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# Digitising *Gurene* Basketry Motifs: Bridging Cultural Heritage and Contemporary Graphic Design

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**Abstract**

*The study investigates the digitisation of Gurene basketry motifs and their application in designing contemporary graphic products as a way to preserve and promote the indigenous cultural heritage of the Gurene people in Ghana. The research employed an art-based research design and systematically digitised 12 Gurene basketry motifs. These motifs were subsequently used to create a variety of graphic products such as t-shirts, wall hangings, a branded vehicle, a backpack, sofa cushions, a pair of sneakers, packaging and cloths.*

*The results of the study highlight the aesthetic value of Gurene motifs and demonstrate how their digitisation can connect traditional artistry with modern design technologies to produce diverse artistic products. The study also illustrates how digitalisation can play a crucial role in preserving indigenous cultural traditions and artefacts, making them accessible to a broader audience who may not otherwise encounter them. The researchers assert that digitising indigenous motifs is a viable strategy for cultural conservation and creative innovation. Additionally, the study provides a replicable framework for others looking to incorporate cultural aesthetics into contemporary designs and to safeguard their indigenous artistic knowledge for future generations.*

***Keywords:*** *Gurene Basketry Motifs, Digitisation, Design innovation, Traditional Motifs, African Motifs, Indigenous Art, Cultural Preservation*

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## 1.0 INTRODUCTION

The *Gurene* community is located in the Upper East Region of Ghana. It comprises the agricultural Gur-speaking people, a subgroup of the larger *Gurune* and *Gurunshi* ethnic groups situated in north-eastern Ghana and Southern Burkina Faso. The *Gurene* people in Ghana are renowned for their diverse artistic products, particularly their intricate basketry. These items are produced in various communities throughout the Bolgatanga Municipality of the Upper East Region. The basketry articles are typically adorned with charming geometric motifs that vary in colour, size and shape (Wemegah et al., 2020).

*Gurene* basketry motifs possess significant artistic characteristics that can be utilised in creating various graphical products. However, despite these visual appeals, their integration in mainstream graphic design is notably limited, due to lack of accessibility, resulting in cultural disconnect and a representation gap. This underutilization sidelines the visual narratives of the *Gurene* culture in creative design, preventing a more inclusive and representative creative landscape.

According to Chen and Sharudin (2024), Xu1 (2024) and Wang et al. (2013), the failure to incorporate tribal motifs in graphic design misses the opportunity to create a visual language that transcends cultural boundaries. This oversight limits the potential for meaningful global conversations through design. As explained by Chen and Sharudin (2024) as well as Yudhanto et. al. (2023), this failure also represents a lost chance to draw on indigenous design principles and wisdom, which could contribute to sustainable design practices. To address these challenges, there is a need for a deliberate effort to integrate tribal motifs and patterns from various cultural backgrounds into different graphic design applications. This would aid in developing a more diverse and culturally inclusive visual language.

Digitising the *Gurene* basketry motifs into scalable design assets using digital vector tools will facilitate their broader usage in graphic design and other artistic fields. Properly presenting these motifs will raise awareness of them, popularise their use, and make them accessible to a wider global audience who could creatively employ them in contemporary designs, while also aiding in their preservation. Digitisation is emerging as a key method for preserving indigenous art forms and making them available for creative use.

This research, therefore, aims to digitise the *Gurene* basketry motifs documented by Wemegah et al. (2020) into editable monochrome motifs and patterns. These will be used in designing graphic products such as cloths, sports shoes, backpacks, t-shirts, cushions, packages, vehicle exteriors and room interiors. The motifs and patterns include; *Zua* (the tail of a mammal), *Sabere* (a talisman or a cowrie), *Zalenŋa* (woven net) *Gumatiatafɔ* (rainbow), *Takɔla* (window) and *Nantandelego* (the wiggly zig-zag characteristics of the millipede). The others are; *Tane/Tana* (indigenous cloth patterns), *Kampe nini* (the eye of the snake), *Vugudɔ/vugudɔro* (farm-ploughed ridges), *Zua-a ne ŋu* (the eyes of a fly), *Nwaribibsi* (stars) and *Nuayeman Kohise* (the plumage of the guinea fowl).

## 2.0 REVIEW OF RELATED LITERATURE

### *2.1 Motifs and Patterns*

In general, motifs in art refer to recurring themes, subjects, or visual elements that hold symbolic or aesthetic significance within a particular artistic work. They serve as a unifying thread, providing cohesion and depth to an artwork. Most motifs are deeply rooted in cultural contexts, drawing on shared symbols, narratives, and referencing specific events or periods within a culture (De Marco, 2025; Xu1, 2024; Meggs and Purvis, 2016).

Tribal motifs play a crucial role in art and design. Their integration in design works not only serves as a means of cultural preservation, but also fosters a deeper understanding and appreciation for the traditions they represent (Chen & Sharudin, 2024; Xiuyun, 2023). Song and Li (2018) as well as Xiuyun (2023), emphasise that tribal motifs can significantly promote sustainable design practices. Many indigenous communities have a profound understanding of sustainable and environmentally friendly design principles. By incorporating tribal motifs, designers can draw from this wisdom, contributing to a more environmentally conscious and responsible design ethos (An, 2021; Song & Li, 2018; Lin, 2007).

Incorporating tribal motifs into contemporary design ensures the continuity of cultural practices and the transmission of craftsmanship from one generation to the next (Bhuda &

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Masenya, 2025; Gherna & Reddy, 2007). Chen and Sharudin (2024) explain further that integrating cultural elements in design practices enhances visual storytelling and allows for a more nuanced and globally conscious approach to creativity.

*2.2 Cultural Symbols*

Cultural symbols are visual languages that narrate the rich cultural histories, values, aspirations and heritages of diverse groups of people around the world (Xu1, 2024). They possess significant identity, pride, unity, historical and aesthetic importance, contributing to a rich tapestry of design elements that reflect the diverse heritage of communities (Zhang, 2021; Yang et al., 2019; Wang et al., 2013). Cultural symbols and artistic images provide a powerful means of cultural representation and go beyond surface-level ornamentation; they serve as symbols that communicate the identity and values of indigenous communities (Jing et al., 2025; Chen & Sharudin, 2024; McMullen, 2016). Meggs and Purvis (2016) add that cultural patterns and symbols project the "collective consciousness of humanity", enabling us to understand our world and its varied manifestations. These symbols and images are created and handed down from one generation to another to bridge the past with the present, and permit future generations to grasp the characteristics and evolution of various cultures (Jing et al., 2025; Xu1, 2024; McMullen, 2016).

*2.3 Digitalisation of Cultural Symbols*

The evolution of technologies in the 20th century has enabled the development and application of a wide range of technologies in various sectors of human endeavour. Digitisation is one of such technologies that is currently used around the globe to preserve and sustain cultural heritage assets (Mishra et al., 2022). Digital technologies provide potent tools that can be harnessed to document, conserve and interpret historical cultural artefacts (Hassan & Fritsch, 2019). Trillo et. al. (2021), averred that digitisation eliminates physical barriers to cultural assets, and permits remote access to these heritages by a wider audience.

Artists around the world are currently leveraging extensively on digital technologies to create varied artistic products (Özeren et. al, 2024). Digital technologies permit artists to employ a variety of digital tools to create, present, store and distribute their artworks readily to a wider global audience (Doğan et al., 2022). Doğan et al. (2022), articulate further that digital technologies make it possible for artists to work freely without so much recourse to the limitations of space and time. The fusion of digital technologies and art, aids in extending the distribution boundaries of artistic products through online channels and virtual markets, raking in substantial economic gains for the artists (Doğan et al., 2022).

*2.4 Theoretical Framework*

Theoretical framework provides the general concepts and theories needed for understanding a research trajectory and aids in grounding the study (Bingham et. al., 2024; Grant & Osanloo, 2014). This study is grounded on three key theories, viz; cultural preservation theory, digital heritage theory and design innovation theory. Cultural preservation theory examines how various societies deliberately guard and protect their tangible and intangible heritages to ensure their continuity and preserve their meanings for posterity (Bhuda & Masenya, 2025; Gherna & Reddy, 2007). The theory posits that indigenous knowledge and artistic works must be consciously maintained to ensure that their cultural characteristics are not eroded over time (Bhuda & Masenya, 2025; Munoz-Vinas, 2023; Smith, 2016; Gherna & Reddy, 2007).

Digital heritage theory is concerned with the methodologies and conceptual frameworks that support how various digital technologies and tools such as vector illustrations, 3D scanning, photogrammetry and other related technologies, are employed to access, represent, interpret and preserve historical heritages (Adane et al.; 2019; Rahaman, 2018; Cameron & Kenderdine, 2007). The theory is based on the idea that technology can be used to sustain and preserve cultural relics by creating precise, interactive and scalable replications of traditional artefacts (Siliutina et al., 2024; Dässler & Preuß, 2019; Cameron & Kenderdine, 2007).

Digital innovation theory, on the other hand, is a framework that guides how design, with its characteristics such as empathy, creativity and iterative thinking, is employed to create meaningful and viable innovations that span the various domains (Cross, 2023; Li et al., 2022; Cross, 2011). The theory explores how various traditional art forms can inspire

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contemporary designs and retain their genuine cultural characteristics (Guaman-Quintanilla et al., 2023; Cross, 2023; Cross, 2001).

Grounding the study on the above theories will link traditional knowledge and artefacts with modern technological tools that would create a synergy for sustenance and creative growth. Cultural preservation theory underpins the need for protecting *Gurene* basketry motifs, to ensure that they are not lost in the face of globalisation. Digital heritage theory supports the digitisation endeavour, ensuring that the *Gurene* basketry motifs are transformed into accessible digital records that would enable their study and usage without any risk of destroying or damaging the originals. Design innovation theory, on the other hand, brings creativity into the mix, encouraging the use of the motifs in new contemporary designs without adulterating their cultural essence.

## 3.0 METHODOLOGY

The research is a qualitative study structured around an art-based research (ABR) design. This design serves as the roadmap for the entire research endeavour, guiding the researchers through the experimentation and design stages of the study (Creswell, 2014; Leedy & Ormrod, 2015). ABR is a dynamic and innovative approach that integrates artistic practices into the research process (Bresler, 2012; Irwin & de Cosson, 2004). Sullivan (2005) and Leavy (2015) explain that art-based research design employs various artistic methods, such as visual arts, performing arts, or literary arts, to explore research questions. This design represents a departure from traditional research methodologies, emphasising creativity, expression, and aesthetic exploration as integral components of the research process (Barone, 2012; Sullivan, 2005).

Art-based research design was chosen for this study because of the diverse methodologies it encompasses. It provides the researchers with a variety of creative tools needed to explore the research topic effectively. ABR is particularly suitable for this study because it allows the researchers to engage with the visual, materials and symbolic elements of the various motifs to facilitate their digitisation.

The key phases of the ABR methodology in this study include visual analysis, digitisation, creative experimentation and reflection. The visual analysis involves examining the forms, colours and other artistic elements of the motifs prior to their digitisation. Once this analysis was complete, the motifs were digitised using Adobe Photoshop. Following the digitisation process, the digitised motifs were utilised in various creative experimentations to design graphic products such as t-shirts, wall hangings, a branded car, a backpack, cushions, a pair of sneakers, packaging as well cloths. The reflective practice includes maintaining a visual journal that documents the creative experimentations, insights and aesthetic decisions throughout the digitisation and design processes. This reflective practice helps to identify patterns, pivotal moments and breakthroughs for documentation.

## 4.0 RESULTS AND DISCUSSIONS

*4.1 Digitisation of Motifs and their Utilisation in Designing Graphic Products*

*4.2 Tools and Techniques Used*

The main design programme used for digitising the motifs is Adobe Photoshop. Some of the key design tools employed during the design stages include; an image tracing tool, an image cropping tool and an image colouring tool. Equally, various geometric-shaping tools such as rectangle, ellipse, polygon, line and custom shape tools were also employed. Techniques including resizing, duplication and rotation were used. A mockup programme was also used to showcase some of the products designed with the digitised motifs. Details relating to how the above Photoshop tools and the mockup programme were employed are duly presented below.

*4.3 Digitisation of Motifs*

To begin the digitisation process, the images of the motifs were first transferred to a computer, and Adobe Photoshop was launched. A new workspace was created to initiate the design process, and the canvas sizes and layouts determined. The motifs were then opened in the Adobe Photoshop workspace, where the patterns were traced from the original basket motifs. Subsequently, the formats were set, and the background colours were selected. The files were named and saved in JPEG format. Various digital tools such as the rectangle, ellipse, polygon,

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line and custom shape tools available in the Adobe Photoshop, were creatively employed to generate the motifs, depending on their unique shapes.

### *4.4 Digitisation of Sabere Motif*

To digitise the *sebere* motif, the rectangle shape tool was initially used to draw a rectangle. This rectangular image was then warped to resemble the shapes found in the *sebere* motif. The warping process utilised the "auto select" and "show transform" controls. The researchers subsequently duplicated these warped shapes and aligned them to create replicas of the motif. After selecting and merging the respective shapes, the background colour was changed from white to black, and the final design was saved in JPEG file format.

Throughout the design process, various techniques were employed, including layer merging, rotation, warping, duplication, overlapping and colouring to effectively capture the motifs. The visuals presented in figures 1, 2, 3, and 4 illustrate the stages of digitisation for the *sebere* motif.

Generally, the processes outlined above were applied to digitise all the other motifs and patterns shown below, with minor variations.



Figure .1 *sebere* motif

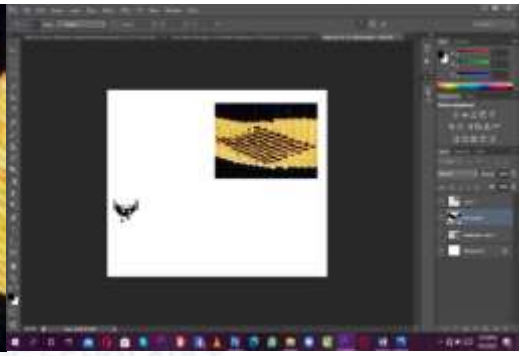


Figure .2 Digitisation of *sebere* motif in Photoshop

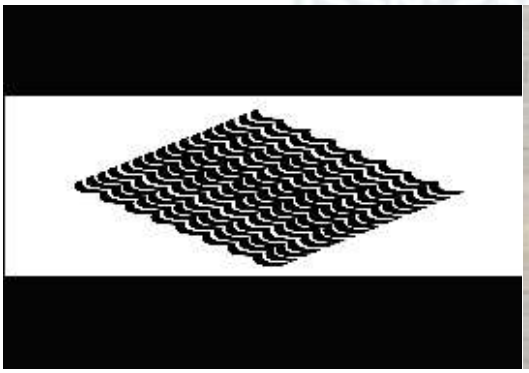


Figure .3 Digitised Motif



Figure .4 Mockup design of Sebere

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*4.5 Presentation of other Digitised Motifs*

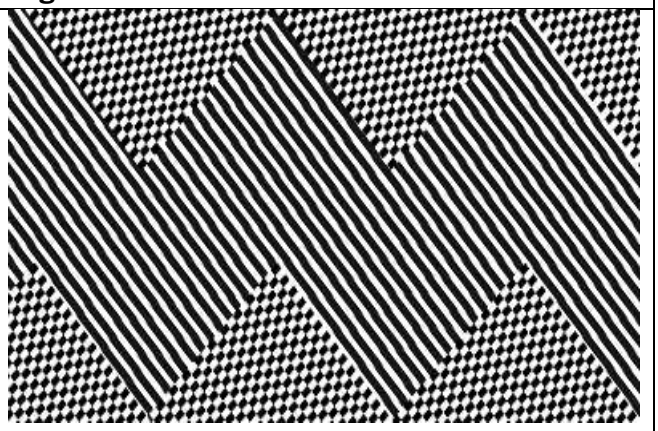
| **Original basket motif** | **Digitized** |
|---|---|
|  |  |

Figure .5 *Kampe nini* motif

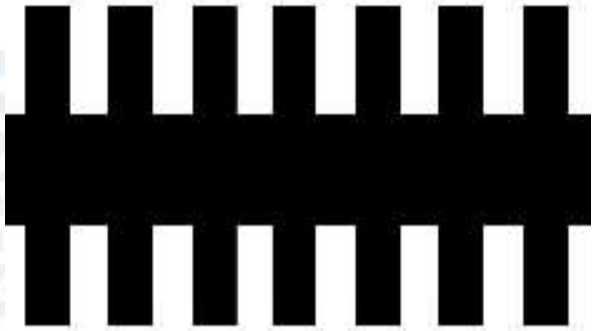
| **Original basket motif** | **Digitised** |
|---|---|
|  |  |

Figure .6 *Gumatiatahɔ* motif

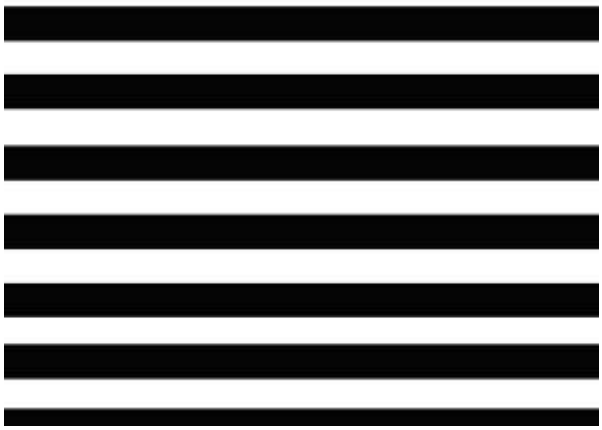
| **Original basket motif** | **Digitised** |
|---|---|
|  |  |

Figure .7 *Tane/ Tana* Motif

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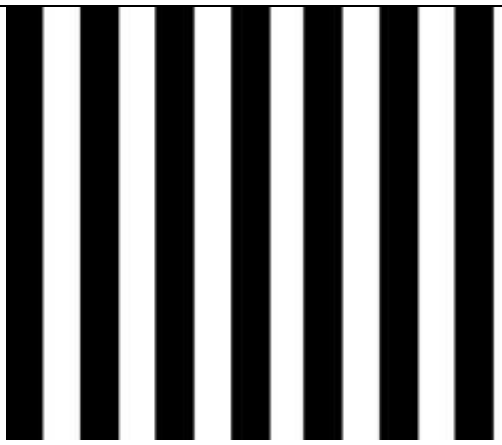
| Original basket motif | Digitised |
|---|---|
|  |  |

Figure .8 *vugudɔ/vugudɔro* motif

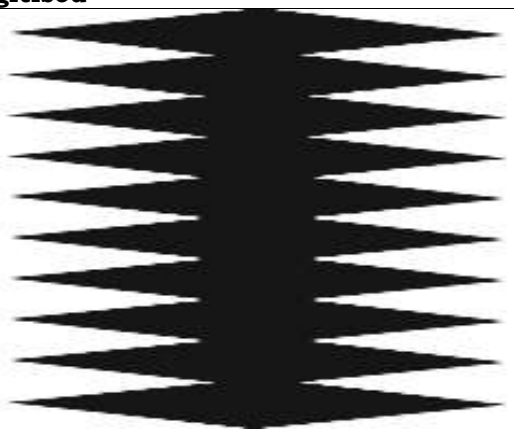
| Original basket motif | Digitised |
|---|---|
|  |  |

Figure .9 *Zuaa* motif

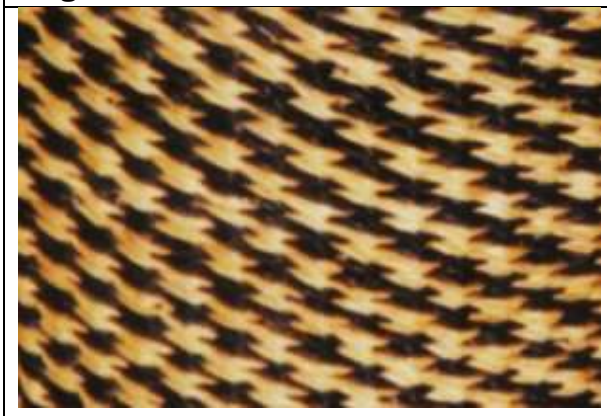
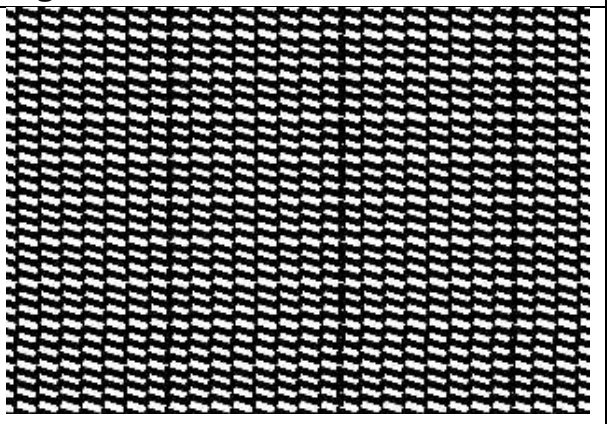
| Original basket motif | Digitised |
|---|---|
|  |  |

Figure .10 *Nwaribibsi* Motif

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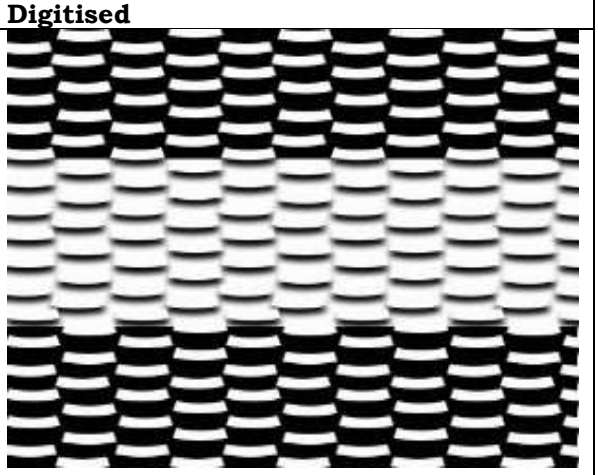
| Original basket motif | Digitised |
|---|---|
|  |  |

Figure 11. *Zua-a ne ŋu/ Zu-ŋu nini* motif

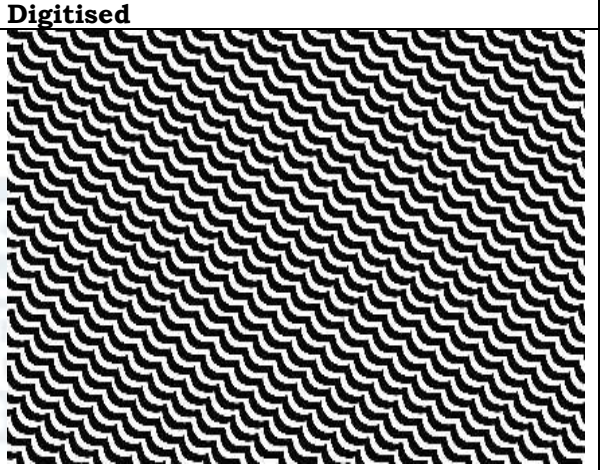
| Original basket motif | Digitised |
|---|---|
|  |  |

Figure .12 *Nuayeman Kohise* Motif

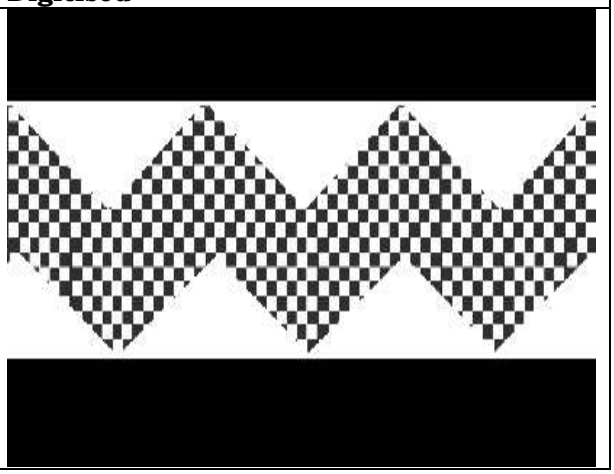
| Original basket motif | Digitised |
|---|---|
|  |  |

Figure .13 *Nantandelego* Motif

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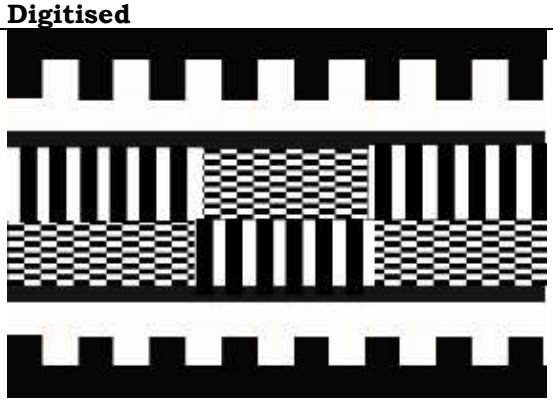
| Original basket motif | Digitised |
|---|---|
|  |  |

Figure .14 *Takɔla* Motif

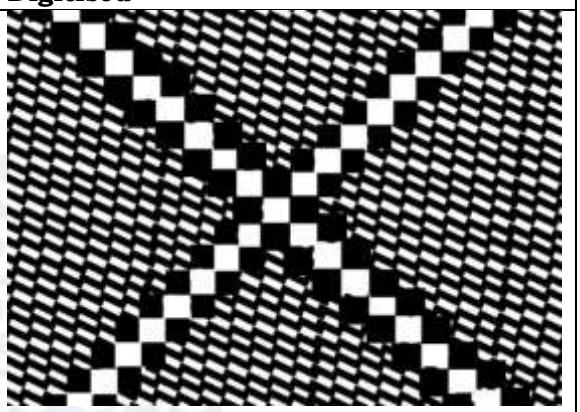
| Original basket motif | Digitised |
|---|---|
|  |  |

Figure .15 *Zalenŋa* Motif

*4.6 Mockup Display of selected Digitised Motifs*

The mockup programme was used to showcase various digitised motifs and products designed from these motifs. The process began by downloading design templates from the internet and launching them in Adobe Photoshop. Thereafter, the digitised motifs were imported into the mockup templates, which automatically registered each motif onto the different products depicted in the templates. Once completed, the mockup products were saved for presentation. A selection of these mockup designs is shown below.

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Sample Wall hangings




Sample T-Shirt

Figure .16 Mockup showing *Takɔla* and *Zalenŋa* motifs (left), *Kampe nini* (right)




Vehicle Branding

Figure .17 Mockup showing *Zuaa* motif

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Sample Wall design




Sample Backpack

Figure .18 Mockup showing *Zua-a ne ŋu* (left) and *Nantandelego* (right) motifs




Sample Sofar with Armrest




Sample Sneakers

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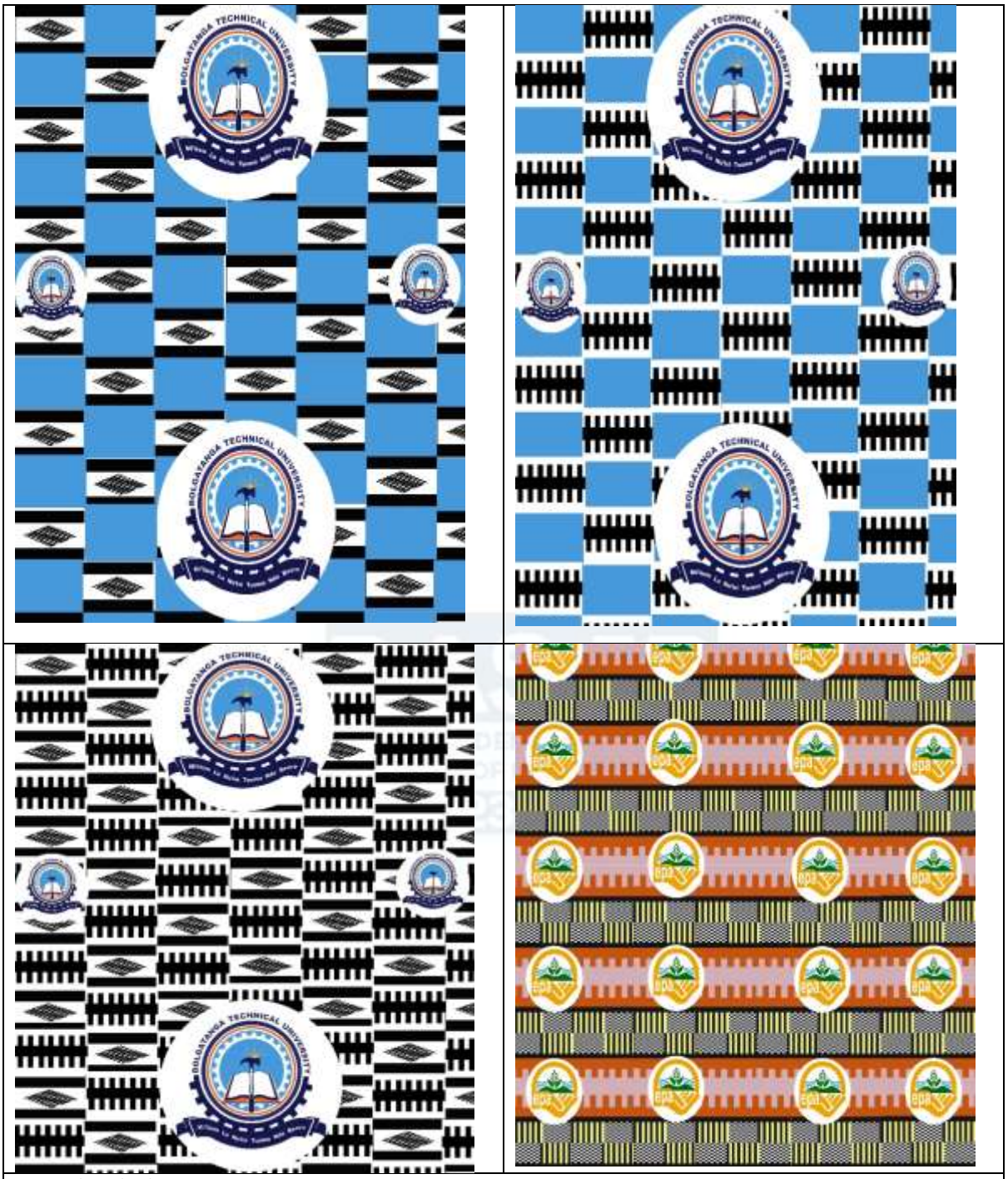

Sample Packaging

Figure .19 Mockup showing *Nwaribibsi* motif

*4.7 Designing of Cloths*

Four cloth designs were created for Bolgatanga Technical University and the Environmental Protection Agency, utilising the digitised motifs and patterns. The process began with determining suitable layouts and colour schemes for each design. Next, the Photoshop application was opened, and the background colours and layouts were chosen. The motifs were imported onto the canvases, resized and duplicated as needed. Following that, the respective institution logos were imported, rasterised and integrated into the overall design. The final designs were completed by merging all elements and saving the finished works in JPEG file formats (see figure 20 below).

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Sample Cloths

Figure .20 Cloths for Bolgatanga Technical University and Environmental Protection Agency

## 5.0 CONCLUSIONS

This study highlights the importance of tribal motifs and patterns in contemporary design. Integrating these motifs into modern graphic design practices can aid in their preservation and bridge the gap between traditional art forms and modern visual expression. Motifs typically provide exotic and visually striking elements that enhance depth, allure and texture in graphic design compositions.

This study clearly demonstrates the potential for digitising indigenous motifs and patterns to preserve and incorporate them into various artistic practices. The digitisation of

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*Gurene* basketry motifs and their application in design highlight the richness and complexity of *Gurene* culture. This project will introduce a wider audience to *Gurene* visual languages. Designers can utilise these motifs and patterns to create authentic and harmonious designs that can effectively capture viewers' attention and convey unique artistic narratives. The digitisation of *Gurene* basketry motifs exemplifies how indigenous cultural elements can be preserved and adapted for modern artistic practices. This process serves as a vital tool for cultural sustainability, allowing these motifs to transcend their traditional contexts and gain recognition in global design. Ultimately, this study contributes to the broader discourse on the relationship between tradition and innovation in design, offering a model for cultural preservation through creative practice.

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