Keiphe Nani Setlhatlhanyo, Odireleng Marope, Richie Moalosi and Oanthata Jester Sealetsa

Developing creative product designs inspired by ethnic cultural heritage

A case study of design students at the University of Botswana

Abstract

Due to colonisation and globalisation, ethnic cultures are changing, and Botswana's ethnic cultures are no exception to this change. This study aims to explore how the ethnic culture of different tribes in Botswana can be used to inspire the design of new products. A case study was conducted with students at the University of Botswana on particular themes of ethnic cultural knowledge, which inspired them to design futuristic innovative products. Visual analysis was used to assess the student designs for how they informed current trends without distorting their ethnic cultural meaning. The findings indicated that students were able to design using their own cultural heritage, to work in teams, thus, attaining soft skills, and to modernise ethnic cultural symbols to design symbolic, innovative, and futuristic products.

Keywords: design, ethnic culture, innovation, creative economy, Botswana

Introduction

Ethnic culture is one of the critical ingredients for nation building and the attainment of national sovereignty and uniqueness. It is an aspect that can be used to differentiate one nation from another. Some authors believe that culture will soon become the most competitive asset in the world economy (Clarke, 2011; Kimbell, 2011; Gunn, Otto, & Smith, 2013). As the world becomes more globalised, consumers will seek distinctive products imbued with local meaning. Designers will need to consider how to create or design value and to think of culture as a resource and a springboard for design innovation. Every nation has its own unique and rich cultural background, which is a valuable resource for design inspiration. For example, there are many ethnic cultural elements that are synonymous with Botswana, and these are conserved as the heritage of Botswana in the National Museum, the National Archives, and cultural sites and villages. Furthermore, there are cultural activities where ethnic groups celebrate their being through exhibitions, cultural food festivals, music, and dance. Kimbell and Perry (2001) suggest that design is about creating change in the built environment, understanding the processes or the change, and becoming capable in the exercise of design and making. Globalisation has increased the diversity of expression in art and design through contact with other cultures. For example, Hyun and Bae (2007) indicated that traditional textile patterns have great historical cultural value as a conventional structure of reflecting cultural identity and emotional background of nation image, thus, cultivating the ethnic cultural heritages.

The Creative Economy Report (2010) states that creativity fuels culture, infuses human-centred development, and constitutes the key ingredient for job creation, innovation, and trade while contributing to social inclusion, cultural diversity, and environmental sustainability. As the world becomes more globalised, consumers will seek distinctive products imbued with local meaning. Advances in technology, economic imperatives, and cultural developments have brought about dramatic transformations in the organisation of design, its methods, and results. In parallel, cultural routes provide a suitable forum for exchanges with design information and design experiences as well as insights into the diversities and cultural developments of different

people in different continents, stimulating contemporary artistic and professional creativity (Fiore & Kimple, 1997).

The growth in competition from new emerging economies around the world has also changed the way countries compete. For example, in the past, competitive innovation and knowledge were generated from a company's research and development laboratories. Today, competition is based not only on the ability to incorporate aesthetics but also on the ability to communicate cultural values, and every country focuses on promoting cultural applications as a main step in economic development (Hsu et al., 2011).

According to Tetteh (2013) African graphic design products have been characterised by Western aesthetics as opposed to African aesthetics and conventions.This is due to the fact that most graphic designers were trained in the West in the Modernist form, following a functional design philosophy that draws upon European and North American perspectives for its creative inspiration with little regard to unique local references. African aesthetics refer to the African appreciation of nature, natural beauty, and the value of the artistic expression of African origin (Shava, 2015). Aesthetics are imbued by African culture and practices. African aesthetics draw from the geographical, environmental, historical, cultural, religious, or spiritual experiences of Africans (Shava, 2015). They contribute immensely to the intangible and tangible cultural heritage and provide symbolic representations to the future generations. African aesthetics can be displayed in ornaments, poetry, music and dance, storytelling, fashion, hairstyles, and arts and crafts (Idang, 2015). Such representation defines aesthetic value and its need to be revaluated to establish its relevance in order to give credence to authentic African identity; such an undertaking informs people's arts and crafts and affects their sense of what is beautiful (Izibili, 2017). According to Moalosi et al. (2007; 2010), there is a lack of in-depth research and appropriate methods to assist designers in learning how to consciously integrate culture in product design, and this contributes to emulating Western design concepts.

However, Botswana currently possesses a vast wealth of cultural knowledge of which the economic value has yet to be noticed or recognised by its own people, policy makers, industrialists, and entrepreneurs. Therefore, the aim of this study is to explore how students at the University of Botswana can use elements of Botswana's ethnic cultures to inspire and execute innovative and culture-sensitive product designs.

Conceptual framework
Design and innovation

Industrial design is defined by the World Design Organisation (2018) as a strategic problem-solving process that drives innovation, builds business success, and leads to a better quality of life through innovative products, systems, services, and experiences. Design harnesses the ideas and customs of a particular culture, thereby, exhibiting culture in the form of creativity. On the other hand, the Creative Economy Report (2010) views design as a creative activity because it produces goods or services with creative content, cultural and economic value, and market objectives. In this regard, design is a creative thinking process because it requires people to identify problems, make decisions on constraints, and then engage in reflective thought to test for alternatives. According to Binggeli (2007), concept generation is critical to the design process because it provides the designer with the necessary tools to picture the qualities of the desired design through the use of words or images.

Design covers a wide range of activities, which all include the creative visualisation of concepts, plans, and ideas and the production of those ideas, aimed at providing the instructions for making something that did not exist before. The problem with ideas is that they are useless unless put to practice. To corroborate this claim, Levitt (2002) suggests that the proof of the value of an idea is in its implementation, and, until then, it remains in limbo. Similarly, Schumpter (1947) is of the opinion that invention and innovation are two separate activities in which the inventor produces ideas, and the entrepreneur gets things done. Furthermore, Drucker (1985) argues that the inventor invents new products, and the entrepreneur (innovator) brings

them to the market. Schumpter (1934) notes that innovations are imperative for economic growth, commercial profit, and, thus, public wealth. In his opinion, within capitalist societies, innovations contribute to the creation of new forms of enterprises, products, methods of production or transportation, and forms of industrial organisation. Design is considered as both a creative and innovative process; it is what links creativity and innovation by shaping ideas to become potential and attractive propositions for users and customers (Cox, 2005). The design concept phase represents the beginning of the innovation process, and, as design concepts emerge, they are shaped by the individual touch or creative expression of the designer.

Ethnic culture
Ethnic culture can be interpreted as a key aspect that defines the origin or root identity of an individual or a group of people. It is a dynamic and constantly changing property of both individual identity and group organisation. Ethnicity involves one belonging to a social group that shares a common language, cultural traditions, rituals and values, religion, etc. It is an important determinant of cultural norms, values, and preferences (Desmet, Ortuno-Ortin, & Wacziarg, 2017). Ashmore, Jussim, and Wilder (2001) summarise issues on ethnicity and identity by stating:

a) ethnicity is the process of making cultural differences comparable;
b) it is a property of a relationship between two or several groups;
c) it is an enduring and systematic communication of cultural differences between groups;
d) it is relational and situational.

Despite the globalisation and universalisation of modernity, cultural differences continue to exist within and between places, nations, and ethnic groups. In Botswana, the composition of ethnic groups is made up of Setswana-speaking people (79%), Kalanga (11%), Basarwa or Bushmen (3%), Bakgalagadi (7%), and non-African people (1%). Nyathi-Ramahobo (2008) argues that due to the dominance of the Setswana-speaking people, Botswana's laws discriminate on the basis of ethnicity, language, and culture. Furthermore, she advances that the government's goal after attaining independence in 1966 was to assimilate all ethnic groups into the Setswana-speaking people's culture and to create a mono-ethnic state. This is a model found in most British colonies. Though assimilation policies are still in place, there are indications of a slow shift in recognising minority groups and valuing cultural diversity (Nyathi-Ramahobo, 2008). The present study aims to celebrate the culture and heritage of every ethnic group in Botswana, thus, promoting unity in diversity and enriching culture for economic development.

Design and culture
Carson (2011) asserts that design has become ubiquitous within culture, as it has been adopted as a convenient insignia to add value and market commodity and to signify identity. Following the designers' era of the 1980's, the added value of design was replaced by design as a cultural value, embodied in the leading brands of the 1990's. Design and culture have always been closely interrelated, but, in many instances, design is flaunted as the true measure of culture rather than as belonging to the cultural context of the society. In support of this assertion, Carson (2011, p. 3) indicates that "[design] has become the embodiment of a larger process of creative 'culture-mongering' that has become a means to capture ideation, innovation and enterprise and made to stand for cultural identity."

Therefore, it is through culture that ideas are generated. Colour and traditional forms of culture influence the arts, crafts, and industry. Culture can be viewed as the sum of all material products and spiritual products created by mankind. In his view, culture can be divided into three categories: material culture, social culture, and spiritual culture, which is the foundation of all culture. When designs are developed, they generate behaviour that, in turn, shapes people's collective experiences through culture. It is important to intentionally think about the

culture that a design will spin into being and into the society. If this is neglected, designers may run the risk of designing products and services that will depress users, making them feel isolated. Willis (2006) proposes a theory of ontological designing, that is, to think of the effects of the product on culture during the design stage. This entails actively observing the behaviour that a design would generate, its impact on the people's culture, and iterations for better human interaction within society. Ontological design happens at the intersection of design thinking (human-centred), circular design (environmental), and culture-thinking (behaviour-centric). This framework presents an opportunity to think about the long-term impact that products and services have on users as social beings. Therefore, design navigates users' social evolution.

Creative economy
There appears to be no consensus on what the creative economy is comprised of. This is evidenced by the numerous texts that exist regarding the topic (e.g., Cunningham, 2008; Lobato, 2010; Power, 2004; Tepper, 2002). However, for this paper, we have adopted a definition biased towards economic development advanced by Howkins (2001). According to Howkins (2001) the creative economy is the fourth wave of economic development after agriculture-, industrial-, and information-based economic development. Howkins argues further that the creative economy is how added value can be generated based on the ideas and creativity of people using existing knowledge (including cultural heritage and traditional wisdom) and technology. Creativity goes hand-in-hand with innovation, which is needed to translate the creative idea into a new process or product.

Therefore, creative industries are industries that produce output from creativity and innovation as well as that create added value, jobs, and better quality of life. The society's cultural resources are part of the basis for the growth of the creative economy. Therefore, there is a need to foster creativity and innovation to develop the cultural resources by using contemporary applications while maintaining traditional knowledge and cultural heritage. In Botswana, people value their cultural heritage and traditional values. The authors believe this is a valuable resource to which contemporary design can add further value to their lives.

Methodology
A case study was conducted with a total of 36 students, including industrial design students (n = 12), social science students (n = 3), Faculty of Education students (n = 3), business students (n = 7), mechanical students (n = 5), electrical students (n = 4), and mining students (n = 2). These students were enrolled in a general education course called Art and Science of Design. Among the participants, five were female while the remainder were male. Participants were asked to design a futuristic new product inspired by their ethnic culture. The students were divided into six teams of six students, and, among the teams, each group had two design students. They were required to use either a symbol or a form to visually communicate their interpretation of ethnic cultural knowledge. Students were encouraged to modify cultural elements to align them with current trends. A case study methodology was adopted for this research based on Svengren's (1995) notation that the method is favoured for studying practices of design management, and, often, the research inquiries include a concern for how to integrate design with other business functions. A case study also allows for the in-depth review of new or unclear phenomena while retaining the holistic and meaningful characteristics of real-life events (Yin, 2009).

Students worked on the following design brief:

> Botswana's National Development Plan 10 indicates that the economic value of Botswana's cultural and heritage products has not been fully realised due to a lack of exposure. Therefore, you have been commissioned by Brand Botswana to promote Botswana's cultural and heritage products to the world and make the country a one stop destination by 2025. Unleash your creativity and select one of the cultural themes and imagine the future of design through the use of Botswana's rich cultural heritage.

The teaching methodology followed the design process shown in Figure 1, and students were asked to use the same model for their design challenge. The design process was kept simple to accommodate the needs of non-design students.
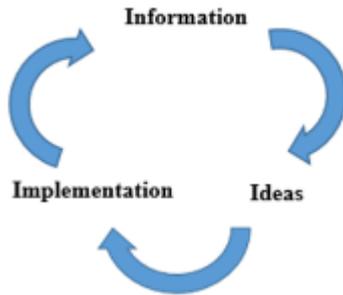

Figure 1. Design process stages.

Students were also presented with three cultural themes, categorised as (A) food, (B) arts and crafts, and (C) beliefs, respectively, and, within each theme, nine common cultural elements among Botswana's ethnic cultures were included (Table 1).

Table 1. Cultural themes.

	(A) Food	(B) Arts and crafts	(C) Beliefs
1	Seeds	*Leswana* (spoon)	Rain
2	*Mmidi*	*Phafana*	*Kgotla*
3	*Mabele*	*Mogoma*	*Botsetsi*
4	*Morama*	*Sesigo*	*Bogwera*
5	*Moretlwa*	*Calabash*	*Bojale*
6	*Dinawa*	*Kika le motshe*	*Diane*
7	*Ditloo*	*Moropa*	*Mainane*
8	*Mmilo*	Baskets	*Lesaka*
9	*Legapu*	*Lekgapho*	*Serubi*

Students were required to select their cultural theme and elements of interest. The design task was completed in two months. After completing their design tasks, participants had to present the work to their classmates. The aim was to understand how local design students could actually make use of their maternal ethnic culture in the conceptualisation of futuristic products. Visual analysis was used to assess the designs produced by the students. A visual analysis addresses a product design's formal elements, such as visual attributes - colour, line, texture, and size. The analysis also included the historical context or interpretations of meaning from

the designs (Kehrer & Hauser, 2012; Schreck & Keirn, 2013). The aim was to recognise and understand the visual choices the students made in designing their products.

Emerging student narratives
Although there were six product ideas that came out of the study, only three are discussed in this study because the authors felt that the other three product concepts could be used to generate another paper exploring a different perspective. The following section discusses the narratives of the selected ethnic cultural elements, the creative processes, and the innovative product development methods used by the students through research, annotations, sketches, and their futuristic cultural products. The cultural elements explored in this paper were based on Botswana's ethnic groups and included the major and minor groups. All participants produced sketches with a high degree of influence of their cultural heritage.

Team 1 - Mmidi (maize) Chair
Sitting is a diverse word; it could assume the context of maintaining an order of arrangement in occasions like kgotla (public) meetings, spiritual meetings, wedding ceremonies, and other formal arrangements, however, most importantly, the common use of the word assumes the position of seating, which should be in the form of some solid structure, such as stools, benches, and chairs. Sitting in a group has always been a common feature of most Batswana (the people of Botswana), especially during social and leisure activities. Seating is a common way of refreshing, reflecting, and discussing life issues. According to Botswana's ethnic cultures, sitting is an everyday practice; people sit when they are eating, conversing, and resting. Therefore, the Batswana have had seating structures like stools, benches, and the respectable kgotla chair, which is made from local materials (timber and leather). The Batswana have come into contact with modern activities like partying, clubbing, and spending time in parks; therefore, the use of sitting structures arose from these activities, and the group started developing benches, couches, and other sitting structures influenced by day-to-day activities and exposure to other cultures from around the world.

After thorough research and market evaluation, the group finally agreed to create a chair inspired by a maize cob, and it was given a very unique name, "Amaizy". For example, the design of Amaizy was inspired by a maize cob (Figure 2).
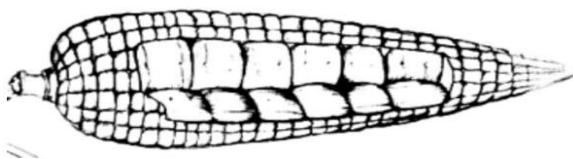
Figure 2. Amaizy sketch concept.

Maize is one of crops that the Batswana grow in their fields. Usually, when families are in the fields, maize is harvested and roasted around the camp fire as elders narrate folk tales to the young ones. The inspiration of the maize cob has become noteworthy in the sense that people sit together around the fire as a family like the maize grains that form the cob. The design of Team 1 further expresses this as a seat that accommodates six people. Amaizy seemed to evoke a certain emotion when shown to potential customers. The students proposed that Amaizy should be installed and used at the National Museum Monuments and Art gallery (Figure 3), as the museum is an ideal place to discuss and appreciate Botswana's cultural heritage.

Figure 3. Amaizy's final design and its installation.

Team 2 - Lesedi La Rona (our light) Sculpture

Team 2 recognised that Botswana's ethnic cultures are in a constant state of change because of the rapid developments made in their lifestyles and the influence of technology. This is of great concern because this dilutes the cultural heritage, which could be used to enrich the people's lives. The target group of the artwork included people who do not have adequate knowledge of the ethnic cultures of the Setswana and who wish to gain an insight into the cultures. The team also targeted the youth in the country, particularly those from the late nineties and the twenty-first century who may have little awareness of their culture. Team 2 decided to design and create a lighting sculpture that would portray the value of the Botswana's cultural heritage. The sculpture was planned to be three-dimensional and 2-4 m in length and to depict key cultural practices, norms, and values, such as: dance, rainmaking ceremonies, water fetching, respect, and initiation ceremonies. The team developed three concepts inspired by the aforementioned cultural elements.

Concept 1 (Rre wa pula - rainmaker)

This concept was solely inspired by the Hambukushu and Kalanga cultures, as they conduct rainmaking ceremonies. During periods of low rainfall, there is a spiritual rain-making ceremony called '*go fetlha pula*' used to invoke rain (Know Botswana, 2010). This ceremony is performed by the elders of the groups in secluded areas. Traditionally, Batswana believe in Gods and/or *badimo* (ancestors), whom they believe are up in the sky, and that this where blessings come from. Light from the sky is viewed as a natural source of light and a sign of hope. Some Batswana believe that the relationship with ancestors is never broken, and they tend to respect them because they believe the ancestors are closer to God. When asking for rain, they kneel to show respect to their ancestors and raise their hands to show that they are ready and have high hopes of receiving rainfall (Figure 4).

Figure 4. Rre wa pula - rainmaker. Figure 5. The way of showing respect. Figure 6. Thari ya Sechaba.

Concept 2 (Tlotlo - respect)

The African culture is different from other cultures due to its high valuation of respect. This is referred to as *Botho* - humane behaviour. This is one of the seven pillars of Botswana, which emphasise the importance of respect to the nation. Figure 5 depicts someone showing respect in a traditional way.

Concept 3 (Thari ya setshaba - mother of the nation)

This concept was inspired by the struggles and hardships that women undergo for the sake of their loved ones, thus, the saying '*Mosadi ke thari ya Setshaba*' (a woman is the mother of the nation). Figure 6 shows an image that depicts the concept of a woman carrying a baby on her back and a food basket on her head for the family.

Concept 4 (Kopano – unity)

Team 2 decided to combine concepts 1-3, because they all resembled certain activities of Botswana's ethnic cultures. Figure 5 showed a young boy kneeling down, displaying a sign of respect to the elders. Figure 4 depicted a man praying for rain, and, after it rains, a good harvest is expected. Furthermore, Figure 6 showed a woman carrying a basket for food. The combination of these three concepts depicts the lifestyle of the Batswana as a people who value their ancestors, as shown in Figure 7. It is believed that the ancestors provide what people pray for, and they, in turn, appreciate the ancestors by giving thanks. The sculpture in Figure 7 shows that the Setswana ethnic cultures are interrelated, that is, what people do in one ethnic group affects the others.

Figure 7. The Lesedi la rona sculpture and its installation.

Figure 7 portrays how the Batswana value their ethnic culture and go to the extent of making life principles which mould, unite, and groom the youth. In trying to explain what each component resembles, an encompassing name was formulated, *Lesedi la rona*, meaning that culture is the guiding principle of a society. A nation is defined by its ethnic cultures. The students identified the first shopping mall of the capital city of Botswana, Gaborone, to be an ideal place where the sculpture could be erected. This area is dominated by vendors selling cultural artefacts. The sculpture could be placed in use at the entrance of the mall corridor, as depicted in Figure 7 (right).

Team 3 - Calabash Chair

In Botswana's ethnic cultures, a chief is a very respectable individual as (s)he leads and guides the tribe, resolves disputes, etc. Team 3 was inspired by the notion of respect and the pivotal role of leadership (Figure 8).

Figure 8. *Calabash*-inspired sketches of chair and its installation.

In families, the cultural value of respect is accorded to the father, who is traditionally viewed as the head of the family. In traditional homesteads, water is kept in a clay pot, and everyone in the family drinks from the same pot using a *calabash*. The pot, therefore, plays a pivotal role in being the main source where all family members quench their thirst. The design signifies the unique role of leadership or a source of wisdom in a group. It is a special chair that is inspired by a *calabash* and is occupied by a special individual. The product is ideal for usage around the *dikgosi* (chiefs) monument area because of the cultural connotation it carries. A chief is a very respectable individual, so much so that (s)he is offered a sitting space first in any social or official gathering. The three chiefs are the most respected because they played a pivotal role in Botswana attaining independence from the British. Due to the threat which was coming from the Boers from South Africa, to annexe Botswana to be part of South Africa, the three chiefs went to England to ask Botswana to be protected by the British. In 1885, Botswana became a British Protectorate.

Discussion

The approach used in this study promotes the concept of glocalisation, that is, thinking locally and acting globally. Furthermore, the present paper advances and contributes to the theory of ontological design, or thinking culturally in the act of designing. This makes products and services locally relevant and globally acceptable. Students appreciated that it was their moral obligation to preserve their cultural heritage through designing products. They also acknowledged that culture does not take place in a vacuum and that it is dynamic, hence, modernising indigenous cultural features to design contemporary and futuristic products imbued with elements of Botswana's ethnic cultures. Ethnic cultural elements have been used to stimulate creativity and innovation in product design from Botswana's cultural perspective. This could be a valuable design approach that other design programmes from new emerging economies could adopt and modify to suit their cultural context. Other design schools could also learn how design using their own cultural heritage, and this could contribute to advancing design knowledge, to working in teams of non-design and design students (thus, attaining graduate soft skills), to modernising cultural symbols to design new and futuristic products, and, in a way, to changing culture as a result.

The design concepts from all of the teams varied in inspiration, use, impact, and the symbolic message hidden behind each concept. Each concept had a story to tell. Students analysed some of the common significant cultural activities taking place in society and then

drew abstract images depicting the observed culture. Thereafter, they applied the cultural observations to developing a new product in a new context, e.g., a maize cob and a *calabash* utilised to design a seat. Students used the bisociation technique in creating their designs, that is, a blending of elements drawn from two previously unrelated matrices of thought into a new matrix of meaning by way of a process involving comparison, abstraction, categorisation, analogies, and metaphors. The findings indicate that students were able to integrate ethnic cultural elements in their design works. Since the participants included students who were newly introduced to the design course, their work was much different in the types of sketches, the use of colour, and the designs they developed compared to design students. Each concept had a narrative that was unique, and the students developed their concepts with their target users in mind as well as possible places where the product designs could be erected or used.

The course provided non-design students with an opportunity to conduct design research, ideation, conceptualisation, and product development. Students developed an awareness and appreciation of the design profession as well as gained knowledge and skills that may prove to be very valuable in their future careers. Generally, students enjoyed working in groups, as they were able to share their diverse cultural and educational experiences. Furthermore, design students enjoyed working with students from other disciplines within the university because it exposed them to the diverse interpretation of design by non-design students.

Evaluation of the course
Students were asked various questions related to the course they elected in order to evaluate it. They were asked five open-ended questions that covered: (a) the interpretation of the theme; (b) learning outcomes; (c) interesting aspects of the course; (d) the extent of ethnic cultural inspiration; and (e) the contribution of ethnic culture to current design trends. In their responses, students highlighted that the learning outcomes of the course and the set themes gave them an opportunity to deal with practical real-life situations. The course also gave students an opportunity to learn from students of different faculties and cultures across the university. It gave them the platform to experiment and explore futuristic designs as well as made them initiators in reviving their ethnic cultural heritage. Students felt that the course enlightened them concerning how ethnic culture can stimulate creativity and innovation. Moreover, this enlightenment provided room for self-expression that led to the production of unique futuristic product designs. Cultural and traditional activities and beliefs were key to the concept generation. Finally, they learned that the approach could be used for cultural sustainability.

Conclusion
The present study has demonstrated that it is possible to use ethnic cultural heritage to stimulate creativity and innovation in designing products. Such an approach can contribute positively to the creative economy, absorb the effects of globalisation, and uplift people's lives. The designs proposed by the students have narratives and symbolic meaning to society. Such products have a high degree of acceptance since they portray the people's lifestyles and are original, authentic, and distinctive. Another important accomplishment of the study is that the participants managed to exchange knowledge and experiences from across the university. This approach instilled a sense of cultural ambassadorship in students, as they continue to preserve their culture and express it by means of various media.

Keiphe Nani Setlhatlhanyo
Lecturer
Department of Industrial Design and Technology
University of Botswana
setlhatlhanyok@ub.ac.bw

Odireleng Marope
Lecturer
Department of Industrial Design and Technology
University of Botswana
odireleng.marope@mopipi.ub.bw

Richie Moalosi
Professor and Head of Department
Department of Industrial Design and Technology
University of Botswana
moalosi@ub.ac.bw

Oanthata Jester Sealetsa
Lecturer
Department of Industrial Design and Technology
University of Botswana
sealetsa@mopipi.ub.bw

References

Binggeli, C. (2007). *A survey of Interior Design.* Hoboken, NJ: Wiley & Sons.

Carson, D. (2011). *Report on Design and Culture: A Return to Fundamentalism.* Retrieved from http://static.davidreport.com/2011/04/dr_2011_13_1.pdf

Clarke, A. J. (2011). *Design anthropology: Object culture in the 21st Century.* Vienna, Austria: Springer.

Cox, G. (2005). *Cox review of creativity in business: building on the UK's strengths.* London, England: BIS.

Cunningham, S., Banks, J., & Potts, J. (2008). Cultural Economy: The Shape of the Field. In H. Anheier and Y. R. Isar (eds.), *Cultures and Globalization: The Cultural Economy* (Series 2). London, England: SAGE Publications.

Desmet, K., Ortuno-Ortin, I., & Wacziarg, R. (2017). Culture, ethnicity and diversity. *American Economic Review, 107*(9), 2479-2513.

Drucker, P. F. (1985). *Innovation and Entrepreneurship: Practice and Principles.* New York, NY: Harper Business.

Fiore, A., & Kimple, P. (1997). *Understanding Aesthetics.* New York, NY: Fairchild Publication.

Gunn, W., Otto, T., & Smith, R. C. (2013). *Design anthropology: Theory and practice.* London, England: Bloomsbury Publishing.

Howkins, J. (2001). *The Creative Economy: How People Make Money from Ideas.* London, England: Penguin.

Hsu CH., Lin CL., Lin R. (2011) A Study of Framework and Process Development for Cultural Product Design. In: Rau P.L.P. (eds) Internationalization, Design and Global Development. IDGD 2011. Lecture Notes in Computer Science, vol 6775. Springer, Berlin, Heidelberg.

Hyun, S.H, & Bae, S.J., (2007). Aesthetic characteristics of traditional Korean patterns expressed on contemporary fashion design – from 1990 to 2005, *Journal of Fashion Business*, *11*(6), 139-156.

Idang, G. E. (2015). African culture and values. *Phronimon, 16*(2), 97-111.

Kehrer, J., & Hauser, H. (2012). Visualization and Visual Analysis of Multi-faceted Scientific Data: A Survey. *IEEE Irans. Visualization and Computer Graphics.* Retrieved from http://www.iLuib.no/vis/publications/publication/2012/pdfs/Kehrer12VisualizationAnd.pdf

Khoo, L. M., & Semple, A. L. (2006). Knowledges of the creative economy: towards a relational geography of diffusion and adaptation in Asia. *Asia Pacific Viewpoint*, *47*(2), 173-194.

Kimdell, L. (2011). Rethinking design thinking: Part 1. *Design and Culture, 3*(3), 285-306.

Kimbell, R., & Perry, D. (2001). *Design and technology in a knowledge economy.* London, England: Engineering Council.

Levitt, T. (2002). Creativity is not enough, *Harvard Business Review,* (August), 137-144.

Lobato, R. (2010). Creative Industries and Informal Economies: Lessons from Nollywood. *International Journal of Cultural Studies, 13*(4), 337-54.

Moalosi, R., Popovic, V., & Hickling-Hudson, A. (2010). Culture-orientated Product Design. *International Journal of Technology and Design Education*, *20*(2), 175-190.

Moalosi, R., Popovic, V., & Hickling-Hudson, A. (2007). Product Analysis based on Botswana's Postcolonial Socio-cultural Perspective. *International Journal of Design, 1*(2), 37-45.

Nagel, J. (1994). Constructing Ethnicity: Creating and Recreating Ethnic Identity and Culture. *Social Problems, 41*(1), 152-176.

Nyathi-Ramahobo, L. (2008). Minority tribes in Botswana: The politics of recognition. Retrieved from https://minorityrights.org/publications/minority-tribes-in-botswana-the-politics-of-recognition-january-2009/

Power, D., & Scott, A. (2004). *Cultural industries and the production of culture.* New York, NY: Routledge.

Schumpter, J. A. (1934). *The Theory of Economic Development.* Cambridge, MA: Harvard University Press.

Schreck, T., & Keirn, D. (2013). Visual analysis of social media data. *Computer/IEEE, 46*(5), 68-75.

Schumpter, J. A. (1947). The Creative Response in Economic History, *Journal of Economic History, 7*(2), 149-59.

Shava, S. (2015). The African Aesthetic. In M. J. Shujaa and K. J. Shujaa (eds.), *The SAGE Encyclopedia of African cultural heritage in North America* (pp. 11-17). Thousand Oaks, CA: SAGE Publications.

Svengren, L. (1995) Case Study methods in Design Management research. *Design Studies, 14*(4), 445-456.

Tepper, S. (2002). Creative assets and the changing economy. *Journal of Arts Management, Law and Society, 32*(2), 159-168.

Tetteh, S. (2013). *Traditional African Art Forms: Sources of Inspiration for Graphic Design. (*Master thesis, Department of Communication Design, Kwame Nkrumah University of Science and Technology). Available: http://ir.knust.edu.gh/bitstream/123456789/6382/1/stephen%20tetteh.pdf

The Creative Economy Report (2010). *Creative Economy: A feasible Alternative for Development*. Geneva, Switzerland: United Nations Trade and Development Secretariat and the United Nation Development Programme Special Unit for South-South Cooperation.

Willis, A. M. (2006). Ontological designing-laying the ground. *Design Philosophy Papers, 4*(2), 69-92.

World Design Organisation. (2019). The World Design Organization (WDO). Retrieved from https://wdo.org/about/definition/

Yin, R. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, CA: SAGE Publications.