfare used alongside spears, bows, and arrows. This was the beginning of the Baganda borrowing modern designs and incorporating them into their technologies to get sophisticated equipment that could provide better and faster results. For example, the Baganda started confiding in the use of guns because they were more efficient than spears and arrows. Around the 1860s, the leadership in Buganda attached the iron working masters to the court to make ammunition for the firearms.

Some of the blacksmiths acquired rudimentary training from Missionaries like Alexander Mackay and others from other factions of the British under Fredrick Lugard on how to service rifles and other equipment. As a result, blacksmiths like Kisuule, one of the trusted men of Kabaka Mwanga with advanced skills of ironworking, duplicated rifles and ammunition, the ideas which were later stifled when the British had established their rule in Uganda. This was due to the fear of Buganda's organization to put an end to the British rule, which further led to the introduction of control on

the acquisition of guns; all gun owners had to register them, and keep them under the permission of the British colonial government.

The field finding confirms that the indigenous forging of indigenous iron artifacts did not end even when the British came with what was considered to be better options to meet the needs of our society. It was maintained by the blacksmiths but was gradually going into a low profile from its former glory in society. The practice suffered ideological attacks from the side of religion, and new technological solutions were regarded as superior by the leaders. On the political side, boundaries recognized by colonial powers were drawn, the agreement signed between the British and the Kingdoms, and they received security guarantees; therefore, wars intended for expansion had been disabled, hence, a reduction in the production of iron fighting equipment in plenty.

The importance of iron works had thrived among the commoners and the middle-class Baganda who could not afford to own a gun and other advanced items; iron artifacts could substitute for and spare parts for other mechanical equipment like factory engines, springs, vehicles, and bicycles. Indigenous religion was also another major factor. The indigenous iron artifacts of the Baganda were still important to the bigger fraction who worshiped in the indigenous way, where spears, knives, rattles, and other items were still relevant for the appeasement of the gods and to be used as tools in performing some important rituals the Baganda identified with, such as coronation of the Kabaka, and performance of last funeral rites.

The establishment of musealization centers and historical sites contributed to the display of knowledge about forging in the public domain. The preservation of historical sites with indigenous iron artifacts and the related installations has provided the opportunity for the young generations and scholars to access indigenous designs and knowledges access knowledge in their original intended contexts. Current researchers and forgers use these musealization centers as points of

reference for contemporary creative ideas. Some Historical sites, like places of worship, are still used in the same indigenous setting as it has been for generations. This is common with Ssesse sites and Kyagwe.

Hodder (2012) asserts that material culture theory posits the embodiment of cultural values and historical knowledge in objects. Therefore, this study argues that the decline of iron smelting among the Baganda broadly reflects social, economic, and technological shifts; industrialization and availability of mass-produced metallic tools. Indigenous iron smelting, which was an important specialized skill among the Baganda supporting the iron working industry, has largely disappeared. This emanated from political and environmental restrictions, political insurgencies, the availability of imported metal products, and the loss of skilled smelters and blacksmiths. However, the continuity of forging similar designs of indigenous iron artifacts of the Baganda demonstrates resilience and adaptation to the trend.

This argument is further supported through the lens of adoption theory; the discontinuation of one aspect of the technology of doing something does not signify the total loss, but other aspects remain relevant (Schiffer, 1999). For the case of indigenous iron working of the Baganda, when iron smelting declined, forging remained relevant while blacksmiths reconfigured their relationship with modern metal sources. Consequently, contemporary blacksmiths established methods of repurposing industrially manufactured metals, maintaining the craftsmanship through the adoption of new realities. This dynamism illustrates how indigenous practices are articulated in response to changing economic and material conditions (Hodder, 2012).

From the positionality of an interpretivist perspective, this study further argues that forging is not merely a technical process but an evolving cultural design expression. The meanings associated with ironworking aspects, such as forging and design of artifacts over time, have shifted, and

contemporary blacksmiths see these artifacts as a bridge between modernity and heritage (Appadurai, 1986). The subjectivist perspective of this study further emphasizes that the Baganda at both the individual and societal levels ascribe both intrinsic and extrinsic values to the indigenous practices. Tilley et al (1994) attribute this stance to experiences such as spiritual significance, economic livelihood, and artistic expression.

4.3.2 Transformation of indigenous ironworking technology

Whereas the Baganda indigenous iron artifacts had survived the different tides in the history of their existence, which emanated from different influences on the political, social, and economic lives of the Baganda, the transformation and change could not be avoided. The findings from data collected through observation and interviews with blacksmiths reveal changes and transformations in key attributes such as materials, forging techniques, shift in relevance and value (intrinsic vs extrinsic), and tools.

4.3.2.1 Mu Ssasa (*In the Smithy*)

Essasa is a Luganda word meaning a smithy. Among the Baganda, *Essasa* is a workshop where the design and forging of iron artifacts takes place. When there are many, they are called *Amassasa*. The blacksmiths meet, contemplate, and direct the working processes, drawing from the intended production to be executed. The ideas can be indigenous, modern, or hybrid. During study fieldwork, various blacksmiths were visited in their respective smithies to attain raw, observable information about their practice.

The study findings revealed that most of these smithies have been owned through generations, as family workplaces and businesses. Most blacksmiths inherited from their grandfathers between the 10th and 15th generations. These generations are often revealed through *okulamya*, as highlighted in the inclusion and exclusion criteria in chapter three. This implies that different

masters have been in charge of these smithies and endorsed the transformation as an answer to the needs in the evolving society. The history of these sites has been passed through oral traditions; however, some blacksmiths have exhibited their trials to document information about their family smithies and ancestral information. However, other smithies were set up by individuals who had learnt from other masters. Generally, each smithy was being used by blacksmiths of various skill levels, the masters, ordinary blacksmiths, and the apprentices, as they viewed and organized themselves in knowledge and authority.

The findings revealed no acclaimed structural design for Essasa. Some of the sites are operating installations under the roofed structure supported by wooden pillars with open walls (Figure 60), others were working in the well-set-up buildings (Figure 39), and others were working in an opening under trees. The installations also had no uniform standardized setting, but every blacksmith (s) set up as wished in consideration of operations.



Figure 60: Iron works workshop at Kabugenyi in Buddu
Source: Photograph taken during fieldwork

In the pre-colonial time, most smithies for the commoners were located near the road. This was intended to easily access the market for the goods, obtain advice from travelers, and provide easy access to materials from the suppliers, since most blacksmiths were not active iron smelters (as elaborated in section 4.3.3). They used to buy iron from other people who used to practice smelting as a job. However, in contemporary times, some smithies are located in private spaces with limited access. In an interview with the blacksmith, the participant insisted that this is intended for protection:

“Our great-grandfathers needed to be close to the road to ease the marketing process. In the days we have our mobile phones and computers, those who want to contact us can easily contact us, and we direct them. We also sometimes make our advanced ideas, which we intend to protect from others who can copy them”. (Participant Bs2 and 3)

This assertion was in agreement with reflection on the role of telecommunication and satellite GPS locations (Figure 39), which were instrumental in finding different sites and analyzing the proximity during fieldwork. This implies that the location of smithies can now be easily located by the registered on the GPS with contacts provided for easy access of clients, tourists, and other interested parties. This highlights a significant change in communication and networking for stakeholders in the indigenous iron works.

Irrespective of the changes and divergencies in the establishment of the visited smithies, the smithies had a busy environment with forging activities daily. They had had productions which were occupying the environment in Ssasa, these were: tools, materials, and finished artifacts for sale made by blacksmiths. The products were both indigenous and modern, some hung on the special platforms while others just aligned somewhere in the corner. These were dominated by spears, arrows, axes, and knives.

4.3.2.2 Tools

Whereas the smithies had a variety of tools, as productions, there are those which stood out as common; *Emivubo* (Figure 63, 64, and 65) used to gust wind to ignite the furnace. *Enkero*, which transports wind from the *Mivubo* into the furnace. *Oluyijja* (Figure 66a) is a stone on which metals are cut. *Ensinjo* the chisel-like metallic tool used to cut metals into smaller pieces, pliers (Figure 68) for holding hot metals in the forging and smelting processes. Furnaces for smelting and forging, broken pottery vessels for keeping water used in cooling the fire temperatures during forging. *Emiyindu* and *Enyondo* (Figure 66b) were used as a hammer in the process of shaping metals. Some of the tools were products of indigenous ideas, while others were modern? products copied or borrowed from other cultures.



Figure 61: *Emivubo* and *Enkero* (1839)

Source: Photograph taken during fieldwork in Buddu County

Figure 61 presents how the Indigenous *Emivubo* and *Enkero* are installed to provide wind for the furnace to be powered through ignition. The *Enkero* are molded out of clay and dried before being used to power the furnace. Their designs are given thick layers to ascertain their strengths in the

firing process. The wholes are from one end from where they connect to *Emivubo*, are big, and the end that connects to the furnace they are small to give a more directed wind to the fire section. *Emivubo* has a base that is made in a bowl form and an attack hole, a pipe-like shaft. The top is covered with sheep skin, tight around, covering the whole circumference. On top of the skin sticks resonating with the height of the user are tied to enable the user to pull up and down while gusting wind in the furnace through the whole shafts connected to *Enkero*. This installation was also used in both smelting and forging processes, as will be explained in the forging section. However, sometimes the *emivubo* might be used as a single, not in pairs. Based on observations made while in the smithies of different blacksmiths, I realized the inconsistency in the number of *mivubo* with are set to be used in the forging process. The blacksmiths informed that the *mivubo* are set depending on the amount of wind the blacksmith might want to use in the forging process.

Furthermore, data from observations revealed the existence of other designs of *Emivubo* in the Ssasa. This was common in Ssese and Buddu. Data from the interview revealed that this is due to the transformation iron working has gone through. Blacksmiths accessed ideas from other cultures and borrowed ideas, which they hybridized with their indigenous ones to come up with new *Mivubo* for their practice. The *smithies* had *Emivubo* of different designs made in different years: 1839 (Figure 61), 1950s (Figure 62), 1970s (Figure 63), and in contemporary times since 2000. Through appropriation, blowing machines were modified by the blacksmiths. Currently, they just connect them to the electric sockets to be powered, and the evolution is still going on with new ideas.



a



b

Figure 62: *Omuvubo* 2
Source: Photograph taken during fieldwork in Buddu County

Figure 62 presents another common design of *Omuvubo* commonly found in the Ssasa for indigenous blacksmiths. It has a triangular base with a long metallic pipe. The base is made out of wood, nails, rubber straps, and leather, though sometimes substituted with a tumpline. It gusts the wind through expansion and compression.



Figure 63: *Omuvubo 3*

Source: Photograph taken during fieldwork in Buddu County

Figure 63 above presents the Muvubo, which was made after gaining easy access to worn-out products with wheels and fan mechanisms in Uganda. It was in the 1970s when they started using it because bicycles had become common and could easily be accessed. This design applies to all smithies where they are found. Some blacksmiths use motorcycle wheels, like in the Figure above, while others use bicycle wheels, and others use wheels from industrial machines. The round cylindrical casement has fan blades inside that gust wind through the pipes into the furnaces. This Muvubo has no Enkero like the indigenous one, and sometimes is powered by electricity for sufficient use. Without electricity, the lever connected to the bigger wheel is rolled to move the fan blades inside the casement, and air is pushed into the furnace.

Data from interviews affirmed that the divergence in the different designs of emivubo was inspired by exposure to knowledge that came with modernization, which facilitated the creativity inspired by the need to increase output and comfort in the forging process. Some blacksmiths asserted that they tried to change to the innovations of emivubo because it was hectic to maintain the indigenous design; dogs and other wild animals used to eat the sheep skin, so every evening they had to remove

the skin from mivubo and keep it on the rooftop for a night. Other blacksmiths also highlighted that sheep skin was expensive yet not durable, and prone to water.

Transformation and variations in the tools were not only reflected in the Mivubo. Data from observation, interviews, and photographic evidence revealed the difference in pliers, hammers, and the platforms where iron and are metals are flattened and cut; some blacksmiths' smithies had both the indigenous tools and modern tools. In Buddu, smithies had both pliers made out of iron and the modern ones imported from outside countries. In some smithies, there were both hard stones (Empijja) and Anvils and huge steel bars used in the forging process, shaping and cutting iron pieces. They had both hammers from indigenous technology (Figure 64) and the modern ones (Figure 65). The indigenous tools (those made out of iron ore) were claimed to have been used by different generations and commended for their durability. They could use them alongside modern tools, depending on the need. Others would keep the indigenous ones in special places because they had special memories or powers vested in them.



Figure 64: Oluyijja (a) and Enyondo (b)

Source: Researcher (Photographs taken during field work at Mulema and Kalungu smithies)

Figure 64 presents Oluyijja, a hard stone, and Enyondo (indigenous harmer). Oluyijja is a platform that was used in indigenous iron working as the surface where metals were flattened. It was always collected from the environment. *Enyondo* is a shaft with a sharp, pointed end and a bar-like head at the other end. It was used by the blacksmiths in the process of flattening the metals to forge artifacts. The two significant artifacts in the process of forging were replaced by foreign ideas of a hammer and an anvil, as presented in Figures 65 and 66.



Figure 65: Modern Anvil and a hammer
Source: Photograph taken from a smithy at Kabugenyi during fieldwork



Figure 66: Magalo (Indigenous players)
Source: Researcher (photograph taken from Kalungu during fieldwork)



Figure 67: Forging process
Source: Photograph taken from Kabugenyi during field work

“These pliers (Figure 67) and the hammer you see were for my great-grandfather of the fifth generation. I am 80 years but I did not even see him, even my father did not see him. My father gave me these tools and cautioned me to protect them. These tools are what signify our generational cultural practices. However, I bought the new tools since we grew in numbers and we needed more tools to use, but for some time I have realized my old tools from indigenous have outlived many pliers and hammers I have been buying from hardware. That's why I cannot afford to lose them”. (Participant Bs 2)

The above response aligns with the response I got from Ssese. The blacksmiths explained that nowadays, not all that they have in their collections and possessions as tools for blacksmiths were made out of indigenous iron. One of them picked up one item, which appeared to be a big indigenous knife for Jjajja Muwanga. We have a few of these: 10 items composed of spears and

arrows, empiima, and knives. We nowadays overuse imported metals and scrap from old cars. We can also make items from iron ore if the client wants.

4.3.2.2 Materials

The materials were another key aspect of the smithies. These are important in the formulation and establishment of ideas. The common materials included; Charcoal for firing the furnaces in the smelting or forging process, wooden shafts and handles for making holding points for the iron tools, Iron ore for smelting iron for making special regalia for the Kabakas and gods, and scrap metals as materials for making artifacts for the commoners, the iron slags are residues kept in the Ssasa and sometimes improvised for different purposes for spiritual and physical realm.

The decline of smelting iron ore led to the rise of using other metals in forging indigenous artifacts. Metals such as steel sheets and bars, cast iron, brass, Stainless steel, and Copper came into use. These could easily be accessed through broken-down machines and could also be imported for various industrial purposes. The blacksmiths claim that, though some of these materials, like copper, had been accessed by the Baganda blacksmith in the pre-colonial era, from neighboring societies such as Kiziba and Bunyoro, they managed to access them in plenty during the colonial period and after. This was the same period when iron smelting was declining.



Figure 68: Rattles with colors

Source: Photograph taken during field work in Ssesse County

Figure 70 displays *Endege*, one of the categories of the indigenous iron artefact designs of the Baganda. They are bean-like pods in different colours: bronze, gold, and silver. The colour silver is for Mukasa, bronze for Kibuuka, black for Ddungu, and gold for Musoke. The same colour arrangement applies in the production of other indigenous iron implements for gods, respectively.

The blacksmiths had to explore new means of crafting from the materials since some of the required materials were regulated. They affirmed that it was hard for them to learn how to forge items from these materials since they required different heating approaches, unlike iron ore, which for centuries they had gotten used to in regulating the required heat. They add that, much as

artifacts made out of some materials were weak compared to those made out of indigenous iron, they could still be used for other purposes since there were no more wares that required strong weapons.

The new materials were not used to serve as agents for structural-design change but just as materials for duplication of existing artifacts, and reinforcing the improved visual manifestation of the use and meanings. This adaptation of new materials was a significant change in the ironworking industry, required the upgrading of tools; some were borrowed from Western culture, some were invented from within, and others were modifications of the already existing ones. The new tools had led to an improvement in results. For example, respondents Bs 2 and 5 asserted that some of the tools which were attained later as a result of evolution are effective than the indigenous ones. They can be used in forging tools from both the indigenous iron and the modern metals.

The transformation of the indigenous ironworking technology of the Baganda is a demonstration of how material culture evolves through the ages. As indigenous iron smelting diminished, the blacksmiths incorporated modern tools, methods, and materials in their forging techniques. This implies possibilities of technological hybridity (Miller, 2005). In light of the material culture theory perspective, the change in the physical methods does not amount to a total loss of the cultural essence of indigenous iron working. The practice persists through craftsmanship, design aesthetics, and utilitarian aspects (Appadurai, 1986).

From a subjectivist view point the transformation experienced in the indigenous ironworking industry may be interpreted by different stakeholders; some may view it as loss of cultural heritage since for ages the physical material of the practice has been serving as windows of auxological understanding and the young craftsmen may perceive it as necessary adaptations (Tilley, 1994) providing them an opportunity to redefine practice with in their new lens. The interpretivist

perspective suggests that the meanings of objects transform through their contemporary applications, which allows them to remain culturally and spiritually relevant despite technological shifts over time (Schiffer, 1999). This ontological stance resonates with the findings of this study's phenomena; much as the blacksmiths borrowed modern ideas, crafted new tools and materials, they still keep and use the indigenous tools and materials in their contemporary productions.

Through the adoption theory lens, the integration of contemporary innovation into forging iron artifacts can be elucidated. The introduction of electric blowers to be used alongside a manually operated bellows, and installation of modern elements to indigenous charcoal forges, illustrates eclectic adoption of new technologies while maintaining artisanal essence (Hodder, 2012). The theory posits a similar stance on the indigenous iron artifacts; they are significantly incorporated in contemporary artistic and decorative contexts, contrary to their original use for warfare, spiritual, and agricultural purposes. This reinforces their cultural identity in the evolving societal settings (Miller, 2005).

4.3.3 Adoption of indigenous Iron artifacts into Contemporary design

This section analyses how knowledge of indigenous iron artifacts of the Baganda has been utilized in the creative industry, in terms of influencing contemporary art and design practices, preserving and promoting heritage, while inspiring innovations. The contemporary creative spaces provide an environment for the incorporation of ideas drawn from indigenous iron artifacts in contemporary designs through modern approaches and postmodern theories, critiquing each other.

Whereas contemporary spaces are influenced by grants, popular culture, media, technological hybridized concepts, imports, and the policies of ruling governments, which are sometimes used as agents of neo-colonialism, the resilience of indigenous iron artifacts still stands with influence on contemporary design ideation. Design ideas are still deemed relevant in the formation of

solutions for contemporary needs. This is consolidated by adherence to attributes of modernism and postmodern theories such as appropriation, double coding, dissonant beauty, eclecticism, pluralism, multiple readings, universalism, the idea of creative destruction, cultural change and avant-garde, democratization, and concern for Otherness.

Through appropriation, indigenous iron artifacts have been utilized to create contemporary designs that address contemporary ideas. Appropriation as a concept means taking something for your use, often without permission (Young, 2010). As an attribute of contemporary art, it incorporates the use of ideas without fully changing their appearances and attributes them to a new purpose other than the prior intention of their conception. Appropriation as a concept has not only been used in the identification of new ideas to transform indigenous forging techniques, as highlighted in section 4.3.2.2 above, but also in borrowing ideas from indigenous ironworks to foster contemporary design ideas.

Currently, the use of indigenous designs to nurture and re-posture contemporary designs through appropriation is a growing artistic approach among contemporary artists and consumers in areas of culture, architectural designs, and fine arts for aesthetic and commemorative purposes. All highlighted areas manifest indigenous iron artifacts as art forms with defined designs, which can be used to inspire designs for public consumption. Elements from indigenous iron artifacts, such as symbols, designs, materials, and traditions, have been used to construct contemporary visual ideas and symbolic interpretation without acknowledging their cultural significance. However, some artists have collaborated with blacksmiths in their projects and give credit to the Baganda community and the artisans who continue with ironworking.

The contemporary consumption of indigenous iron designs has become a global trend, embraced in fashion, patterns for textile decoration, jewellery, sculptures, painting, basketry, architecture, and installation art. Field findings from observation affirm that the use of iron artifacts for different purposes, such as home decor, is becoming popular in mainstream interiors, metal fabrications, and furniture designs for contemporary markets. They are consciously and sometimes subconsciously used in design creation.

The conscious approach is inspired by the need for cultural celebration, preservation, promotion, and as a method of appreciating the unique knowledge of indigenous designs, established through visual appearance and functionality manifested by aesthetics and ergonomic aspects. Various indigenous iron designs, such as Spears, Rattles, and Knives, in contemporary times have been used as inspirations for different contemporary artistic creations. Appropriation has opened various windows of opportunity to establish different designs; creatives ideate original concepts through repurposing indigenous iron artifacts to create new productions that meet the current design needs. For example, in many ways, baskets and iron tools have been deprived of their functions and turned into decorating props; nowadays baskets are used as lampshades and wall hangings. Spears are used in making gates as symbols, enhancing the psychological security of the gates in public and private spaces

In contemporary public spaces, designs such as gates, furniture, paintings, apparel motifs, architectural structure, among others, are inspired by indigenous iron designs and have been used to attribute beauty to the environments. People interact with these ideas in museums, historical and cultural sites, hotels, palaces, theaters, malls, and schools, and experience cultural recreation centers. The designs are used for commemoration of the supremacy of iron working among the Baganda, fostering identity of the land, and the influence of the culture (Figure 70)



Figure 69: The gate of Sir. Edward Mutesa II Museum at Makerere University, Uganda
Source: Online²¹

Figure 70 presents the gate at Sir. Edward Mutesa II Museum at Makerere University, a public tourist educational center. The museum was an establishment in commemoration of Mutesa, who served in two capacities: as the first president of Uganda, and at the same time, the Kabaka of Buganda. During his reign as the Kabaka, the Kingdom contributed greatly to the establishment and expansion of the University. The subjective interpretation of this museum gate as an artifact by this study attributes the uniqueness of the gate to the incorporation of the features of the indigenous spears and shield designs of the Baganda, and the lion. The highlighted icons serve as the key symbols of the Kingdom, as highlighted in the Buganda flag. The designers eclectically dismantled features of the already-made artistic object to produce another artistic idea for the

²¹ <https://x.com/MakerereNews/status/1635270631477641219>

museum concept, which is a modern concept. The fusion of indigenous symbols consolidates hegemony, homage, and advocates for cultural promotion into contemporary public spaces.

Similarly, data collected through observing different households highlights the various contemporary artifacts in people's homesteads. The respondents' environments were not harboring these artifacts, just as props and fetishes for worshiping the deities or as artifacts for functional activities, but also were used as forms of wall embellishments to enhance the aesthetic concepts of their interior spaces. For example, one of the respondents from the household user category had his spear hung up on the two hooks in horizontal format on the wall approximately eight feet from the floor. When he was asked about this unique kind of hanging of the spear, he affirmed that the spear was not only reminding him of his major role as a Muganda man of protecting the Kabaka and the Kingdom, but also it is one of the forms that affirm cultural identity to the children and visitors. He further added that it is an art form that beautifies his sitting room to create a harmonious living space.

Another respondent in the same category asserted that he feels secure whenever he sees the spears of Jjajja Bulamu and Bamweyana. He further narrated how he intentionally requested the welder to incorporate them in his home gate design for security reinforcement in the physical and spiritual realm. Physically, he got the satisfaction that no thief can climb that gate, and spiritually, the deities can easily identify him as a believer and protect him from bad energies; they feel welcome.

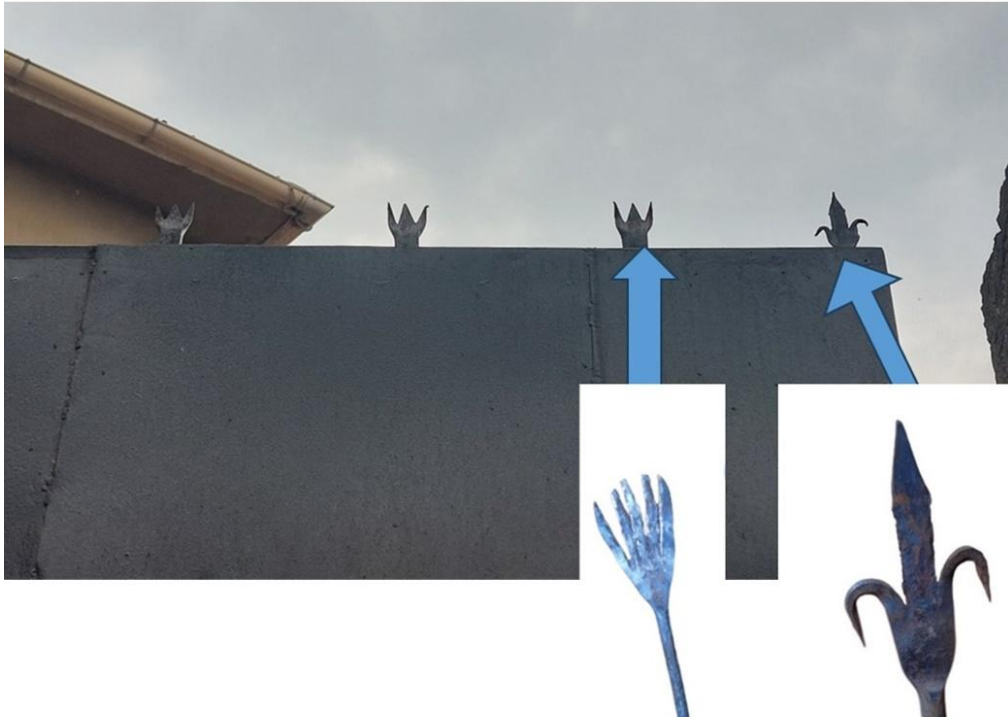


Figure 70: Home gate design

Source: Photograph taken by the researcher during fieldwork (Kyaggwe)

The contemporary design of the home gate in Figure 71 is made out of steel. Its top lining is decorated with design components with inspiration drawn from spear heads (Figures 5 and 47 b) of the deities; Bamweyana at the extreme right and Kayikuuzi, the three spear heads.

By using minimalistic intentional incorporation of indigenous iron design ideas into contemporary concepts, artisans utilize two major approaches to art: universalism and eclecticism. The former is manifested by the use of elements and principles of art and design cordially, and the latter deals with borrowing from an already existing idea not fully, and executing a design solution for the existing societal needs. For example, in the manufacturing of ideas (Figures 70 and 71), designers for contemporary consumption had to infuse the forms from indigenous iron artifacts at the conception level of their ideas. The selected symbols affirm the conception of eclecticism in the process of using indigenous iron design as inspirational objects for modern solutions to societal needs.

Modernistic elements and principles of design are used to achieve aesthetics, functionality, and ergonomics in contemporary designs. Through this approach, Indigenous designs have been subjected to the universal realities of academia. The designs are reoriented in function and appearance, considering the canonized elements and principles of design in the ideation and execution process. This, in return, distorts their appearances, meanings, and functionality, consequently leading to a shift in value. This emanates from the difference in consumers' axiological viewpoint since it may shift due to an alteration in the aesthetic composition of the design and background.

The unconscious process of incorporating knowledge of indigenous iron artifact designs is done with no acclaimed aesthetic intention but rather to recycle the artifacts for material improvisation in contemporary design production. This sometimes leads to a disastrous practice of stealing these artifacts from the places of installation and storage and subjecting them to smelting for further use. This is reflected in the data collected from historical sites and the blacksmiths who confirmed the need for security, since most of the iron artifacts are stolen and taken to be sold to scrap collectors. They are later taken to steel industries to be recycled. Other artists may reshape them to execute their aesthetic and functional designs of interest.

Some members of the Baganda society, where these artifacts originate, raise concerns about the whole idea of appropriation. This emanates from companies using indigenous ideas without compensation and proper acknowledgement. Brands have exploited indigenous aesthetic and functional concepts without taking into consideration the cultural significance aligned with the designs. This sometimes leads to the vulgarization of the culture, which leads to the ethical dilemma regarding ownership and respect (Young & Brunk, 2012). The discomfort was reflected

in the responses after requesting for functional demonstration on other artifacts for the deities and expression of interest to make them part of the study's collection. The blacksmith responded:

“We are not interested in seeing these designs used anyhow in public spaces because sometimes they can be abused by those who use them for other design purposes other than those in line with the interests of the deity or the Kabaka. These designs are not for everyone, that's why we produce them on orders of the deity, and most times only for the shrine dedicated to the gods”. (Participant Bs3)

Another respondent from one of the Historical cultural sites, her statements supported what the blacksmith in Sseese. In her narrations reflecting on how she struggled for the reproduction of one of the spears for a certain deity, she ordered the blacksmith never to produce any other copy for anyone. This implies that not all indigenous iron designs can be used in contemporary designs without harming the ethical standards of the Baganda community. They hold some design with high respect.

Sustainability as a contemporary concept plays a significant role in advocating for the appropriation and appreciation of indigenous ideas; ethical consumption of indigenous artifacts and their designs to meet societal design-based needs. The materials often used by indigenous artisans are eco-friendly and processed through traditional methods that are less dangerous and minimize environmental impact. Since most of the materials are not highly processed through capital-intensive technologies, their materials over time decompose and are reabsorbed by the natural ecosystem. In an interview with a blacksmith, he revealed:

“ These tools, over time they rust and some parts disappear in the soil. That's why we don't pierce them into the ground. This is important to keep them sharp and ready for use. For

long tools like spears, we provide them it a sharp bottom (Omuwnda) purposely to make them stand firm when pierced in the ground to avoid using the spear head”. (Participant Bs4)

Indigenous knowledge offers alternatives to expensive and scarce industrially manufactured, environmentally harmful products. As the global call to conserve the environment grows, indigenous artifacts are increasingly recognized and highly regarded as a substitute for their alignment with sustainable practices (Cunningham, 2018).

The adoption of using the indigenous iron artifacts is appreciated with mixed interpretations and the individual and societal levels. Nevertheless, indigenous designers are now incorporating modern elements into traditional designs, creating a distinct blend of the past and present. In countries like Canada and New Zealand, designers are integrating current fashion trends and technology into their work, all while preserving the cultural essence of their designs (Hokowhitu, 2015). This blending of styles signifies the evolving and enduring nature of indigenous design, which continues to thrive amid globalization.

Globalized markets have provided more avenues for the consumption of indigenous iron designs, from being mere objects for local audiences to the internationally multicultural audiences. This has created a new twist in their market status and interpretations as opposed to historical settings. As commodified objects, the artifacts were not easily consumed by outsiders but rather through controlled trade routes. Later, museums were established after the colonial collection of African indigenous artifacts. The museums with a Eurocentric lens of meaning making have endeavored to preserve and parade various collected artifacts from various indigenous communities, more so in Africa. The artifacts have been presented in museums for consumption by visitors from various

backgrounds. Most times, the exhibits are stripped of their original meanings and recontextualized as exotic, and most times referred to as primitive art (Phillips, 1998).

The study findings reveal the interplay of subjective analytics in cultural transformation, theoretical frameworks, value, and meanings, emanating from contemporary revival and reinterpretations of indigenous iron artifacts of the Baganda with creative design practice. Therefore, the study argues that modern and postmodern concepts intersect with the theoretical frameworks for this study to explain the phenomena under investigation. The philosophical perspectives (interpretivism and subjectivism), in which this study is positioned, interpretivism and subjectivism, have privileged local narratives, meanings, and creative agency in analysis, positing various philosophical positionalities.

Miller (2005) highlights that the embodiment of social values, ideologies, and worldviews by objects is a central argument of material culture theory. In the case of indigenous iron artifacts of the Baganda, designs of products such as spears, hammers, rattles, and others, their forms and use are embedded in political, spiritual, and cultural-social meanings. As observed in a broader section 4.2, they have served as mediators between the spiritual and physical worlds, indicators of status and hierarchy in society, as well as symbols of protection. Therefore, contemporary designers engage with the indigenous iron forms to incorporate them in their designs as cultural texts. With interpretation, for example, in the manipulation of spearheads and rattles as jewelry and sometimes as fabric decoration motifs, the designers highlight the indigenous iron artifacts' symbolic layers, not just their aesthetic and utilitarian aspects. This underscores the interpretivist stance that meanings are constructed by the maker and consumer (Geertz, 1973). Through a contemporary sculptural installation, the inspiration of the indigenous iron axe of the Baganda may represent

resilience for one artist and ancestral authority for another, implying that material culture is always in flux, never fixed (Clarke, 2018; Grossberg, 2002; Hall, 1972; Slack, 2006).

In the lens of articulation theory, Hall (1985) suggests that though cultural elements are not naturally connected, but can be re-articulated in new contexts. The engagement with designs for indigenous iron artifacts of the Baganda by contemporary designers is not simply intended for preserving them. they are disarticulating themselves to fit in fashion, product design and installation art a rearticulation divergent from their original indigenous rituals. The evidence of rearticulation is posited in how designers code the artifacts with new imposed meanings through incorporating their elements in modernistic art, such as pan African motifs, and post-modernist art forms such as multimedia concepts. For instance, a designer may use an indigenous blacksmith's chisel as an inspiration in developing a minimalist lamp design. The process renders double coding, facilitating communication fused with both culturally literate audiences and broader aesthetic consumers.

The politicality of articulation theory is observed in this study's interpretation, for instance, it allows resistance against cultural erasure by re-inscribing heritage into the global contemporary creative economy. And at the same time, supportive of the emergence of dissonant beauty through the valorization of the hybridized ideas from indigenous and contemporary as legitimate aesthetic choices rooted in heritage

Principally in the context of cultural innovation, the study observes the inspiration and process by which indigenous iron artifacts of the Baganda transform from their historical stance to contemporary relevance. Diffusion of innovations model, contemporary designers act as early adopters and change agents who recognize the hidden value in indigenous material culture and repackaging and repurpose it for broader audiences (Rogers 2003). Eclecticism and pluralism

facilitate the artifact's adoption, as key attributes of postmodern art; they are characterized by aesthetics and support the co-existence of divergent styles and meanings. These values downplay the stigma once associated as an incorporation with indigenous materials as primitive rather than positioning them as avant-garde, pioneering, expressive, and engraved in authentic cultural knowledge. In this design process, designers borrow from the indigenous iron artifacts, which can depict both cultural affirmation for the local audience and exotic-sustainable design for the global audience. Importantly, democratization of contemporary designs freely shares wider audiences through social media, regional exhibitions, and fostering collaborative studios concepts. This broadens access to these divergent interpretations, enabling consumers and creatives to engage with their heritage as both producers and interpreters.

From the subjectivist point of view, the meanings constructed for the indigenous iron artifacts of the Baganda through contemporary designs are not absolute, but rather they emanate from personal, cultural, and social-political engagements. Contemporary designers may see the indigenous artifacts as symbolizing resistance, ancestry commemorations, craftsmanship, and sometimes aesthetic minimalism, depending on one's positionality and contexts. An interpretivist lens underscores the above perspective through centering on the voices and intentions of designers and indigenous communities, treating cultural adoption as dialogue and co-creation rather than interpreting it as appropriation for exploitation. The symbolic interpretation of design for artifacts such as knives and rattles into fashion and interior design furnishings is not degradation but a transformation and creative act of resilience. This echoes a concept of creative destruction (Schumpeter, 1942), where cultural reinvention is attained through intentional disruption of older meanings.

Concern for Otherness dominant pivotal attribute of decolonial and post-colonial thoughts; technically forces designers not to exoticize and commodify indigenous productions. It demands critical reflection on authorship instead of ethical engagements, and further pushes for consideration of ownership, benefit sharing on the returns from the productions inspired by indigenous cultural ideas. Many contemporary projects involve collaborations with blacksmiths, elders, and cultural custodians to draw lived knowledge into the design production; consequently, irrespective of the appropriation process and adaptation. This resonates with Tilley et al (2006), a modern material culture scholar who claims that the power of artifacts lies not only in their design but also in their interactions. This is inspired by social relations through visual interpretations and the stories they carry. Therefore, adopting the indigenous iron artifacts of the Baganda into contemporary designs provides a means of cultural sustainability, one angle of preserving embedded knowledge through re-embodiment, stretching beyond efforts of musealization alone.

4.4 Extraction of embedded knowledge: Indigenous Iron artifact designs of the Baganda

The chapter section presents and discusses study findings in line with the third objective of the study, with the intent to extract embedded knowledge in the designs and production of indigenous iron artifacts of the Baganda in Uganda through analytical design drawings. The data drawn from fieldwork through interviews, observations from artifacts, and demonstration sessions organised by existing seasoned blacksmiths, and analytical design drawings are analysed through material culture theory (Miller, 1987) and adoption theory of (Rogers, 2003). The analysis and discussion are anchored with subjectivist and interpretivist philosophical grounding.

The study findings revealed that the realistic existence of indigenous iron artifacts of the Baganda goes beyond theoretical physicality and function. The artifacts embody layers of knowledge accumulated, adapted, and transmitted through generations; often unwritten, and reveal their

existence through the artifacts' material composition, forging techniques, symbolic meanings, functions, and aesthetic value. Understanding the manifestation of these layers was prudent for the appreciation of the broader design intellect, cultural, and technological philosophies of the Baganda. Therefore, this section is organized into three subsections such as Material preparation and forging techniques, Design conception and creative borrowing, and Aesthetic, ergonomic, and structural features of designs of the indigenous iron artifacts for the Baganda

4.4.1 Material preparation and forging techniques

The reconstruction process in Buddu was an important activity that provided the study with tangible tested, and proven information. In this demonstration process of presenting the indigenous skills and knowledge of the Baganda, designs, iron smelting, and forging techniques were unveiled. Only senior blacksmiths with many years of experience in iron working and wood carving guided the whole process, putting to the test their reflective experience. The information was important in the triangulation process, compared with data collected from interviews with other blacksmiths experienced in indigenous iron working knowledge. This was important in relating iron working concepts used in different countries in iron working processes.

The exploration process was interactive and well-coordinated; men, women, and children participated by playing different roles allocated to them by master blacksmiths. The extraction of iron ore, the mining of clay, and anthill soil was done by both men and women. Preparation of clay, mixing it with water, was done by both women and children; fetching water was done by women and children. Digging the pit, loading it with materials and building the furnace, and firing it was done by only men.



Figure 71: Ladies dressed in Barkcloth carrying water in the pot for forging activities
Source: Photograph taken by the researcher during fieldwork at Mulema Buddu county

Figure 72 presents ladies and a child dressed in the *Olubugo*, which was a commonly recognized indigenous attire for the Baganda. This fabric was commonly used by many in the activity by women and rappers, and men used it as tied knots in the clan ritual process of iron working, and other indigenous artifacts such as pots, mats, and clay bowls were used in the process.

Referring to the field findings, the practice of indigenous ironworks of the Baganda through which iron artifacts are produced has three major sections: smelting iron from iron ore, design ideation, and production of the artifacts from iron ore. However, though design ideation and forging were

done from the Smithy locally known as *Ssasa*, smelting of iron used to be carried out from different places of other community members and sometimes near the *Ssasa*.

4.4.1.1 From iron ore to iron; Material identification, mining and smelting

The process of identifying materials for iron smelting was one of the most important aspects of the entire indigenous production process. This activity called for joint efforts among community members. The smelter and the blacksmiths would identify the good material for the tusk, and the rest would do the part of mining the materials and transporting them to the final site where smelting is to be carried out. This resounds with the settings of other cultures, photographically evidenced in Figure 21 for the Native Iron Smelter of Kigezi, Southwestern Uganda, and Figure 22 for indigenous Iron smelting in Mali.

However in an interview with Bs 4, he highlighted the decision of on where to do smelting from is made basing on the size of the iron smelting projects and proximity of the required mated materials in the process of working; sometimes the *Ssasa* might be far away from the site where bulky materials are excavated or mined from this compels the smelters not labor with transporting materials to the *Ssasa* and set up smelting installations the *Kabiga* near where material deposits are discovered from. For the smaller smelting projects, materials were always transported to the *Kabiga* near the *Ssasa* was always used. This implies that, much as smelting of iron was a highly technical process in execution, it was not a preserve for the established *Ssasa* like forging. It could be mobile with no special established station sometimes, and this explains why there are scattered smelting sites in various areas of the study site, some close to the old settlement, some in the isolated hilly and forest areas.

The collection of iron ore was one of the most important, tiresome, and technical activities, and could be done in two ways. The first approach comprises locating, mining, and transporting iron ore blocks (Figure 73), and the second one, iron ore crystals collected from soil transported by running water. The blocks were identified and extracted from different places, such as hills and valleys, where they were identified by technical iron smelters or blacksmiths. Systematically, this activity highly depended on one's mastery of identifying iron ore's characteristics to avoid picking similar stones, which might not produce good concentrated iron. In an interview with Bs 2 and 1, they revealed that they based so much on the relative heaviness of the stone and its color. This implies that the indigenous knowledge in the process of identifying iron ore among the Baganda highly relied on one's experience in dealing with the materials; tacit and intuitive knowledge was employed.



Figure 72: Iron ore from Namumira Kyaggwe County (Upper stone) and Kabugenyi Hill (Lower stone) in Buddu County
Source: Photograph taken during fieldwork

In Figure 73, the presented iron ore was part of the material remains in the smelting process. The one extracted from Namumira was found near a hip of *Amasengere* (slags), identified by one of the respondents and a resident in the nearby settlement. The iron ore of Buddu was a remnant of the smelted iron ore, which was collected for the demonstration. Both stones are recognized by the iron smelter to be the repositories of much iron, close to percentage of 70. The weight and darkness would imply the amount of iron to be extracted from the Iron ore.

The study findings through interviews elaborate on the second approach of iron ore collection. It highlights that iron ore could also be collected from soils collected by moving waters from lake shores, river banks, and soils left behind by running waters during the rainy season. In the rain, soil erosion unearths the smaller particles of iron ore and transports them along with other soil minerals from the mountains and hilly areas to the lowland areas. There, the iron ore particles could easily be identified based on their dark-gray and purple colours. The blacksmiths and smelters collected them for iron extraction purposes. However, the process of collecting this kind of iron ore demanded a higher level of vigilance; experienced smelters and blacksmiths collected the substance and separated iron ore from sand and other material fragments by washing the composition using water. This approach of identifying iron particles in the soils transported by running water was also instrumental in locating large deposits of iron ore by following traces of running water

However, blacksmiths in Ssesse County brought up a divergent approach to searching and locating iron ore. They reflected on the role of gods in directing smelters where to find iron ore. Sometimes the deities would send guiding or commanding messages through dreams or visions. It was up to the blacksmith to locate the material from the physical world as envisioned in the dreamland. For example, Bs5 narrates how the way to Namumira to collect iron ore for smelting iron to be used

in forging a special spear of a deity called Nende. This reflects the fundamental role of the deities in contributing to the discovery and location of materials

After collecting iron ore, the process was followed by mining and preparation of other materials and installation for the smelting process. Materials consisted of clay, anthill soil, and charcoal. Clay was collected from communities with swamps and forests (Figure 74), while anthill soil was collected mostly from savanna grassland areas. These were activities done during mid-morning hours and evening hours, not at night, not afternoon, to avoid interfacing with radical wild animals.



Figure 73: One of the Mining sites where clay is extracted from at Mulema Buddu
Source: Author; photographs taken during fieldwork

The collection processes of clay and anthill soil were done carefully to ensure that the collected materials are not contaminated with sand. The blacksmiths explained that this was so because the process of smelting silica sand to make glass material is very similar to that of smelting iron ore to extract iron metal. Therefore, if the materials were not collected carefully to avoid the presence of sand in clay before the smelting process, the smelter would risk producing metals contaminated with glass substances. Such iron was regarded as low-quality material, and it would be hard for the blacksmith to use it to forge good artifacts.

The materials, clay and anthill soil, were important in the building of the *Kabiga*, known as a furnace where iron ore is smelted. On the *Kabiga*, the *Mivubo* and *Enkero*, whose purposes are to be explained later in this chapter section, are installed. Clay and anthill soil were mixed in a mud-like state, as ready pottery ball clay to be used for the creation of a structure of the *Kabiga*. When the researcher enquired why such materials were used in the building of the *Kabiga*, *Emivubo*, and *Enkero*, the blacksmiths responded that:

“Clay and until soil were selected because most time the smelters wanted to use the Kabiga for multiple smelting sessions. The combination of two materials could help in making a strong form once burnt to a terracotta level. This reflected the visible remains of ancient furnaces in some places, with historical smelting practices”. (Participant Bs1 and 3)

The above narration implies that smelting was not only considered a social activity but also an economic activity aimed at the sustainability of resources and profit maximization. This, in return, necessitated maximum recommended design and forming processes to minimize risks and losses; the choice of shape, thickness, and materials for the *Kabiga*.

After preparing the mixture of clay and anthill soil, they dug up a pit between 3.5 to 5 feet. After the *Emivubo* 3 to 5 and their *Enkero* were molded. The *Muvubo* were made in a bowl-like shape of 2 inches in thickness with round holes in the middle, amounting to a circumference of 1 foot. A side hole of approximately 2 inches was put in and gave a protruding pipe-like short hollow-shaft; important in transporting gusting air from the *Muvubo* to the *Enkero*. When the frames of *Mivubo* have dried completely, they are fired to biscuit ware state to harden them; they become water resistant and not easily cracked or broken. The top of the *Mivubo* frames are covered with a well-turned sheep skin and tied to cover the top. Sticks are connected to the sheep skin to contract the skin to gust air.

Enkero was another important component of the whole smelting installation. They were hollow shafts made like pipes. The hole was approximately two inches running through a round structure, which was five (5) feet. The *Enkero* were made longer to transport the wind to the *Kabiga* because the installation produces high temperatures. *Emivubo* were connected to the *Enkero* by pushing the short hollow shafts of *Omuwubo* into the funnel-like head of the *Enkero*. The *Enkero* were also taken through the firing process to turn their raw clay material into terracotta. The number of *Enkero* needed to be produced depended on the number of *Emivubo*, whose required numbers depended on the size of the *Kabiga*. Each *Muvubo* required one *Nkero* to have a complete set for transporting to the *Kabiga*.

The assembling of *Emivubo* with *Enkero* was based on the number of smelters. Each smelter operated two *Mivubo*, pumped using the attached sticks on the skin. The faster and consistent, the better. This implies that the possibility of effective extraction of iron from iron ore largely depended on rudimentary energy and the speed of the smelters. Therefore, powerful men were needed; the process survived on the strength and capabilities of these workers to sustain consistent pumping of *Enkero* to push air into the *Kabiga*. The aim was to produce high temperatures needed for the extraction of much iron from the iron ore residues as fast as possible, through this process, which was later followed by the skillfulness of blacksmiths to forge artefacts from iron. The more iron they had in stock, the more artifacts they could produce.

After the preparation of the *Emivubo* and *Enkero*, they brought papyrus material (*Ebinyuzi-byebitoogo*) and banana stem layers in big numbers and laid them down in the dug-up pit. Then they put in the iron ore. They used the prepared mud-like clay to make the *Kabiga*. However, the blacksmiths in Ssesse county affirmed that the *Kabiga* of the indigenous iron smelting in Buganda had no acclaimed standard size; the makers, based on the amount of collected iron ore, determine

which size to make. Contrary to this statement, the wall around the *Kabiga* was raised upwards to life size, five to seven feet vertically.



Figure 74: A prototype of The *Kabiga* in Mulema Smithy
Source: Photograph taken by the researcher during Fieldwork

Figure 75 presents a prototype of the *Kabiga*, which was first designed in collaboration with blacksmiths. After confirming the design through discussing its functionality, the design was blown up for real, scaled up in size, and made ready for use. The final *Kabiga* by scale received thicker walls to support its high soaring in space.

After building the *Kabiga*, cow dung was also collected to smear a final coat inside the furnace. The cow dung was used when it was still wet and applied to the leather-hard interior wall of *Kabiga*, using fingers and palms. This coat was important in stimulating firing during the smelting

process. This could lead to the creation of high temperatures, which were important in extracting iron from iron ore.

All the *Mivubo* (four in number) were fixed to separate chambers known as *Enkero*, connected to the *Kabiga*. They were tested to see whether they could push air into the *Kabiga*. Charcoal was laid on top of plant material at the bottom of the *Kabiga* on top of the charcoal, iron ore was added after being crushed and reduced in size to 2 inches, and after charcoal was added to almost fill the *Kabiga*. Fire was ignited from the top and sometimes from the lower chambers.

Charcoal for smelting iron ore was processed from burning specific trees: *Ennongo*, *Emisese*, *Emizzanvuma*, and *Mittampindi*. The trees were believed to produce the best charcoal, good for fire ignition and long-lasting. Firing the *Kabiga* is done at night- evening. However, the data from interviews with the blacksmiths of Ssesse contradict some steps of the arrangement. They asserted that charcoal is put on top after putting iron ore (*Amatale*) at the bottom, and they start the process of firing to smelt. This method was not put to the test as the one in Mulema since the identified experts were too old with not enough human labor to demonstrate the process.

The firing process is sustained with gusting wind in the *Kabiga* using *Emivubo*. The *Mivubo* are connected to the *Enkero*, which transports the wind into the *Kabiga*. The wind gusted in the *Kabiga* ignites the fire, which heats beyond one thousand degrees Celsius and melts the iron ores. The iron material in liquid form, called *Emyali*, is extracted and finds its way out in the lower chambers of the *Kabiga*. The *Amasengere*, literally known as Slags, remain inside the *Kabiga*; they are called *Amasengere* (Figure 76).



Figure 75: Iron slags collected from Mulema in Buddu (big slag) and Buggala islands, Ssesse (small slag)

Source: Photograph taken by the researcher during fieldwork

However, the blacksmiths from Ssesse had a divergent view from what was done by the blacksmiths in Buddu. In their information, they asserted that the iron ores could heat up and *Emyali* would be separated from *Amasengere*, and the *Emyali* from different iron ores would mix up and be held in the burnt papyrus, which is at the bottom of the pit in the *Kabiga*. Most times, smelting would take the whole night and end in the early morning. And then removing the extracted iron from the iron ore was the next stage, using wooden sticks. This implies that they were constructing a single-use *Kabiga*, which could not be used again after smelting and removing iron, in comparison to the Buddu's approach of multiple-use *Kabiga*.

The findings imply that there could be more different approaches to constructing and operating the *Kabiga* in the three counties, and this further reflects the differences in the establishment of indigenous iron working technology in the three counties. Therefore, the affirms the argument in the section regarding the advent of iron smelting in Buganda, which asserts that different counties might have experienced the beginning of iron from different sources. For example, the *Kabiga*, which was used in the demonstration session, is too similar to that of Bunyoro and Kigezi iron smelters in Figure 21, design-wise wise which suggests similarity in origin. However, the blacksmiths in Ssesse argued that some of the highlighted processes for Ssesse County are similar to those he saw when he visited Kiziba in Bukoba and Karagwe districts of Tanzania.

4.4.1.3 Forging techniques; *Okuweesa* and *Okuwanga*

Forging, locally known as *Okuweesa*, is a process through which the blacksmiths craft the intended design concepts for the iron artifacts. Iron material is transformed into functional and decorative objects. Forging is a technical job that is the preserve of skilled blacksmiths. In a single crafting of an artifact, one had to do right chiseling, punching, inlaying, scoring, raising, wrapping, engraving, chasing, embossing, and other techniques. These are incorporated in the skills and knowledge required for a blacksmith with the experience of so many years to create functional, symbolic, and aesthetic artifacts. The experience was important in material selection, mixing, manipulation, and application in the forging process.

Whereas this forging in this study is on iron working, the indigenous blacksmiths also worked in other materials (though they are not the focus of this study). Forging of iron tools was a springboard for the blacksmiths in Buganda to attain items they could take to other societies to get other materials they could not easily access. The blacksmiths from Buganda did not have metals like copper and brass, but they used to access them from one of Bunyoro's territories, the present-day

Kasese district, currently one of the territories of *Obusinga bwa Rwenzururu* Kingdom, and sometimes from the Karagwe people of the current Tanzania before their annexation to Buganda through conquest. From these materials, the blacksmiths used to mix them with iron components and design special bangles, *Empitaanya* and *Enga'ga*, which they embellished with bird feathers. But after the conquest of Buddu, which stretched to Kalagwe, Buganda acquired blacksmiths who were skilled in using copper and brass. They brought the metals to Buganda in plenty, and some designs were transformed from iron into these materials for meaning-making.

As a practice following iron smelting, forging takes over after the extracted iron is taken in the established smithies with relevant tools, as reflected in section 4.3.2, where the settings in the smithies are elucidated. The iron was processed by the blacksmiths and sometimes bought from different skilled smelters and merchants who dealt in trading it. The traders used to have established networks within the circles of blacksmiths, receiving orders to be delivered to different smithies.

After smelting, *Emyali* was taken to the smithy and then reheated again to higher temperatures (turning reddish). The reheating was intended to make them ready for shaping and dissection. The reheated *Emyali* is later put on a special stone called *Oluyijja*. Then *Ensinjo* is used to cut the iron into small, sizable pieces. These pieces were cut depending on the intended designs that are to be produced. The special stones called *Omuyindu* were used to heat the iron pieces to get *Emisinga* which are longer in structure.

The process of making *Emisinga* highly depended on the preconceived design of the artifacts to be crafted. The blacksmith had to use generic shapes that may be easily heated to bring out the required structure, thickness, length, and width of the design. The process could also be handled

by mid-career apprentices under the watch of their master, and this could serve as the process of attaining master skills in forging highlighted in the first paragraph of this section above.

From *Emisinga*, the prepared metal pieces as material were used to produce whatever iron artifact the blacksmith wanted for different purposes. The artifacts included *Enyondo* (Hammers), *Amafumu* (Spear), *Enkumbi* (Hoes), *Emyambe* (big Knives for the men), *Obwambe* (Small Knives for the women) for food preparations, *Empiso* (Needles), *Enkato*, *Emiwunda* for the lower part of the spears, *Obusaale* (Arrows) for hunting, *Ensamba zomungalo* which were worn for hygiene and symbolizing the ranks of Kabaka's men in terms of their organizations they were leading, *Ensamba* for the legs, *Emisagga* for the hands, *Enyonjo* for the Kabaka's crown, *Amassira*, *Emijugo*, Ankers for the neck, *Endege* (Rattles), *Ebide* (bells), *Engabo* (Shields) for the graves of the deceased kings and regalia for deities, *Ensinjo* (Chisels), *Embazzi* (Axes) and *Emiwolo*. However, some of the above-mentioned artifacts are not known by some blacksmiths. This is an implication of the loss of knowledge in the production of some iron artifact designs of the Baganda. In the interviews with the blacksmiths, some of them affirmed that:

"I have produced most of the historical Baganda iron designs, except for a few of those which are part of the Kabaka's regalia, Enkampa and Emisagga. Because some of the artifacts were preserved for some clans in terms of the right of production for the Kabaka. I have also manipulated ideas from other cultures around the world". (Participant Bs1)

"...only seen and reproduced designs of historical iron items of the Baganda and the Banyoro, and those ordered by the gods and common people, but not Emisagga, Enyonjo, and others for the Kabaka's palace. However, if I see their designs, I have the forging skills that reproduce them". (Participant Bs2)

“Most of the blacksmiths we have today cannot produce all those items because some of the artifacts became extinct with no copies left behind. Some artifacts were destroyed during the insurgencies Uganda has gone through, and some metals were destroyed by the blacksmiths themselves through reusing them to forge other iron forms, which were in high demand. This is most times caused by a lack of iron as the main material for production”.

(Participant Bs3)

The study findings imply that, partially, the knowledge regarding the appearance and forging of some designs ceased to be known since the insurgencies reflected in section 4.3.1 of this chapter resulted in the displacement of people, destruction of property, and life. This, in return, created knowledge loss, a gap that still had to be filled in contemporary times. Secondly, the findings further imply that clan systems reserved some knowledge, stopping it from being known to the general fraternity of blacksmiths, reflecting specialisation, pride, and clan-based heritage. This, however, makes some knowledge reserved for some people within the same society, hence controlling its production and supply to only authorized members of the community. Thirdly, the respondents reveal the reincarnation of the designs through recycling of their materials due to their possibility to be reprocessed and repurposed, sometimes referred to as recycling, one of the ways through which blacksmiths used to collect materials in the forging process.

The settings in the *Ssasa* were determined by what is in the program of the period for the blacksmith to work on. As places with set systems for manufacturing orders from various clients that keep on coming, their arrangements kept on changing to fit the working process at a time; they determined which tools and materials to set, and put them close for use. The settings may differ from one *Ssasa* to another, based on the interests of the blacksmiths. However, some key installations remain permanent based on their common purpose in the forging process,

complications in setting, and agency. For example; the smaller *Kabiga* for and the *Ekyoto* literally translates to fire place for pre heating are normally set between the center and the boundary of the established structure for the *Ssasa*: There is a corner for the *Emisinga*, *Emyali* and other iron artifacts to be recycled: The fire place is always accompanied by *Entabyo* and sometimes they use *Entamu* both of these were pottery artifacts whose main role is to keep water used in regulating the heat of fire and metal during forging process: *Oluyijja* is not put far away from *Ekyoto* since the blacksmith keeps on using it to shape pre heated metal: A store for the finished products and materials not yet to be used is always set and also used to keep some unique artifacts for special clients like the Kabaka, chiefs and deities: there is also a corner where newly common finished artifacts are displayed for sale: outside the *Ssasa* a fire place of Nansasi a goddess who protects the blacksmith is set_ sometimes used for cooking food.

The resemblances in organization of *Amasasa*, literally translating to forging spaces, imply that indigenous iron working among the Baganda was highly standardized and considered to be a professional job. Whereas it was a practice that could be open to the incorporation of new creative ideas, the blacksmiths, through apprenticeship, had to first receive basic training since the loftiness and ideality in their learning was based on conditioning and crafting similar artifacts from the same materials. This established the robustness in the technological processes and systems in the indigenous iron working for the artifact design production; materials selection, mixing, manipulation, and application

4.4.2 Design conception and creative borrowing

Through interviews and observations, it became apparent that the indigenous iron designs originate from a combination of factors, including the indigenization through adaptation of traditional practices, acculturation, which incorporated influences from other cultures, feedback from the

community, spiritual inspiration, and the inherent creativity of the blacksmiths themselves. However, through interviews and object-centered analysis from observation, this study suggests two possibilities for the inspiration of designs for the indigenous iron artifact of the Baganda. The first possibility was internal inspirations drawn from the environment and spiritual realm, and the second derived from creative borrowing, a concept coined during a supervision of data analysis and discussion with Dr. Senoga²². This implies that the origins of designs for indigenous iron artifacts are diverse and varied, with no singular source. All blacksmiths acknowledged that the iron artifacts produced by the Baganda people come from divergent influences and inspirations. This diversity can be attributed to the unique dynamism and creative aspirations blacksmiths embody during ideations and forging.

Furthermore, in line with the two inspiration possibilities highlighted above led to the establishment of hundreds of designs forming a variety of indigenous iron artifacts of the Baganda, enriching iron working as a practice. The study findings from interviews with the blacksmiths and observations from the visited *Massasa*, which translates to smithies, highlight that various indigenous iron designs are not known to many Baganda, more so in the category of users. This is attributed to the purposes of those designs; some of them are for special, secretive rituals, others have political and spiritual attributions, which makes them not available for everyone; they must be protected and reserved for the right users. Some of the blacksmiths, when they were asked to list the designs of iron tools that they produced, replied that;

²² Dr. Maureen Muwanga Senoga is one of the supervisors of this project as well as a senior lecturer at Kyambogo University, School of Art and Industrial Design. She has several publications of indigenous art and museum studies.

“...that is a hard question to answer. There are hundreds of designs of indigenous iron artifacts of the Baganda, some we have made, some we have seen, and others we have heard about but have not seen. Many of the designs had faced extinction due to various political and social reasons, but the gods resurrected them through pressing demand on the Bazukulu (grandchildren) to provide them in their shrines”. (Participant Bs1,2 and three)

This implies that, much as indigenous shrines of ancestral worship have been minimally appreciated in contemporary times, they still provide safe custody of indigenous ideas, including artifacts. The reflections from such places provided part of the relevant information for this section, which was triangulated with that from the *Massasa* and the blacksmiths. For example, most designs that were declared by blacksmiths to have been borrowed from Bunyoro, the divine healers also identified them as deities with the connection of origin to Bunyoro, irrespective of their being worshiped by the Buganda. This reaffirms the concept of creative borrowing for the inspiration of indigenous iron artifact designs. Therefore, in this section, the two possibilities of design inspiration are to be discussed in reflection to study findings. Irrespective of the variety of indigenous iron artifact designs which some are not known to many Baganda, for clarity, this study will use selected common artifacts to buttress examples in the elaboration of ideas.

4.4.2.1 Creative borrowing

Creative borrowing, a concept for design inspirations, is derived from taking elements of existing works and reflectively utilizing those to produce something new, sometimes referred to as original (Peters, 2016). Irrespective of considering the originality in the newly developed product, the crucial part of the creative process made it possible for the blacksmith to build on existing ideas and generate unique concepts from other cultures. The key aspects of the borrowed ideas can still

be traced from the inspirations, irrespective of the reflection of originality in the artifacts of the Baganda. They ensured that the final design looks significantly different from the source while still acknowledging the influence

Field findings reveal that the rise and establishment of the Buganda Kingdom laid a richer ground for the nurturing of creative borrowing of the Baganda blacksmiths from other cultures. Considering the process of its formation, Buganda was established through three primary methods: conquest, integration of willing new groups, and collaboration with neighboring states, as reflected in chapter two of this study (Figure 22). The mode of establishment resulted in a culture with a heterogeneous nature. The Baganda embraced a range of cultural influences, making the kingdom a melting pot of different traditions by indigenizing and incorporating ideas from various neighboring tribes and foreign entities. The Baganda culture became a mosaic of cultural diversity, enriching its heritage and identity, part of which was reflected in their indigenous iron artifact designs.

Some concepts were borrowed from other cultures, such as Bunyoro, and then adapted to fit in with the local indigenous cultures. This process of indigenization as an agent of creative borrowing involved integrating foreign beliefs, practices, and ideas into the existing culture. In an interview with the blacksmiths, they affirmed that the integration was particularly prominent in the periods when the Baganda were expanding their territory by conquering regions like Buddu, Kiziba, Kooki, Ssinga, and annexing Mawogola_ as a gift from Obugabe bwa Ankole (Ankole Kingdom) after the Baganda helped the Banyankole in repulsing the invasion of the Rwanda Kingdom. Instead of displacing the people in these areas, they got assimilated into the Baganda culture, incorporating and adapting their ideas along the way.

The Baganda exerted a strong emphasis on localizing various art forms from other cultures to better align them with the needs and values of their society. This practice was also common in other aspects of life, such as religion, politics, education, and technology, a practice that is still utilized in contemporary times. Various examples can be drawn in different aspects of the Baganda life; western technology was modified to suit the specific indigenous needs of the Baganda, foreign religions got integrated with indigenous symbols, and the use of instruments like Ganda drums (*Enyoma*) in church. This reflects the flexibility in the Baganda culture to acculturate and enculturate new ideas into their culture. Therefore, this laid a foundation for developing the indigenous iron working of the Baganda through borrowing from other cultures, which is reflected in their designs of iron artifacts.

During an interview with blacksmiths, they were asked how they distinguished between designs of iron artifacts made belonging to the Baganda and those for the Banyoro, given that the knowledge from Bunyoro had influenced ironworking in Buganda. In response, they explained that though the indigenization process had resulted in a unique blend of influences, making it difficult to identify the origins of various artifacts in ironworks, it is still possible. A participant in the Blacksmiths category, when interviewed, asserted that:

“Most designs of iron artifacts of the Banyoro have twisted necks (Obunyoole) close to their handles, and those of the Baganda are straight. There is no way you can confuse the two. We, the blacksmiths, know and we can also help our customers to take the exact product depending on his or her culture if the purpose is revealed”. (Participant Bs 3)

The above declaration was supported by the data from observations, obtained from an analysis made on various designs of the artifacts that were displayed in the store. These artifacts encompassed a variety of similar features but with distinct markings, providing insight into the

cultural influences that inspired them. The analysis also involved a detailed observation of two specific exhibits depicted in Figure 77.



Figure 76: The Ganda and the Nyoro spears
Source: Photograph taken during fieldwork

Figure 78 displays the varying features of two spears, one (a) belonging to the Bunyoro culture and the other (b) to the Baganda tribe, as explained by the blacksmiths. The neck of spear **a** differs from that of spear **b**, a distinction that is consistent among all other spears and artifacts examined. While both spears can serve the same practical purposes, such as security, hunting, and decoration for the Baganda, the spear from Bunyoro is not utilized in important cultural ceremonies specific to the Baganda tribe, such as the coronation of the king, the performance last funeral rites, and as offerings to Baganda deities.

The findings further reaffirm the possibility of creative borrowing in the indigenous iron artifacts of the Baganda through a reflection briefly highlighted in section 4.2.4 of this chapter. The blacksmith reminded me of *Kalemera Omutikiza Nkumbi*. The story highlights the possibility of how some of the iron forms, such as hoes, were borrowed from Bunyoro. This is reflected in the legend of Prince Kalemeera, who came with some hoes to sell them to the Baganda and pay the fine, but unfortunately, he died while on his way back to Buganda. As a prince who was next in line to become the next king after Chwa Nabaka, he was nicknamed *Kalemera omutikkiza nkumbi*, literary meaning. Because all rituals associated with the Baganda kings and princes, spears were used as regalia, but for Kalemera's situation, there was no spear; His company only had hoes (Enkumbi). This poses a possibility of many similar stories of Baganda going to Bunyoro and other iron-working Kingdoms to work and access iron tools, which they could sell upon their return, and later inspired the design of iron artifacts in Buganda.

Acculturation as a conduit of creative borrowing provided the Baganda people with an opportunity to embrace and incorporate elements from other cultures through interactions, while still holding onto certain aspects of their original culture. This process involved the exchange and blending of cultural characteristics from multiple cultures, which was often the result of human movements such as migration, trading, colonization, and globalization. For instance, some immigrants chose to adopt the Luganda language and the clothing style of Buganda, while continuing to practice to indigenous technology, food, and religious customs from their native land, which in turn enculturated them in Baganda culture.

Some design ideas were selected from the general public, as most of their smithies were located near the roadside. This practice is reminiscent of the Luganda proverb '*Omuweesi ekimuzimbya kukubo Kulagiriwa*', which translates to a blacksmith setting up a smithy near the road to seek

advice from strangers passing by. These strangers may have been looking for items or simply engaging in conversations with the blacksmiths on their way to their destinations. As a result, the blacksmiths were able to gather new ideas and feedback from various individuals, which could be valuable in enhancing their work. These ideas were often influenced by the needs of the people they interacted with.

In an interview with blacksmiths in Ssesse County, regarding the inspiration for indigenous designs, he recited a proverb which further highlighted the influence of creative borrowing, which goes *Omuweesi ekyamuzimbya ku kubo, kulagirirwa*, which translates to why blacksmiths establish their smithy near the road, was to attain guidance. The Blacksmiths added that the inspiration behind the Baganda indigenous designs of iron artifacts sometimes makes them blend ideas neither purely owned by the maker nor the contributor in terms of ideas. This highlights the role of community feedback in his creative process. This demonstrates the collaborative nature of iron working, where input from different sources contributes to the evolution and improvement of their craft. By engaging with a diverse range of individuals, the blacksmiths were able to refine their techniques and produce more innovative and effective designs. The exchange of ideas and feedback with members of the community not only enriched their work but also strengthened their relationships with their clients.

The practice of setting up smithies near the road allowed the blacksmiths to benefit from the perspectives and suggestions of strangers, who often provided fresh insights and critiques on their works. By being open to feedback and incorporating new ideas into their designs, the blacksmiths were able to stay relevant and meet the changing needs of their customers. This willingness to adapt and learn from others contributed to the longevity and success of their craft, creating a sense of connection and shared knowledge within the community. The blacksmiths' smithies became

hubs of creativity and collaboration, where ideas were freely exchanged and innovation flourished. In an interview I had with the blacksmiths in Buddu County, one of the interviewed blacksmiths, when asked about the source of his designs, narrated:

“Sometimes, the blacksmith, based on what the client needed [...], the client could come and explain what artifact he or she exactly needed; the shape, the decorations, and the size. This is so because he who makes the order for the iron product knows what they want to use it for. Don’t you remember that lady who came yesterday? She simply wanted a smaller spear for their deity, Ndahura. She travelled from Mbarara. She simply explained the features of the exact design she wanted, and we made it”. (Participant Bs4)

The designs may have been romanticized by individuals who were unfamiliar with the craft, and if the blacksmith approved, he would create a replica. This replica could then be purchased by others who needed a similar item, and after being indigenized and made part of oral traditions. At times, the concept would be adopted by later generations of blacksmiths, who may not know the significance of certain features but continued to produce them due to their ancestral legacy and demand. This helps to clarify why some blacksmiths could not fully comprehend the reasons behind some of their creations; some struggled to explain the symbolism of the iron artifacts they either owned or crafted.

4.4.2.2 Environment, spiritual realm, and leadership

The environment was a great source of ideas for the iron workers, right away from the identification of materials, smelting, and forging. Its purpose is to extend to the level of inspiring the designs to be crafted. Study findings from the interviews with the blacksmiths underline the imitation of natural structure in iron artifact designs. Driven the functionality of the intended object to be forged; leaves, bird, and animal horns would be important in guiding the conception of ideas;

amidst discussions, guiding apprentices, and sometimes communication with the client_ trying to describe the form to produce.

From the environment as a pool of reference, many spears have a lot in common with leaves, such as the flatness, structure, and spines, which resemble the midrib of the leaf, and the stock transforms into *Ekijugo* translates to the socket, where the wooden shaft is fixed. In an interview with the Bs 5 he asserted that to them, Mother Nature is in everything through the trees and animals, the deities communicate to us and give us direction; the names of the crops and features of animals are always used as descriptions of what they want through dream-like messages.

Other blacksmiths affirmed that the gods also played a vital role in the conceptualization of design for iron artefacts. They would communicate various ideas and guide how these artefacts should be crafted. Deities such as Kiwanuka, Mukasa, Nalubowa, and Muwanga were known to communicate these messages to the blacksmiths who sought their favors, which most time comprised assistance in outsourcing materials for production, productive smelting, and blessings for economic prosperity through selling their crafts. Occasionally, the deities would give instructions to the blacksmiths through dreams, offering insights on the desired design aesthetic components. This phenomenon was revealed by the blacksmiths in Buddu, shedding light on the mystical connection between the gods and craftsmanship:

“ In our family, the gods come to us in dreamlike vision, directing us to the different sites where we can find the iron ores and other related metals to make for them regalia which should be given to their Bazzukulu (referring to the Baganda who practice the indigenous religion). The Bazzukulu normally take these iron tools to the shrines dedicated to these gods as gifts for appeasement purposes. They are most times sent by the divine healers and sometimes by the gods themselves ”. (Participants Bs4)

The observational data highlighted the distinct designs attributed to various gods, with differences in terms of colours, shapes, and decorative techniques used. These designs were meticulously crafted and showcased in smithies alongside hundreds of iron artefacts. Some of these artefacts were specially commissioned by the gods themselves, while others were crafted by dealers intending to make a living through the iron trade. Despite the reverence with which the gods were held and the construction of shrines near their homesteads and smithies, the storage of their items did not necessarily indicate an acknowledgment of the items as belonging to superior beings. This raises the question of whether the blacksmiths' respect was accorded to the gods themselves rather than their artifacts dedicated to them.

The leadership of the kingdom was another contributing factor in ideating and establishing designs. The *Kabakas*, referring to Kings in plural, *Abalangira* (Princess) and *Abambejja* (Princesses), driven by a desire to communicate and to have unique artifacts to commission unique iron artifacts for their interests. For example, in an interview with the blacksmiths, they affirmed that it was *Omumbejja Nkinzi* who came up with the design of the knife. She wanted to have it for food preparation; that's what its name *Akambejja* reflects, her title of *Omumbejja*, which derives from a short form of *Akambe*, literally translates to a knife. Due to the frequent borrowing of her knife, she allowed the place's blacksmiths to make more copies for others.

Like *Omumbejja Nkinzi*, the *Kabakas* also commissioned the designing of different iron artifacts to comprehend their communication, might, identity, symbolism, and aesthetic augmentation. These regalia were dominated by spears whose designs were superseding the common purpose of the spear, which is warfare and hunting. Some of these spears were just symbolic, reflecting the divergent character of the *Kabaka*. Some were carried during war to reaffirm the commandship of the *Kabaka*, some would symbolize peace, others his mightiness. Some had curved crow-like

heads (Figure 79 spear a), others resembled the common spears inspired by leaves, but with special and additional decorations (Figure 78 spear b)

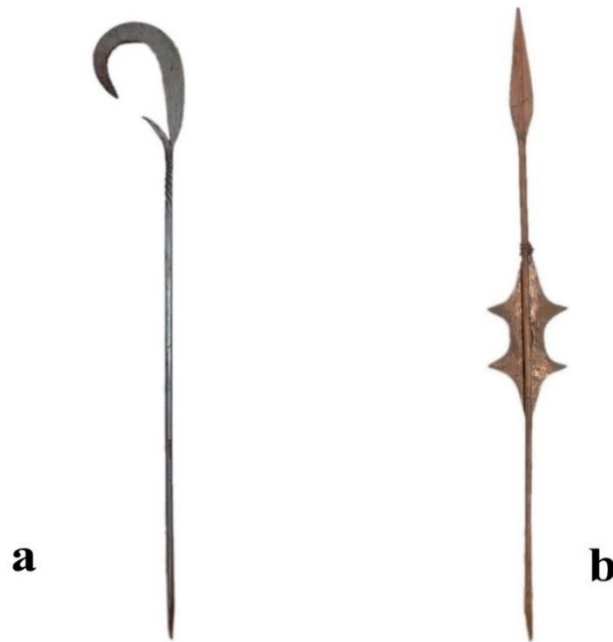


Figure 77: Spears of Kabaka Mwanga (a) and Kabaka Mutesa 1
Source: Photograph taken during fieldwork

4.4.3 Structural features; manifestation of aesthetic and functional value

This section of the chapter presents and discusses findings from interviews, observation, and studious explorations regarding the structural features of indigenous iron artifacts, designs of the Baganda, and how aesthetics and functional value emerge. Through analytical design drawings extracted from a collection of selected surviving artifacts such as *Enkumbi*, *Omuwolo*, *Akambe*, *Omwambe oguyimbula emituba*, *Olukato*, *Effumu*, *Emuwunda*, *Aksaale*, *Embazzi*, *Ekiwabyo*, *Endege*, and *Enyondo*. The study interprets and discusses the findings using material culture theory and articulation theory, all framed within a subjective and interpretive philosophical paradigm

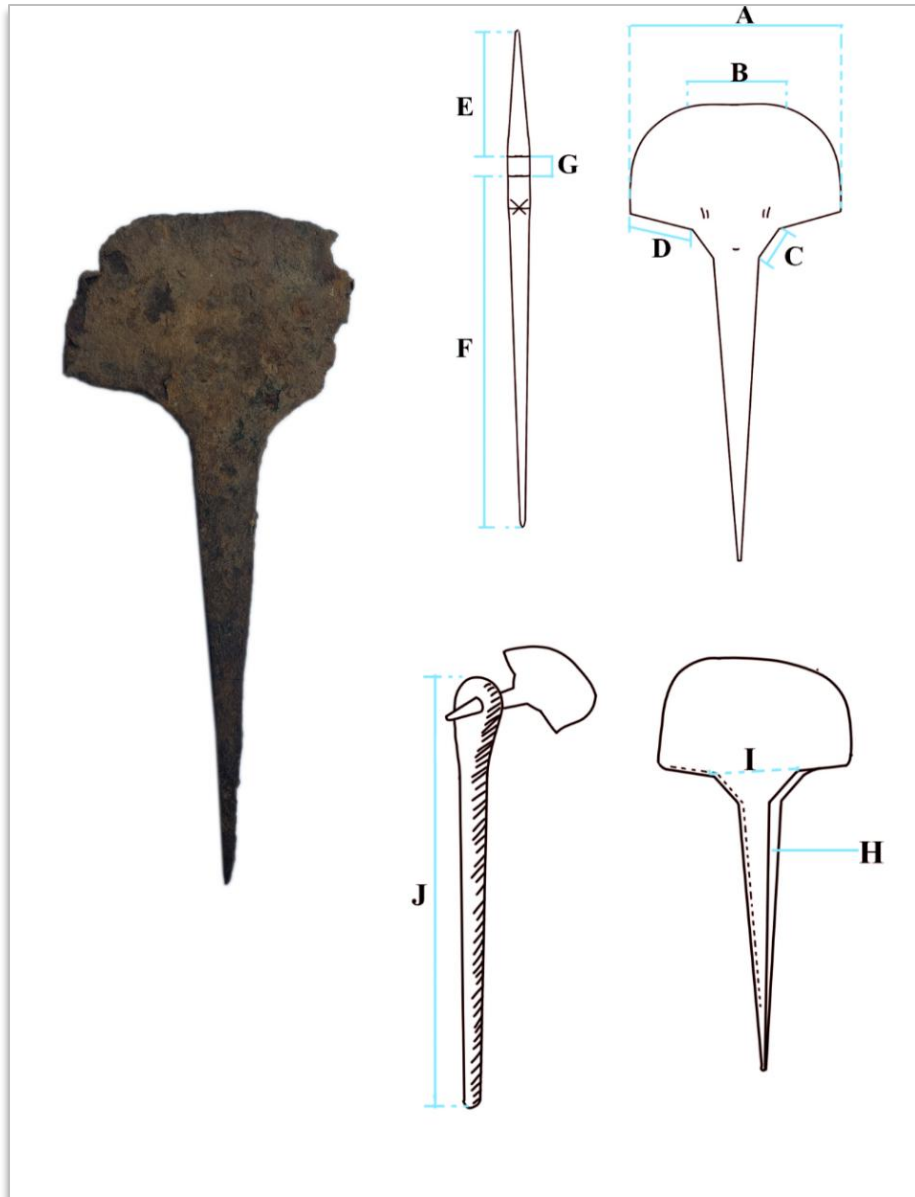


Figure 78: Enkumbi (Hoe)
Source: Studio exploration by the Researcher
County of collection: Buddu

From the artifact design in Figure 79, dimensions were extracted as follows: A=200mm, B=100mm, C=25mm, D=60mm, E=170mm, F=340mm, G=25mm, H=5mm, I=85mm, and J=950mm. The artifact is attached to a non-metallic material, a wooden shaft (Section J), to augment its functionality.

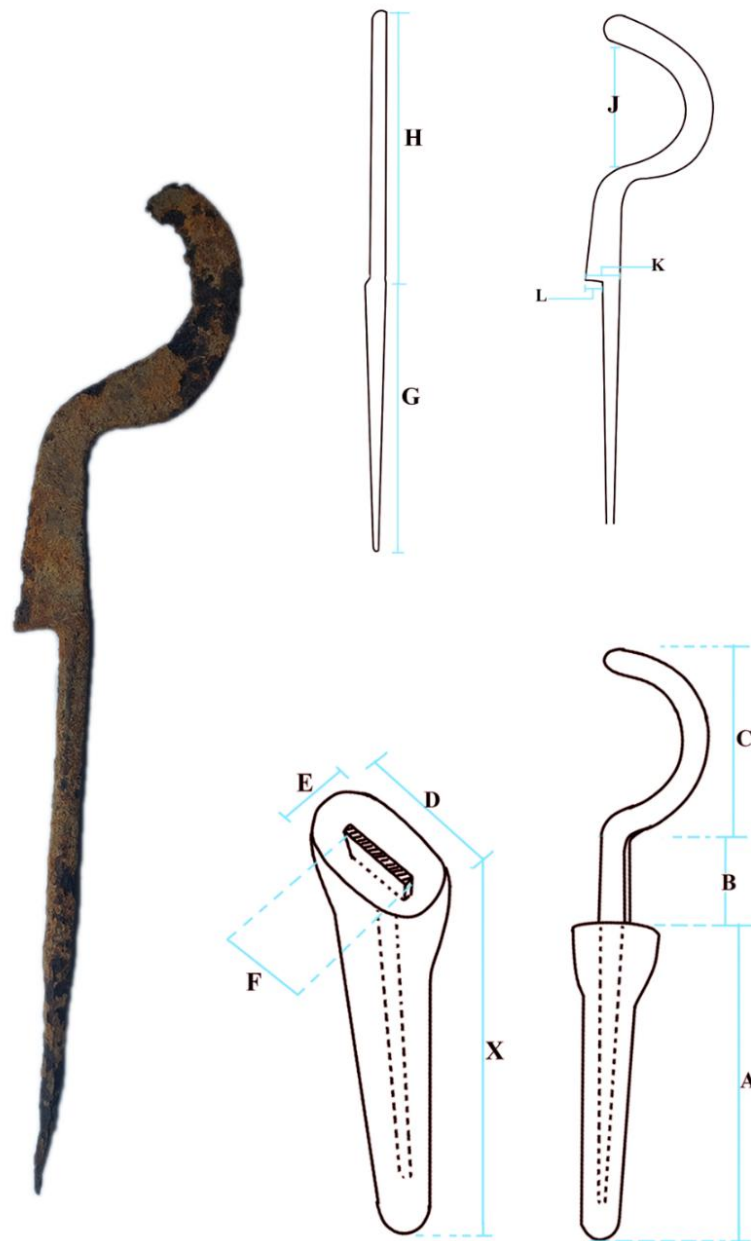


Figure 79: Omuwolo (panger)

Source: Studio exploration by the Researcher

County of collection: Ssesse

From the artifact design in Figure 80, dimensions were extracted as follows: A= 200mm, B=110mm, C=200mm, D=45mm, E=30mm, G=175mm, H=310 (C+B), J=155mm, K=30mm, L=15mm. The artifact is attached to a non-metallic material, a wooden shaft (Section A), to augment its functionality.

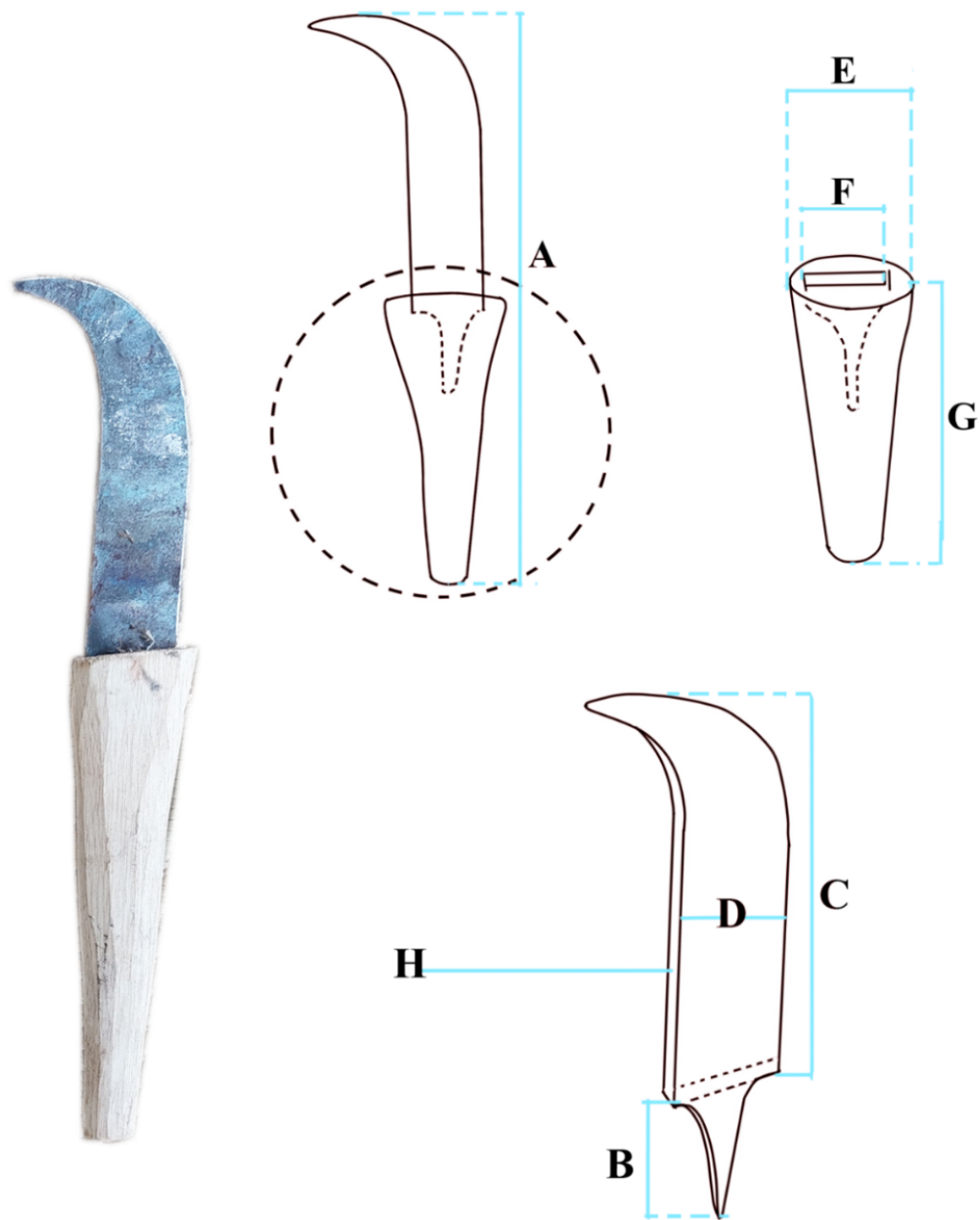


Figure 80: Akambe (Knife)
Source: Studio exploration by the Researcher
County of collection: Kyaggwe

From the artifact design in Figure 81, dimensions were extracted as follows: A=340mm, B=40mm, C=160, D=40mm, E=60mm, F=45mm, G=1800, and H=2mm. The artifact is attached to a non-metallic material, a wooden shaft (Section G), to augment its functionality.

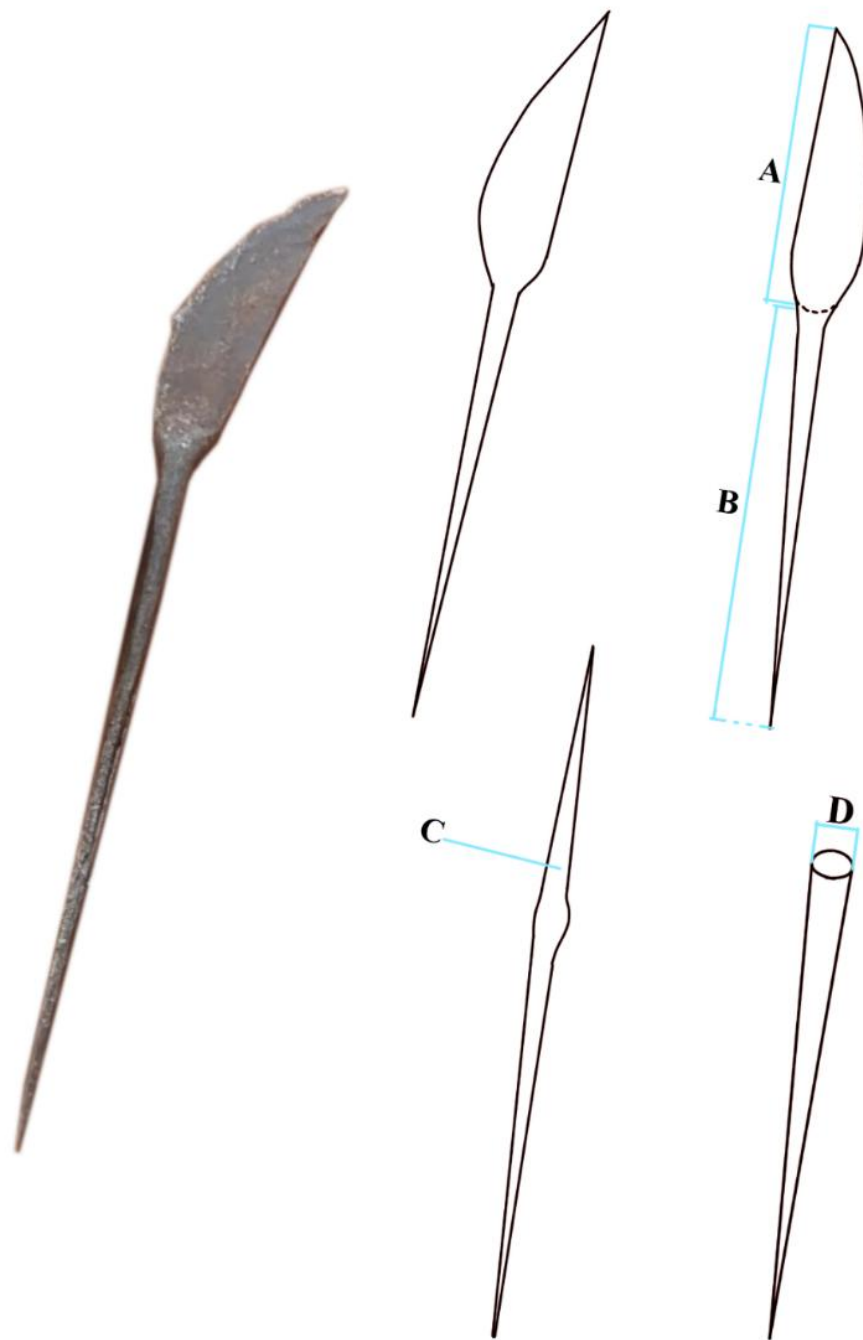


Figure 81: Olukato

Source: Studio exploration by the Researcher
County of collection: Kyaggwe

From the artifact design in Figure 82, dimensions were extracted as follows: A=48mm, B=112mm, C=2mm, and D=3.5mm

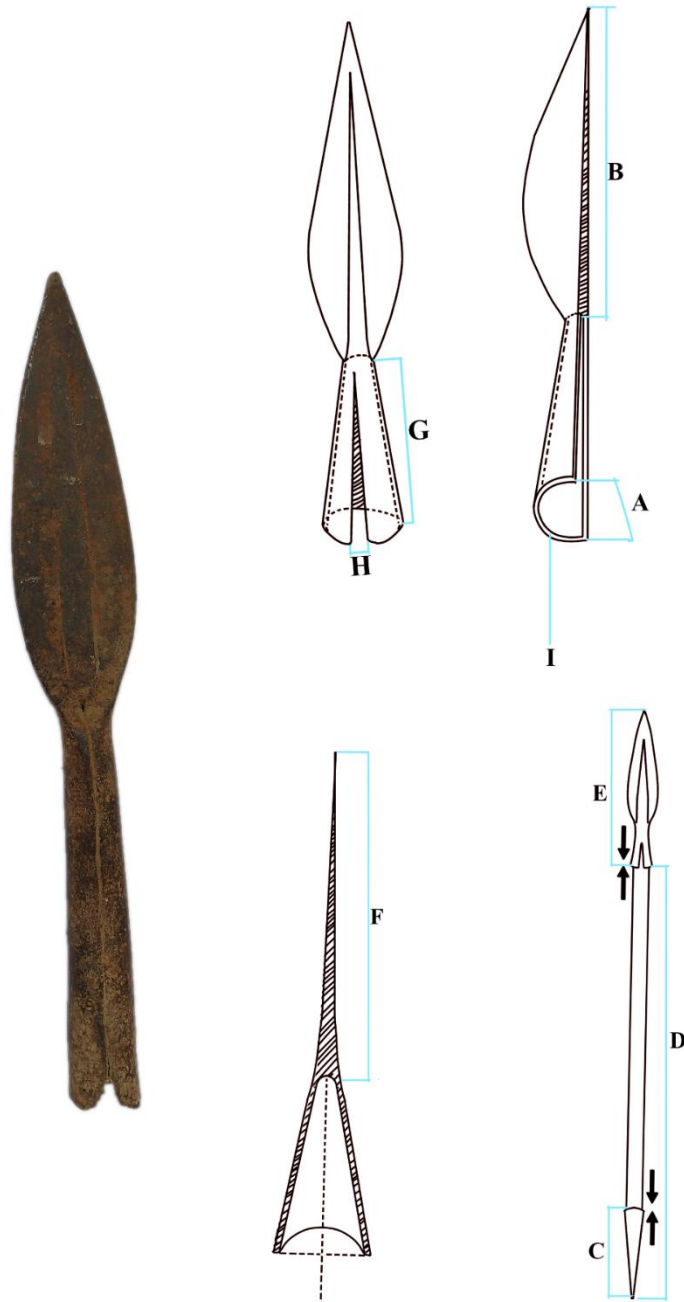


Figure 82: Effumu (Spear)
Source: Studio exploration by the Researcher
County of collection: Buddu

From the artifact design in Figure 83, dimensions were extracted as follows: A=30mm, B=180mm, C=144mm, D=1800mm, E=324mm (B+G), F=160mm, G=144mm, H=10mm, and

I=2mm. The artifact is attached to a non-metallic material, a wooden shaft (Section D), to augment its functionality.

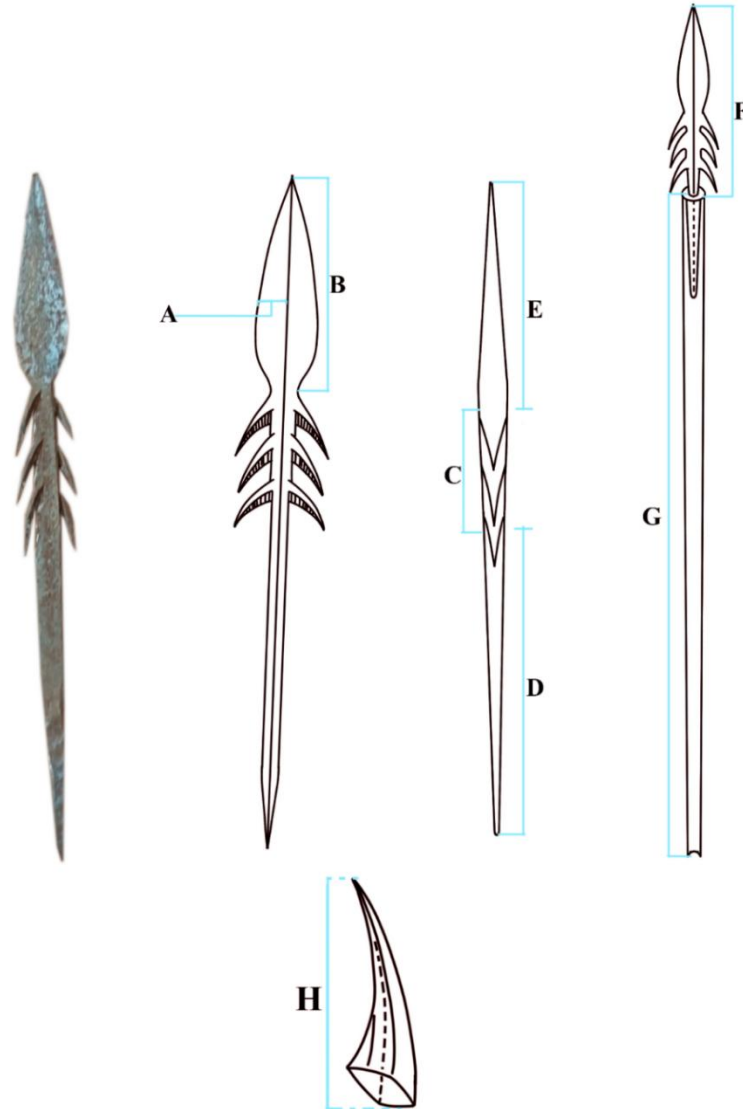


Figure 83: Akasaale (An arrow head)
Source: Studio exploration by the Researcher
County of collection: Kyaggwe

From the artifact design in Figure 84, dimensions were extracted as follows: A=15mm, B=70 mm, C=37mm, D=105mm, E=58mm, F=107(B+C), G=530mm, and H=25mm. The artifact is attached to a non-metallic material, a wooden shaft (Section D), to augment its functionality.

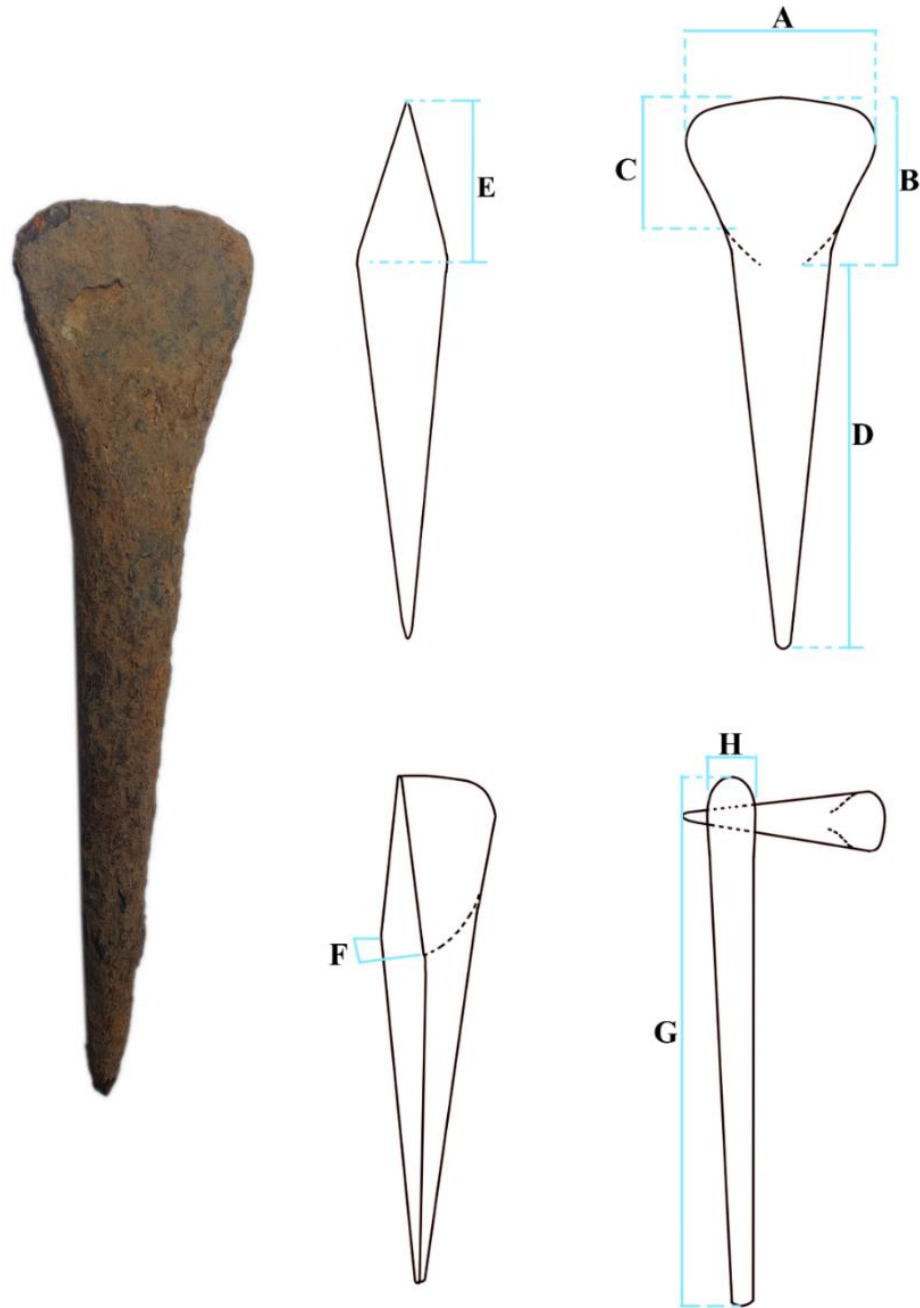


Figure 84: Embazzi (Axe)
Source: Studio exploration by the Researcher
County of collection: Buddu

From the artifact design in Figure 85, dimensions were extracted as follows: A=90mm, B=90mm, C=65mm, D=230mm, E=90mm, F=45mm, G=750mm, and H=80mm. The artifact is attached to a non-metallic material, a wooden shaft (Section G), to augment its functionality.

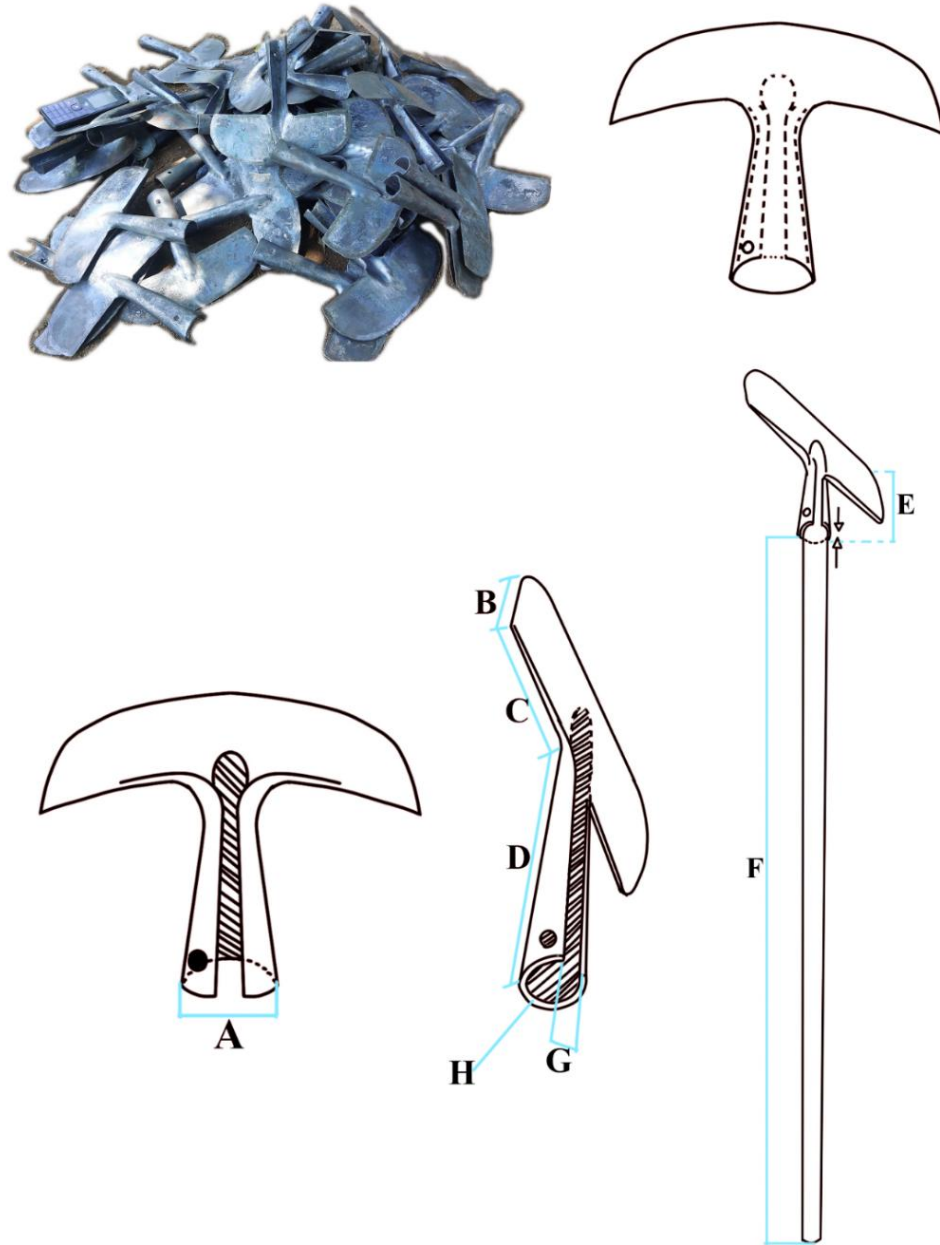


Figure 85: Ebiwabyo
Source: Studio exploration by the Researcher
County of collection: Buddu

From the artifact design in Figure 86, dimensions were extracted as follows: A= 45 mm, B = 83.3 mm, C = 124 mm, D= 166.6mm, E = 249 mm, F = 2100 mm, G = 25 mm, and H = 2.4 mm. The artifact is attached to a non-metallic material, a wooden shaft (Section F) to augment its functionality.

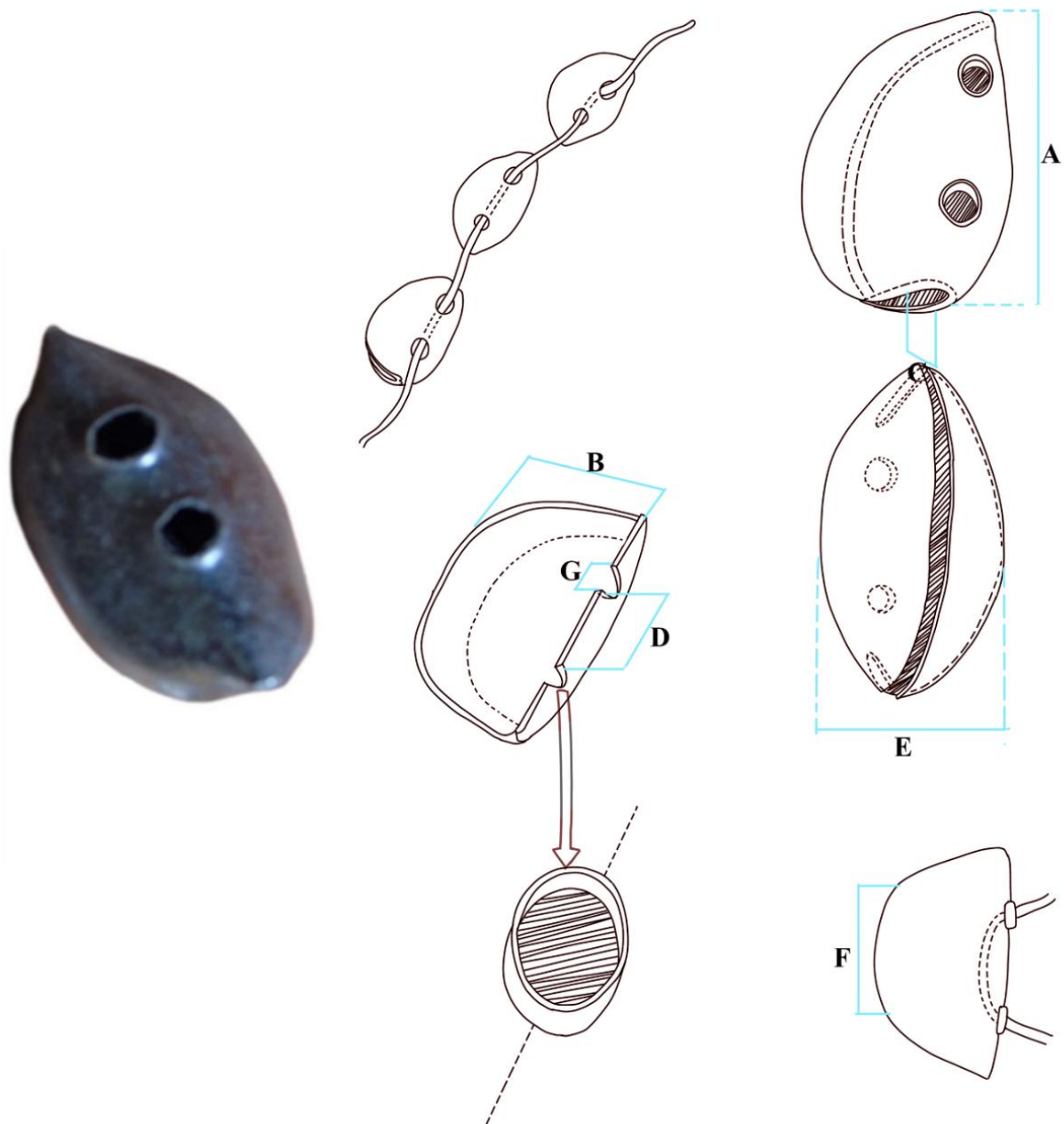


Figure 86: Rattles (Endege)
Source: Studio exploration by the Researcher
County of collection: Ssesse

From the artifact design in Figure 87, dimensions were extracted as follows: A= 90mm, B= 50mm, D= 29mm, E= 55mm, F= 30mm, and G= 7mm. The artifact is attached to non-metallic material, a thread made out of animal skin to augment its functionality.

Analytical design drawings (Figures 79 to 87) as an epistemic tool not only render physical forms and dimensions of the selected artifacts for studio exploration but also facilitate a deeper understanding of the related embedded knowledge. For instance, divergent projections and perspectives were employed, basing the artifact's nature to reveal the dimensions, proportions, elevation, and how joinery was achieved, using pin and-socket system, and heat-driven fusion. The visual analyses underscored the higher level of ingenuity embedded in the indigenous technical knowledge, challenging colonial narratives that dismissed the supremacy of African ironwork and rendered it primitive.

The method of employing drawings also revealed the internal underlying structures, internal symmetries, and ratios that derived a proto-geometric understanding of the nature of the studied forms. For example, the division of the spearhead often followed 1:1.3 and the arrowhead head 1:2 proportion. The ratio is likely derived from intuitively considering the user's size and process of utilization. This reinforces an argument that material culture often carries sophisticated knowledge systems encoded in non-textual and non-verbal forms.

Subjective interpretations emanating from interviews and oral histories gathered during fieldwork revealed that the blacksmiths often attributed their structural choices to ancestral and spiritual guidance from the deities, and intuitive reflections as humans regarding the purpose. One blacksmith described the long tapering of their ceremonial spear as a rehang out to the heavens where the deities are expected to reside so that they may pass through the spears and get connected with their soils for blessings and a huge harvest in all their works. Such narratives echo the interpretivist perspective that meaning is constructed and maintained within the lived experiences of cultural actors, as they may be magnified through utilizing the artifact.

In addition, the resilience of some of these motifs of iron artifact in the contemporary productions such as textiles, decorative forms, furniture design, and metal fabrication in public places and cultural centers, suggests the resilience, continuity, and adaptation as re-affirmed in section 4.3.3 of this chapter. These findings are underpinning Hall's (1980) claim that cultural forms are not static but rather are subject to being re-articulated as a way to cater for shifting contexts

The structural features of indigenous iron artifact designs of the Baganda reveal a profound interplay between form, function, and aesthetic symbolics. The analytical design drawings developed during studio exploration under this study unearthed critical embedded knowledge that demonstrates that the craftsmanship by the blacksmith was not merely focused on utilitarian but deeply entangled with social, political, and spiritual meanings. Through the lens of material culture theory, artifacts such as *Akambe*, *Endege*, and *Enkumbi* are interpreted not as passive objects but also as active vessels through which society's values are both expressed and produced (Miller, 2025); fostering identity manifestation.

Esthetically, the value of the indigenous iron artifacts is intrinsically and intricately woven into their structural features. For instance, the curvature of the *Omuwolo*, *Effumu*, and *Akambe* also signifies status and identity. Such features are not just randomly derived but are outcomes of accumulated indigenous knowledge and skills over time, refined through intergenerational transmission. The drawings illustrate how specific contour dimensions of surface treatments function beyond utility as an end in design projections in production. Their aesthetic expressions codify cultural interpretations, meanings, and values. This aligns with Schwandt's (1994) interpretivist position, which states that meanings are not fixed but are constructed through human engagements and symbolic interpretations, an idea that resonates with the phenomenological idea under this study.

Additionally, the articulation of the iron artifact designs within their production contexts, as elucidated through articulation theory (Hall, 1980), establishes how Baganda blacksmiths selectively integrated available materials, technological approaches, and social codes to produce meaningful designs. For instance, the formation of *Endege* was not only a metallurgical process but an indigenous cultural act that articulated community identity, authority, and spiritual attachment, solidifying connectivity with the deities. The analytical design drawings reveal the standardisation and variation within the designs, indicating a conscious negotiation between symbolic aesthetics and functionality

The interpretive analysis of study findings also highlights that the structural adaptation of these artifacts was driven by environmental, spiritual, and social-political considerations, which argument is partly in agreement with the design conception positionality under 4.4.2.2 section of this chapter. The elaborate handles of some iron tools provided not just a grip but a symbolic grasp over communal responsibilities vested in the bearer. These elements reflected in the analytical design drawings reveal embedded epistemology, the realm of knowing and being, elucidating both aesthetic intentionality and practical wisdom

Through a subjective and interpretive lens, the study established that the aesthetic and functional values of indigenous iron artifact designs are inseparable. They coalesce within the design's structural form to communicate resilience, identity, supremacy, and continuity. The visual language of these designs, as captured in the analytical design drawings, immortalises embedded knowledge that would otherwise risk obsolescence in the face of modern homogenising influences

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

The purpose of this study was to visualise embedded knowledge in indigenous iron artifact designs of the Baganda in Uganda through drawings for posterity. This chapter presents the summary, conclusions and recommendations derived from the presented and discussed study findings of three study objectives: analyzing historical relevance with interpretive drawings, assessing the extent of survival and relevancy of indigenous iron working in the contemporary creative space, and extracting and documenting the knowledge embedded in indigenous ironworks of the Baganda such as the techniques and designs using design drawings.

5.2 Summary

This study set out to unearth and devise ways to visualise the embedded knowledge of the indigenous iron artifact of the Baganda people of Uganda. The embedded knowledge holds profound cultural, historical, and technical significance, yet its knowledge systems have remained under-documented and at risk of being lost due to modernization and the declining practice of indigenous iron craftsmanship. Anchored in the framework of material culture theory, supported by articulation theory and adoption theory, the study explored how the artifacts (through modern and postmodern discourse) serve as agents of cultural memory, social identity, and technological innovation. The specific intentions were to examine their historicity (conception and relevance) through interpretive drawings, survival, and contemporary significance, and the extraction of their embedded knowledge through analytical design drawings. Thus, a qualitative methodology fusing ethnography and a practice-based approach rooted in studio-based research was adopted. Fieldwork was conducted by interviewing, identifying artifacts, photographing, and sketching, tailored towards interpreting selected indigenous iron artifacts associated with daily life activities,

rituals, and leadership. Interpretive drawings were employed to reveal symbolic meanings and functionality, and subjective interpretations derived from interviews and observations. Analytical design drawings were made to document the dimensions, structure, textures, motifs, and ergonomics to serve as a reference for future use.

Under Objective One, the study analyzed the historical relevance of Indigenous artifacts to the Baganda in Uganda through interpretive drawings. The study findings indicate that indigenous iron working has been practiced by the Baganda for centuries in Kyaggwe, and its introduction and establishment in Buganda is as early as before Kintu took over the leadership of Buganda. However, the firm growth as an industrial technical practice in Buddu and Ssesse counties (advanced smelting and forging techniques) was achieved through borrowing ideas from neighboring iron working kingdoms such as Bunyoro and Kiziba. The findings challenge the famous narrative that has been driven by various scholars affirming that Buganda used to produce its iron artifacts, but instead relied on imported productions from Bunyoro. The custodianship of Iron working as a practice has been a preserve of specific clans; these included *Ente*, *Kasimba*, and *Nvubu*. However, the leadership of iron smelters at the county levels was entrusted with various kings' men of different clans. This also checks the common narrative of iron working being a reserve of only the Kasimba clan, and the founders. The advanced development of indigenous ironworking in Buganda provided them with the opportunity to mass-produce iron artifact designs which were relevant in their lives.

Key study findings affirm that the indigenous iron artifacts were not only consumed as utilitarian items but also as designs which were deeply symbolic, representing social hierarchies in the society, cosmological beliefs, and agents of community resilience. The interpretive, subjective drawings produced highlight their relevance in the religious, political, and socio-economic life of

the Baganda. In the religious realm, they were regarded as bridges between the physical and ritual life, using them as props, symbols, and fetishes in the ancestral worship and communication with the deities. In the political sphere of the Baganda, the artifacts played a symbolic role of being used as tool for warfare expanding and providing protection to Buganda's territory. Their aesthetic and symbolic value was in serving as forms of communication from the Kabaka to his subjects. In the sphere of social economy, iron artifacts were precious productions with the power of being used as mediums of exchange; buying land, paying dowry, and boosting trading between the Baganda and their neighbors, pushing Buganda's influence into other territories.

Study objective two assessed the extent to which indigenous knowledge of ironworks of the Baganda in Uganda has survived and their significance in the contemporary creative space. Key findings acknowledge the pressures towards the production of indigenous iron artifacts of the Baganda emanating from colonization, new land and environmental policies, foreign religions, abolition of the kingdoms in 1968, modernity, globalization, and political instabilities. The pressures caused changes in the production and consumption patterns; indigenous iron smelting declined, perceptions of the Baganda toward iron artifacts shifted, and the ownership and utilization largely became a secret act. Other aspects of these artifacts' designs, forging techniques, symbolic meanings, and function have survived through the adoption of scrap metals as materials. The incorporation of improvised ideas in forging techniques and continued ancestral rituals and worship has boosted their demand and supply. The purposes of indigenous iron artifacts of the Baganda in contemporary times are determined by consumers; sometimes used through their original intentions, necessitated their conception, and often adopted for contemporary creative ideas.

In Objective three, the study extracted the knowledge embedded in the designs and production of the indigenous ironworks of the Baganda in Uganda through analytical design drawings. The studious production made through practice-based approaches by the researcher is a vital component in visualizing and reviving their embedded design knowledge, elaborating their possibilities for contemporary reinterpretation and application. The dimensions, textures, and elevations describe the aesthetic and ergonomic aspects of the indigenous iron artifacts of the Baganda and provide the possibility of reproduction and innovative developments. The study contributes to the knowledge of design and visual culture by positioning indigenous iron artifacts as active texts and design references instead of maintaining them as passive museum relics. The study further reaffirms the value of studio-based enquiry in material culture studies and echoes the need to incorporate indigenous epistemologies in art and design education and practice.

5.3 Conclusion

The study concludes that the indigenous iron artifact designs of the Baganda have survived as repositories of embedded knowledge that have been historically ignored and undervalued by mainstream design and visual culture scholarship. However, this study proves that through rigorous studio-based analysis and theoretical reflection approaches, it becomes clear that these iron artifacts incorporate multifaceted knowledge systems: technical functionality, spiritual representation aspects, symbolism, and aesthetics.

Under the first objective, the study findings confirm the historical relevance of the indigenous iron artifacts as central to the religious, political, and socio-economic life of the Baganda. Iron artifacts such as *Amafumu* (spears), *Obusaale* (Arrows), *Endege* (Rattles), *Enyondo* (Hammers), and *Obwambe* (Knives) symbolized authority, masculinity, spiritual power, and identity. For generations, the meanings of the iron artifact designs were transmitted through use, oral tradition,

and material embodiment rather than in writing. Through interpretive drawings, an approach for visualization and documentation, the study contributes to the understanding of the Baganda cultural heritage. It enriches material culture scholarship with contextual insights into how objects serve as embodiments of identity, authority, and spirituality. Ultimately, the study offers a foundation for cultural revitalisation and educational integration, emphasizing the need to document and reinterpret indigenous technologies as part of Uganda's broader efforts toward cultural sustainability and identity reinforcement within the framework of national cultural development policies.

Under the second objective, despite the decline of indigenous iron smelting, the survival and contemporary significance of the iron artifacts are evident in how some motifs, forms, and functions persist subtly within cultural practices and symbolic objects in contemporary spaces. For example, some ceremonial tools still feature indigenous iron design components even when modern alternatives exist, reflecting continued belief in their protective and spiritual power representations. The study significantly fosters the understanding of how indigenous Baganda iron artifacts continue to be appropriated in contemporary cultural and creative practices. The findings advance theoretical discourse on continuity and transformation through an anti-aesthetic and para-aesthetic point of view under material culture theory, articulation theory, and adoption theory. This aligns with Uganda's cultural policy and the UNESCO (2005) framework advocating for the safeguarding and promotion of creative renewal of intangible heritage through contemporary practice.

Under the third objective, the study unearthed crucial aspects of the indigenous visual culture of the Baganda, which would otherwise remain lost, by extracting embedded knowledge through

analytical design drawings. The interpretive, subjective drawings and analytical design drawings provided insights into symbolism, functionality, and form, while the analytical design drawings presented technical details vital for documentation, relevant for design adaptation, and educational use. The study findings can facilitate modern possibilities of preserving and revitalizing indigenous visual culture by demonstrating how analytical and interpretive design drawings can function as approaches for both documentation and knowledge transformation. The visually interpreted embedded knowledge serves as inspirational ideas and cultural continuity for the current and future generations.

Material culture theory made it possible to analyse the indigenous iron artifacts not as mere static objects but as active conduits for the construction and performance of identity and memory. Articulation theory was important in illuminating how these meanings have shifted and been adopted over time, especially under colonial disruption and globalization. Adoption theory elucidated how some design elements from these iron artifacts could be reimaged and integrated into contemporary design concepts, encouraging creative continuity beyond nostalgic replications.

5.4 Recommendations

In reflection of the findings and conclusions drawn from this study, the following recommendations are proposed:

The study recommends that the National Culture Policy of 2006 be further strengthened and actively implemented by the Ministry of Gender, Labour and Social Development, in collaboration with the Ministry of Tourism, Wildlife and Antiquities, civil society organisations, musealisation centers and the private sectors to spearhead projects aimed at documenting, visualizing, and integrating knowledge into educational, cultural, and contemporary creative frameworks. The

above initiatives will ensure that diverse cultural heritage is preserved and contributes meaningfully to national identity formation, sustainable development, and cultural resonance and resilience. This will contribute fulfilment of SSDGs 4 (advanced education), 8 (cultural sustainability), 11 (creative economy), 16 (institutional collaboration), and 17 (heritage preservation).

The parliament of Uganda should consider amending the existing Copyright and neighboring rights act (Cap 222) of Uganda's constitution to include provisions for the protection and regulation of the adoption of indigenous iron artifact designs within contemporary creative industries. The amendment would safeguard the community's ownership, ensure equitable benefit sharing, and preserve cultural integrity, thereby promoting ethical innovation and sustainable use of indigenous cultural expression, appropriation in modern design practices.

The Ministry of Education and Sports should develop a policy to empower the incorporation of indigenous knowledge systems into Art and design-based programs at all levels of education. This would promote the use of indigenous practices and artifact designs as sources of creative inspiration. The institutionalization of such knowledge within formal education, the policy will strengthen learners' appreciation of local innovations while aligning with education with national cultural development goals in such as 3.6.12 and 36.1.6 of NDP IV, advocating for promotion of local content, skills and expertise, technological transfer, and job creation.

5.4.3 Suggestions for further research

The study established embedded knowledge in indigenous iron artifact designs of the Baganda through theoretical and philosophical lenses. The knowledge can be immortalised through extraction and documentation using ethnographic and studio-based research, its historical

relevance. The articulation and adoption of their aesthetic and ergonomic aspects for contemporary use were evident despite being subjected to transformations. Therefore, the study suggests further research:

- Further research may extend this study's approach to investigating other indigenous art materials such as woodwork, pottery, bark cloth, basketry, and architecture, which also carry embedded knowledge worth extraction, immortalization and reinterpretation.
- There is a need for comparative studies to be carried out between indigenous iron artifact designs of the Baganda and those from other African cultures to establish an in-depth understanding of the shared, divergent, embedded aesthetics, symbolics, and technical knowledge.
- Further studies can also explore the integration of indigenous forms into sustainable design, to foster aligning heritage with future environmental innovations.

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APPENDICES

Appendix 1: Informed Consent to Participate in Research



BISHOP STUART UNIVERSITY RESEARCH ETHICS COMMITTEE

P.O. Box 09 Mbarara-Uganda Tel: +256 485-

433468 E-mail: rec@bsu.ac.ug

INFORMED CONSENT FORM

Study title – Cultural practice and consumption of indigenous iron artifacts of the Baganda people in Uganda

Principal Investigator(s)

Mr. MAYANJA Richard Weazher

Introduction

What you should know about this study:

1. You are being asked to join a research study.
2. This consent form explains the research study and your part in the study.
3. Please read it carefully and take as much time as you need.
4. You are a volunteer. You can choose not to take part and if you join, you may quit at any time. There will be no penalty if you decide to quit the study.

Brief background to the study

Communities in the current generation still identify themselves with the supremacy of indigenous ironworks and efforts have been made to have them documented and preserved. However, this has not been the case for the indigenous ironworks of the Baganda of Uganda. There is a danger of these cultural values being neglected particularly by the younger generation of the Baganda as it is increasingly succumbing to the appeal of modern culture. The consequence is that the Iron Works values that have been activated and upheld for centuries by

their forefathers could potentially disappear forever if not documented. This chapter presents contextualization of the study which incorporates the background to the study, statement of the problem, the purpose of the study, objectives of the study, research questions, scope of the study, the significance of the study, and theoretical framework.

Purpose of the research project

The purpose of this study is to document the cultural practice and consumption of the indigenous iron art forms of the Baganda in Uganda for posterity. It will be guided by the following objectives:

1. To document the indigenous knowledge embedded in the design production of the indigenous ironworks of the Baganda in Uganda.
2. To examine the historical and contemporary relevance of Indigenous iron implements to the Baganda in Uganda.
3. To analyze the extent to which indigenous knowledge of ironworks of the Baganda in Uganda has survived.

This study will take six months of data collection and analysis however, you will be contacted whenever you are needed, based on a set and agreed-upon appointment.

Why you are being asked to participate?

You are being asked to participate in this study, as you are a Ugandan adult between the age of 18 to 90 years who can help us to better understand knowledge, meanings, skills forming and using, beliefs and attitudes towards indigenous artifacts of the Baganda.

Procedures

If you take part in this study, you will be asked to:

- Take part in a one-time, one-on-one, semi-structured interview;
- The interview will take approximately one hour;
- Photography, video or audio recordings might be used for accurate capturing of data;
- The interview will take place at a location most convenient to you as the participant;
- The interview will be transcribed, in the form of field notes, to ensure accuracy in reporting your statements;

Risks or discomforts

This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study.

Benefits

There may be no direct benefits associated with your participation in the study, but the information you will provide will be useful in documenting the cultural practice and consumption of the indigenous iron artifacts of the Baganda in Uganda for posterity; contributing to preservation on Uganda's heritage

Incentives or rewards for participating

There will be no rewards granted for your participation in this research.

Protecting data confidentiality

If data is in form of tape recordings, photographs, movies or videotapes, researcher will be kept for a period of one year before destruction. Showing or playing of such data must be disclosed, for academic or instructional purposes.

Protecting subject privacy during data collection

We will keep your study records private and confidential. Certain people may need to see your study records. By law, anyone who looks at your records must keep them completely confidential. The only people who will be allowed to see these records are:

The research team, including the Principal Investigator and those involved with the study.

I may publish what I have learnt from this study. If I do, I will not include your name. I will not publish anything that would let people know who you are.

Right to refuse or withdraw

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. Refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled.

What happens if you leave the study?

You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study.

Who do I ask/call if I have questions or a problem?

you can contact

Mr. MAYANJA Richard Weazher

Principle researcher

P.O BOX 1 Kyambogo University

Tel: 0784044716

Dr. Godfrey Zaari Rukundo

Chairman, BSU-REC

P.O. Box 09 Mbarara

Tel: 0772663671

What does your signature or thumbprint on this consent form mean?

Your signature on this form means

- You have been informed about this study's purpose, procedures, possible benefits and risks
- You have been given the chance to ask questions before you sign
- You have voluntarily agreed to be in this study

----- Name of adult participant	----- Signature of participant or Legally authorized representative	----- Date
------------------------------------	---	---------------

----- Name of person obtaining consent	----- Signature	----- Date
---	--------------------	---------------

----- __ Print Name of witness	----- Signature or thumbprint or mark	----- Date
-----------------------------------	--	---------------

Appendix 2: Okusaba olukusa olw'okwebuzaako mu kunonyereza



BISHOP STUART UNIVERSITY RESEARCH ETHICS COMMITTEE

P.O. Box 09 Mbarara-Uganda Tel: +256 485-

433468 E-mail: rec@bsu.ac.ug

INFORMED CONSENT FORM (Okugaba olukusa wakati mukumanyisibwa)

Omulamwa ogunooyerezebwo- Enkola n'enkozesa y'ebiweese bi nansangwa ebya Baganda mu Uganda (Cultural practice and consumption of indigenous Iron Artifacts of the Baganda in Uganda).

Omunoonyereza Omukulu

Mr. MAYANJA Richard Weazher

Enyanjula

Kiki kyoyina okumanya kukunoonyereza kuno?

5. Osabibwa okwegatta ku kunoonyereza kuno.
6. Ebiri kulupapula luno olukusaba olukusa binyonyola okunoonyereza kuno nokukwetabamukwo
7. Osabibwa okusomamu era otwale akadde kewetaaga okubyekenneenya.
8. Oli nakweesa. oli waddembe okusalawo okukwetabamu oba obutakwetabmu.
Nebwoba okirizza okwetaba mukunonyereza kuno oli waddembe okukuvaamu; tewali ngassi gyoyina kuwa.

Ebitonotono ebikwata ku kunoonyereza kuno

Amawanga mangi okwetolola ensi gakyeyagalira mu mubuwangwa bwabwe obukwata ku buweesi nenkozesa yebiwesebwa mu matale ebyennonno era kawefube akoledwa obisa mubuwandiike kulwekigendererwa ekyokubitijjisa n'okubikuuma. Naye ate sibwekikoledwa kubiweese bi nansangwa ebya Baganda abomumasekkati ne mumaserengeta ga Uganda. Nebwekityo waliwo akatyabaga akolekedde okutukawo ku buweesi, ebiwesebwa n'enkozesa yabyo, n'amakulu amakusike agabifumbekeddemu okubeeranga tebifiiridwako a Baganda

abomulembe guno- nga bwebeyongera okusuusuuta ebyomulembe omujja ebifumbekeddemu obuwangwa bwabagwiira. Ekigenda okuva mukino ebiweese nebyobuwangwa ebibikwatako ebizze bikumibwa obutiribiri ba jjajjabwe byolekedde okufuuka olufumo singa tebitekebwa mu buwandiike.

Ekindererwa ekikulu ekyokunonyereza kuno

Okunonyereza kuno kugendereddwamu okusengeka engeri eyebyobuwangwa mu nkola n'enkozesa y'ebiweese bi nansangwa ebya Baganda abomumasekkati namaserengeta mu Uganda kulwo kubikuuma n'okozasebwa emirembe egirijja.

Okunonyereza kuno kujja kutwaala emyezi mukaaga nga nze nabayambi bange tukujaanya n'okutaputa ebinaaba bifuniddwa era ojja kusabibwanga okusisinkanimbwanga omusinziira nga bwetunaaba tukaanyizza.

Lwaki osabiddwa okwetaba mukunonyereza kuno?

Osabibwa okwenyigira mukunonyereza kuno, nga munna Uganda omuganda omukulu asobola okutuyamba okutegeera ebyafaayo, amagezi amakusike, obukugu mu kuweesa n'okukozesa, enzikiriza n'endaba yebiweese bi nansangwa eby'abaganda mu Uganda.

Emitendera gy'okunoonyereza

Bwokiriza okwetaba mukunonyereza kuno ojjakusabibwa bino wamanga:

- Okwenyigira mu kafubo akagendereddwamu okwebuzibwako;
- Akafubo kokwebuzibwako kajja kutwalanga ekiseera nga kya ssawa emu;
- Ebifaananyi, obutambi bwamaloboozi wamu n'ebifaananyi ebitambula byakukozesebwa kulwokukunjaanya obulungi obukakafu;
- Ensisinkano yakafubo ejja kubeeranga mu kifo kyonabanga osiimye;
- Ebinaaba bikunanyiziddwa mukunoonyereza kuno bijja kutaputibwa okusobola okubikozesa obulungi mu bulambulukufu;

Obuzibu obuyinza okuba mu kunoonyereza kuno

Okunoonyereza kuno kuteekeddwatereddwa bulungi awatali nyo bulabe buyinza kutuusibwa kwoyo yenna anaaba akwetabyemu. Kitegeeza nti obuzubu bwonna obuyinza okuva mukwetaba

mukunoonyereza kuno bwebumu nga obwabulijjo. Tewali buzibu bulala bumanyikidwa buyinza kutuuka eri abo abanaaba betabye mukunoonyereza kuno.

Emiganyiro

Wayinza obutabaawo ngeri ntongole gyoyinza okuganyirwamu nga oyita mukwetaba mukunoonyereza kuno, naye amawulire gonotuwa gajja kutuwa okumanyisibwa okujja okutuyamba okuwandiika obulungi ku milamwa gyokunoonyereza kuno; enkola n'enkozesa y'ebiweese bi nansangwa ebya Baganda abomumasekkati n'amaserengeta mu Uganda kulwo kubikuuma n'okozasebwa emirembe egirijja.

Okusasulwa n'okugaba ebirabo kulwokwetaba mukunoonyereza

Teri yenna ajja kusasulwa oba okuwebwa ebirabo kulwokwetaba mukunoonyereza kuno.

Obukuumii ebinakunanyizibwa

Singa ebinakunanyizibwa binabamu amalobozi ne bifaananyi ebikwate kubutambi, omunoonyereza ajja kubikuuma butiribiri okumala emwaka gumu; okuva lwebinaaba bikwatiddwa. kubanga bijja kweyambisibwa mukutaputa nokusengejja amakulu mukugerageranya nebinaaba bivudde ewalala mukunoonyereza kuno kwokka.

Okukuuma ebikukwatako wakati mu kunoonyereza

Tujja kukuuma byonna ebikukwatako nga omuntu byetunaaba tufunye mukunoonyereza kuno nga byakyaama. Abantu abamu bayinza okwagala okulaba ebikwaata kukunoonyereza kuno.

Mumateeka, yenna aba alabye ebikukwatako ayina kubikuuma nga bya kyama. Abantu bokka abanakirizibwa okulaba ebikwata kukunoonyereza kuno mulimu;

Ekibinja ekikwasaganya n'okuyambako mu kunoonyereza kuno, omuli akulembeddemu okunoonyereza kuno ne banne bakola nabo.

Nyinza okulangirira oba okusaasanya byenaba nzije mukunoonyereza kuno. Naye bwenaaba nkikoze, sijja kuteeka manyago wadde nokuteekamu ekiyinda okuletera abantu okukumanya oba okutegeera nti yeggwe.

Eddembe okugaana oba okusazaamu

Olina okwetaba mukunoonyereza kuno singa ebeera oyagadde okukola obwa nakyewa. Toyina kukakibwa kukwetabamu. Oli wa ddembe okukwetabamu oba okukuvaamu essaawa yonna. Tewali ngassi oba kufiirizibwa kwonna kwojja kufuna bwolekerawo okuwenyigiramu.

Kiki ekibaawo bwenwa mukunoonyeza kuno?

Oli wa ddembe okwetaba mukunoonyereza kuno oba okukuvaamu esaawa yonna tewali ngassi yonna nga okuvuddemu

Ani gwembuuza oba gwe nyinza okukubira nga nina ekibuuzo oba okwemulugunya?

Bwoba oyina ebibuuzo ku dembelyo nga eyetabye mukunoonyereza kuno, okwemulugunya, kunsonga yonna ng'oyagala okuwayaamu nomu kubakugu abatali mukunoonyereza kuno kubira.

Mr. MAYANJA Richard Weazher
Omunoonyereza omukulu
P.O BOX 1 Kyambogo University
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Ssentebe wa BSU-REC
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Tel: 0772663671

Omukonogwo oba ekinkumukyo bitegeezaki ku kiwandiiko kino?

Omukonogwo oba ekinkumu bitegeeza nti;

- Onyonyoddwa ebikwata kukunoonyereza kuno; emiramwa, emitendera, emiganyiro n'obuzibu.
- Owebweddwa omukisa okubuuza ebibuuzo nga tonasaako mukono.
- Okirizza okukola obwa nakyewa mukunoonyereza kuno.

Erinya lyomukulu akirizza

Omukono oba omusigirewe

Ennaku zomwezi

Erinya lyoyo asabye olukusa

Omukono

Ennaku zomwezi

Erinya Lyomujulizi

Omukono oba ekinkumu

Ennaku zomwezi

Appendix 3: Logbook sample

Objective:.....
.....

Question:.....
.....

Source:.....
.....

Done	Learnt	Smart to do

Notes:.....
.....
.....
.....
.....
.....

Appendix 4: Semi structured interview guide for the users and dealers knowledgeable about iron works

Background (Socio-Demographic Information characteristics):

Code name:Age:.....

Names:..... Religious faith.....

Salutation..... Marital status.....

Gender:..... Village:Subcounty.....

County.....District.....

Telephone number: Email:

Date of interview: Time and duration of interview

Questions:

1. What are some of the iron objects you have ever accessed?
2. How did you get to know about them?
3. How did you access these iron artefacts?
4. What functions do they serve to you and your other family members?
5. What meanings do their designs hold for you?
6. Why do you keep these forms in your archives?
7. What historical stories do you have about these iron artifacts?
8. What historical relationship do you have with these iron artefacts?
9. What is your current intrinsic and extrinsic value on the artifacts you posses?
10. What is the relevance of these iron forms to you, your family and the community of fellow Baganda?

Appendix 5: Semi-structured interview guide for the users and dealers knowledgeable about iron works (Luganda version)

Background (Socio-Demographic Information characteristics):

Erinya eppatike:Amanya:.....

Age:.....Enzikiriza:.....

Ekitibwa ekigattibwa kulinyalyo:.....Obyobufumbo:.....

Lambika obuvo bwo Nga omuganda:

Omuziro.....Akabbiro:.....

Taatawo yani:.....Olujja:.....Omutuba:.....

Olunyiriri:.....Essiga:.....Owakasolya:.....

Maama wo:.....Omuziro gwe:.....

Ekikulakyo:.....Ekyalo gyowangalira: Eggombolola:

.....Essaza:.....

Disitrikiti:.....Essimu:

Akabox komutimbagano:.....

Ennaku zomwezi:..... Essaawa:.....

Ebibuuzo (Question):

1. Biweese ki ebyabaganda byewali olabyeko/ofunyeko?
2. Watandika otya okubimanya era ddi?
3. Wabifuna otya?
4. Biweese ki byolina?
5. Ebiweese bya Baganda binasangwa obikozesa otya era biyamba bitya amakago?
6. Enkula y'ebiweese bya Baganda binasangwa birina makulu ki gyoli nabomumakaago?
7. Lwaki otereka ebiweese bino mu terekero lyo (bwoba obirina)?
8. Byafaayo ki byolina ngaggwe omuganda ku biweese bi nasangwa?
9. Nkatagana ki eyamakulu eyebyafaayo gyolina eri ebiweese ebyenono?
10. Muwendo ki ogulabika nogutalabika gwolina kibiweese byolina?

Appendix 6: Semi-structured interview guide for the blacksmiths

Background (Socio-Demographic Information characteristics):

Code name:Age:.....

Names:..... Religious faith.....

Salutation..... Marital status.....

Gender:..... Village:Subcounty.....

County.....District.....

Telephone number: Email:

Date of interview: Time and duration of interview

Questions:

Questions:

1. When did you start learning ironworks practice?
2. How did you get to know about indigenous ironworks of the Baganda?
3. What items iron artifacts do you produce?
4. Where do you draw your inspirations in the process of forming these iron artefacts?
5. Where do you collect iron ore from?
6. Describe the processes through which you extract iron from iron ore if you have that primary knowledge.
7. What are the targeted functions of the iron products you make?
8. What are some of other iron objects have you ever accessed other than those you produce?
9. What meanings do they hold for you?
10. Elucidate their intrinsic and extrinsic value to you?
11. What functions do they serve to you and your family members?
12. What are the cultural norms and ritual related to ironworks production process?
13. What are the gender roles in the production process?
14. Which clients commission you to produce these iron artefacts?
15. Is there any shift in the clientele base?
16. How has this ironworks practice survived to this generation?

17. What purpose do they serve in this current generation?
18. How are they used in this current generation?
19. What are the projected threats to the indigenous iron practice?
20. What are your experiences in the turbulent times with indigenous iron works?
21. What are the key historical iron artefacts that were produced out of iron ore?
22. What historical reflections do you have about the indigenous iron artifacts of the Baganda?
23. What is your current relationship with these artefacts?
24. What is the relevance of these iron forms to you, your family and the community of fellow Baganda?

Appendix 7: Semi structured interview guide for the blacksmiths (Luganda version)

Background (Socio-Demographic Information characteristics):

Erinya eppatike:Amanya:.....

Age:.....Enzikiriza:.....

Ekitibwa ekigattibwa kulinyalyo:.....Obyobufumbo:.....

Lambika obuvo bwo Nga omuganda:

Omuziro.....Akabbiro:.....

Taatawo yani:.....Olujja:.....Omutuba:.....

Olunyiriri:.....Essiga:.....Owakasolya:.....

Maama wo:.....Omuziro gwe:.....

Ekikulakyo:.....Ekyalo gyowangalira:Eggombolola:
.....Essaza:.....

Disitrikiti:.....Essimu:

Akabox komutimbagano:.....

Ennaku zomwezi:.....Essaawa:.....

Ebibuuzo (Question):

1. Ddi lwewatandika okuweesa?
2. Watandika otya okumanya n'okuyiga ku buweesi bwa Baganda?
3. Biweese ki byokola?
4. Kiki ekikusikiriza n'okutanula mu mukukola ebiweesebwa?
5. Amatale ogajja wa?
6. Mitendera ki gyoyitamu okufukuta ekuuma okuva mu matale?
7. Ebiweese byokola bikozezebwa bitya?
8. biweese ki ebirara byewali olabye nga ojjeke byoweesa?
9. Ebiweese birina makulu ki gyoli?
10. Nyonyola amakulu agokungulu nagomunda ku biweese bino gyli?

11. Ebiweese birina migaso ki eri amakaago, abenjandazo ne abaganda nga eggwanga?
12. Mateeka ki agebyobuwangwa n'emizizo egikwaata ku kubuweesi?
13. Mirimu ki egikakata kubikula byabantu (abakyala oba abasajja) mukuweesa?
14. Baani abatera okukuWhich clients commission you to produce these iron artefacts?
15. Waliwo ekyukakyuka yonna gyosange mu baguzi abettanira ebiweese bino?
16. Enkola n'amagizi ebikwata ku buweesi bisobodde bitya okubeerawo okutuuka kumulembe guno?
17. Ebiweesebwa ebyabaganda binansangwa birina migaso ki mu mulembe guno?
18. Ebiweesebwa bikozezebwa bitya mu mumulembe oguliwo?
19. Kusoomozebwa ki okwolekedde obuweesi bwabaganda?
20. Mbeera ki gyewayitamu mubiseera byobusambattuko Uganda bweyiseemu era yayisa etya omulimu ogwobuweesi?
21. Biweese ki ebikulu ebyebyafaayo ebizze bikolebwa abaganda okuva mumatale?
22. Byafaayo ki byolina ku biweese bya Baganda bi nansangwa?

Appendix 8: Observation guide for analyzing selected iron artifacts for studio experimentation

Background Information

Name of artifact collected.....

Item code: Place installed/ place of collection.....

Names of owner:Salutation.....

Gender:..... County: Village:

SubcountyCountyDistrict.....

Telephone number: Email:

Date of collection:

Key points to observe

1. Materials
2. Texture
3. Usability
4. Dimensions
5. Proportions
6. Decoration condition
7. Fabrication process
8. Storage
9. Presentation
10. Display
11. Current use

Appendix 9: Observation guide for analyzing production in the Smithies

Background Information

Name of blacksmith:.....

Gender:..... County: Village:

SubcountyCountyDistrict.....

Telephone number: Email:

Date of accessed: Time and duration

Key points to observe

1. Settings and arrangements in and outside of the workshop
2. Materials used in the production of iron artifacts
3. Decoration styles appended on the artifacts
4. Process of production in the workshop
5. Tools used in production
6. Time, days when blacksmiths carry out the production

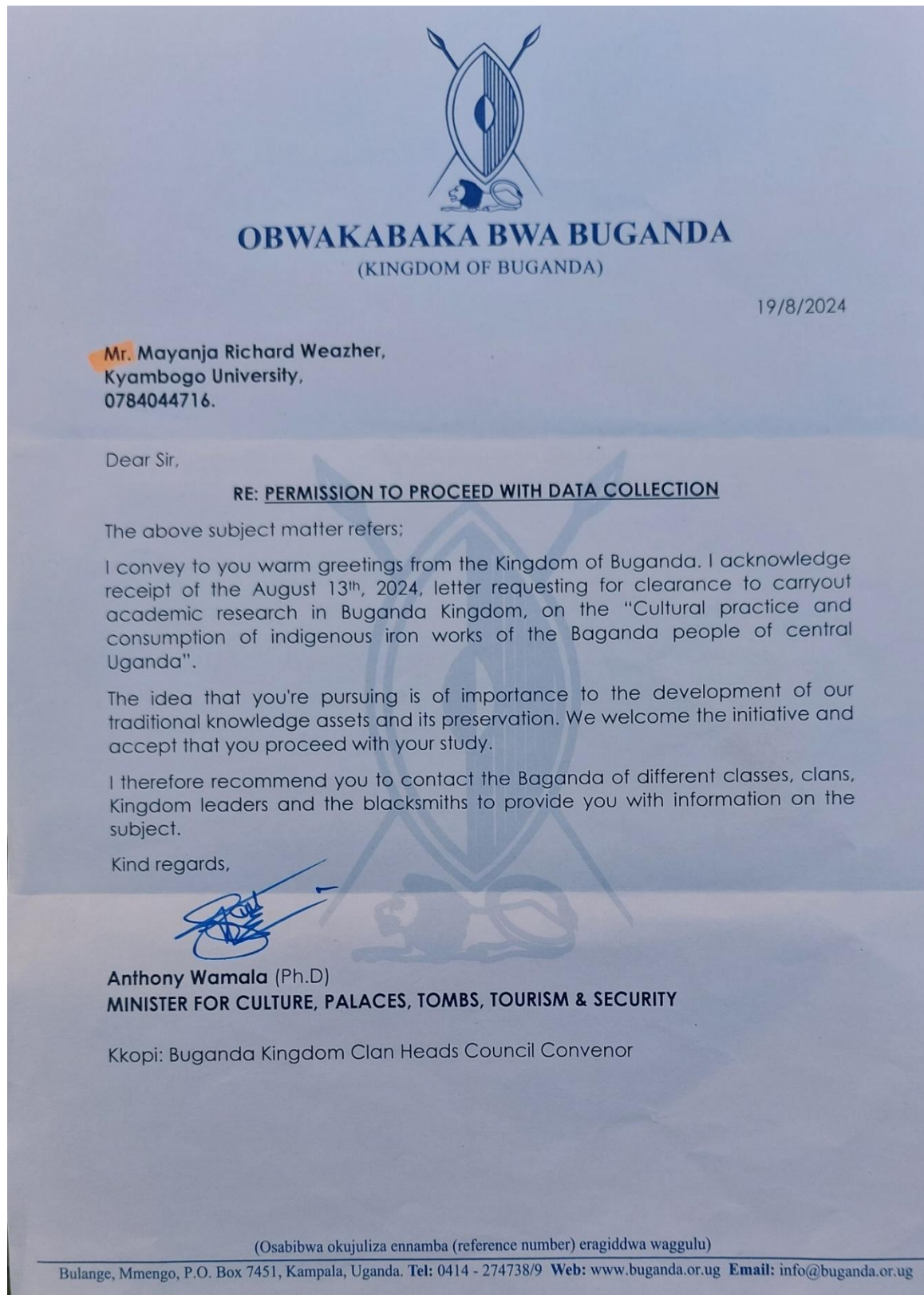
Appendix 10: Baganda community engagement plan

This community engagement workplan outlines a comprehensive strategy (including actions and a blueprint) that will involve the active participation of Baganda leaders, Blacksmiths, direct visits to historical sites, traders of indigenous iron artifacts, and ordinary individuals in the research process. It also entails sharing information, consulting with different organizations and individuals, working collaboratively in decision-making, and seeking guidance from community leaders regarding the study. The purpose of this community engagement initiative is to form a partnership with Baganda participants and their advocates in this research, rather than viewing them solely as subjects or potential recipients of the intervention.

The implementation of community engagement shall proceed in accordance with the subsequent steps:

- Prior to data collection, the researcher will obtain clearance from the Kyambogo University, Bishop Stuart University Ethics Committee and National Council for Higher Education that will be presented to the respective study sites of Buddu, Kyaggwe and Kooki counties.
- Prior to the conduct of the research in the selected communities, the researcher will approach the community leaders (local council chairpersons, and representatives of Buganda kingdom where necessary) and introduce myself and the research assistants to make them aware of the research and data collection process.
- After clearance from the community authorities, the researcher and the research assistants will start the recruiting process. identifying will participants and seek their consent.
- Appointments will be made with the consented participants; highlighting date, day, time and the place of meeting. data collection will commence through interviews and observations.
- After the final defense of the PhD thesis, a meeting to disseminate the study findings to the community representatives and other community key stakeholders will be organised.
- The final findings will be shared with the Baganda communities where data will have been collected through various forms of dissemination; publications, workshops and exhibitions.

Appendix 11: Acceptance letter from the Buganda Kingdom for Data collection



Appendix 12: Observation guide for analyzing cycle of iron artifacts in the user's or dealer's premises

Background Information

Name of dealers or users:.....

County: Village:

SubcountyCountyDistrict.....

Telephone number: Email:

Date of accessed: Time and duration

Key points to observe

1. Iron artifacts in the collection
2. Exhibition and display techniques
3. Primary consumers of iron artifacts
4. Use/ functionality
5. The supply chain and market place where artefacts are presented for consumption
6. Prices and determinants
7. Perception of community members towards the production of iron artifacts

Appendix 13: Buganda kings from the lineage of Kabaka Kintu

1. Kabaka Kintu - (1200 - 1230)
2. Kabaka Chwa Nabakka - (1230 - 1275)
3. Kabaka Kimera - (1275 -1330)
4. Kabaka Ttembo - (1330 - 1360)
5. Kabaka Kigala - (1360 - 1380) & (1400 - 1415)
6. Kabaka Kiyimba - (1380 - 1400)
7. Kabaka Kayima - (1415 - 1440)
8. Kabaka Nakibinge - (1440 - 1490)
9. Kabaka Mulondo - (1490 - 1510)
10. Kabaka Jjemba - (1510 - 1530)
11. Kabaka Ssuuna Owoolubereberye - (1530 - 1550)
12. Kabaka Ssekamaanya - (1550 - 1590)
13. Kabaka Kimbugwe - (1590 - 1610)
14. Kabaka Kateregga - (1610 - 1650)
15. Kabaka Mutebi Owoolubereberye - (1650 - 1670)
16. Kabaka Jjuuko - (1670 - 1682)
17. Kabaka Kayemba - (1682 - 1690)
18. Kabaka Tebandeke - (1690 - 1700)
19. Kabaka Ndawula - (1700 - 1710)
20. Kabaka Kagulu Tebuucwereke - (1710 - 1720)
21. Kabaka Kikulwe - (1720 - 1730)
22. Kabaka Mawanda - (1730 - 1740)
23. Kabaka Mwanga Owoolubereberye - (9 days)
24. Kabaka Namugala - (1740 - 1750)
25. Kabaka Kyabaggu - (1750 - 1780)
26. Kabaka Jjunju - (1780 - 1797)
27. Kabaka Ssemakookiro - (1797 - 1814)
28. Kabaka Kamaanya - (1814 - 1832)
29. Kabaka Ssuuna Owookubiri - (1832 - 1856)

30. Kabaka Muteesa Owoolubereberye - (1856 - 1888)
31. Kabaka Kiweewa - (72 days)
32. Kabaka Rashid Kalema - (1888 - 1889)
33. Kabaka Mwanga Owookubiri - (1889 - 1896)
34. Kabaka Sir Daudi Chwa Owookubiri - (1896 - 1939)
35. Kabaka Sir Edward William Walugembe Luwangula Muteesa Owookubiri - (1939 - 1969)
36. Kabaka Ronald Muwenda Mutebi Owookubiri - (July 1993 - Present)