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Abstract

The scope of this study is to engage designers to evaluate the extent to which they act as agents of change towards achieving a greener world, as their outputs have a significant bearing on how communities consume products or services. The study provides an audit of how the three key pillars of sustainability, namely economic, environmental and social are promoted in the creative industries in Zimbabwe. Five distinct areas in the creative industries were selected for this study: fashion design, interior design, product design, graphic design and multimedia design. Five in-depth interviews were conducted in each sector from which the design agent was purposively sampled. The interviewees were purposefully sampled using their present and past creative work as a key indicator for providing a meaningful contribution to the study. A huge gap with regards to knowledge on sustainability issues was identified amongst designers across the sectors, athough opportunities for improvement were also identified. The study highlights the need to improve sustainability education as a concept for both designers and consumers of products and services. The study concludes that creative industries in developing economies like Zimbabwe have significant potential to contribute towards the achievement of the Sustainable Development Goals (SDGs).

Keywords: Sustainability, Economy, Creative, Designer, Education

Introduction

Sustainable design is one of the tenets of the Sustainable Development Goals (SDGs), as it plays a key role in how humans seek to meet their current needs without upsetting the ability of future generations to also meet their respective needs. Traditionally, manufacturers have employed the linear economy model in which products are made from natural resources and after their use are disposed of in an often unsustainable manner. However, the more favourable and sustainable pathway would be to adopt the circular economy model as proposed by Pearce and Turner (1990), Wastling et al. (2018) and Sumter et al. (2020). A circular economy model aims to re-introduce the used parts of product as new raw materials for another new product to improve resource efficiency.

From the designer's perspective, concepts such as biomimicry, minimalism, cradle-to-cradle and the 4Rs (reduce, reuse, repair, and recycle) become key as they promote circular economy initiatives (Chipambwa et al., 2023; Geissdoerfer et al., 2017; Hall et al., 2023). The concept of design for sustainability is made up of five key principles: biomimicry, cradle-to-cradle, renewability, minimalism and systems thinking. Leerberg et al. (2010) state that design shapes the lives of all humans, and as such designers must consider the impact of their outputs. They go on to suggest that the designer should therefore consider the impact of their design on society, from the initial steps of the design process till the end of the product's life. Margolin (2007) also argues that designers have a crucial role to play in the economy as they determine how humans interact with their planet. The goal of sustainability is to use fewer resources and preferably

eco-friendly options that may be available for the product to be realised.

Sustainability was first defined by the Brundtland Commission as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Keeble, 1988). Sustainability in product design and development has therefore become a major research area over the years (Ahmad et al., 2018). Design for sustainability (D4S or DfS) is part of design for excellence (DfX), a concept that seeks to improve the quality of a product during the design stage. For a product to exist, it has to be designed, and it is during this stage that the materials to be used and the various processes to be carried out in terms of its manufacturing up to its disposal are determined (Sild, 2022). This implies that the design stage is key in determining the effect of the product on sustainability.

The development of sustainable products is an area that has gained popularity in the field of product development (Fernandes & Canciglieri, 2014). It has been established that 80% of sustainability is decided at the product design stage (Ahmad et al., 2018). It then becomes apparent that the designer has a huge role to play in ensuring that sustainable products are launched onto the market. For designers to become active agents of change for sustainability, they should be prepared to move out of their comfort zone and be prepared for continuous learning (Baldassarre et al., 2019).

The industry is facing increasing pressure to adopt more sustainable approaches to product design and manufacturing to remain competitive. Important issues that design and manufacturing companies should consider to retain their acquired market share are maintaining high-quality products, lowering production costs and protecting the environment (Gupta & Vegelin, 2016). Expectations for sustainable manufacturing practices have become more stringent over the years considering increasing environmental degradation, climate change and air and water pollution (Gupta & Vegelin, 2016).

This study sought to:
• Explore the sustainable design concepts that designers and other creatives use in their practice.
• Examine how the concept of sustainable design is embraced by the local designers and creatives.
• Suggest strategies to promote the adoption of sustainable design principles and practices within the design sector.

Literature review
Sustainable design is often linked to green design and ethical design. The motive of sustainable design is to reduce resource use in product creation and reduce emissions to the environment as well as improve its socio-economic performance throughout the product life cycle (Ahmad et al., 2018). Sustainability is made up of three main dimensions: economic, social, and environmental (Gupta & Vegelin, 2016), which are also referred to as the 3Ps, namely profit, people and planet, respectively. Economic viability is a critical factor for the survival of any organization, but it is not enough to sustain the organization in the long term if production causes damages to the ecosystem, emits toxic waste and depletes non-renewable resources. It has become important for any organization to act socially and environmentally responsibly while trying to achieve its economic goals (Gupta & Vegelin, 2016). Munyai (2016) opines that, to increase the capabilities of design, one can look at using concepts such as design thinking, co-design service design and system design. Even though they are not directly linked to sustainable design. they can help in solving design problems.

For sustainable design and thinking to have a positive impact, the designer must think beyond simple constraints by engaging consumers to understand consumer behaviour and expectations. This will in turn produce designs that are driven by value and create an opportunity for the designer to educate the consumer. According to Harper (2018), there is also a need to look at the aesthetic value of the design, as this also in some way affects the user in terms of their habits as consumers. She further argues that it is the designer's responsibility to educate users about the material and aesthetic quality dimensions of the product.

Ahmad et al. (2018) posit that sustainable product design should pay more attention to the product life cycle – from the raw material selected for use, the structural formation, manufacturing and usage to the end of life, reusability and recyclability of a product. Success in sustainable design entails consideration of environmental issues at the inception of the product development process, effective use of tools and environmental design principles, rules and standards and the availability of information required for cross-functional teamwork (Gupta & Vegelin, 2016).

Eco-design or design for the environment (DfE) is an idea or concept that aims to improve the environmental performance of a product (Hauschild, 2004). Fitzgerald et al. (2007) define DfE as "the systematic consideration of design performance concerning environmental, health, and safety objectives over the full product and process life cycle. DfE integrates design-related concepts such as; design for disassembly, recycling, recovery, human health, and safety". Barsanti (2012) argues that the role of a designer has changed from being a creator to being a facilitator of change. This is done through designing products that consider the 3Ps of sustainability.

Three main strategies can be used in the application of the DfE concept. These strategies are minimizing resources and processes, optimizing the product life and planning the end of life of a product. In the first strategy, minimum resource consumption and processes allow for minimum resource use. In optimization of the product life, the goal is to prolong a product's useful life in the market. This can be achieved through designing for the appropriate duration, designing for reliability, facilitating updating and adaptation and facilitating maintenance, repair, reuse and re-manufacturing. Planning the end-of-life strategy seeks to reclaim the primary material used in products after its useful life. The strategy can be achieved by designing for reuse, remanufacture and recycling (Fernandes & Canciglieri, 2014).

Methodology

According to Creswell (2012), the research design should explain the processes followed in the collection of data, the data analysis and how the results are presented. This study was qualitative, as it sought to understand how designers view the concept of sustainable design in the way they perform their duties. The study sought to understand more about the behaviour of designers and their views on sustainability and evaluate the role designers play in the creative economy. The study identified three areas of design: fashion design, product/industrial design and graphic design. The 15 selected participants provided indications of how the sector is embracing the concept of sustainability, although a more extensive sample that can warrant a generalizable result can be studied in future. These three design areas are more common in the local creative industries and have many players who are actively participating in the growth of this sector. Due to the limited resources, the study used a purposive sampling technique to identify and select design participants who were deemed to be knowledgeable about the area and expected to be information rich, as argued by Patton (2002).

The selection of the participants in the three design sectors was based on the assessment of various design products they have contributed as their outputs as well as their social media interactions. The participants were fully informed of the study and they consented to participate before the data collection was done. The interview questions were sent before the agreed interview date so that the participants could familiarize themselves with the trajectory of the study. The questions were both open-ended and close-ended with an opportunity to probe further. Data was analysed and themes were generated from the 15 interview cases.

Results and discussion

Table 1: Respondents demographics and experience.

Respondent	Gender	Position	Years of experience	Educational qualification	Employment
P1	Female	Supervisor	3	degree	Self-employed
P2	Female	Designer	14	degree	Formally employed
P3	Female	Designer	8	masters	Formally employed
P4	Female	Fashion designer	3	Degree	Self-employed
P5	Male	Fashion house director	5	Degree	Self-employed
P6	Male	R&D furniture designer	4	Degree	Formally employed
P7	Female	Designer	2	Degree	Formally employed
P8	Male	Designer	3	Degree	Self-employed
P9	Male	R&D product designer	5	Degree	Formally employed
P10	Female	Interior designer	4	Degree	Self-employed
P11	Male	Designer	4	Higher national diploma	Self-employed
P12	Female	Creative director	3	Degree	Self-employed
P13	Male	Designer	5	Degree	Formally employed
P14	Male	Graphic artist	6	Master's degree	Self-employed
P15	Male	Designer	3	Diploma	Formally employed

Table 1 presents the participants' gender distribution, years of experience and employment status. The design industry is synonymous with self-start-ups, such that one can easily open up one's own company. Table 1 also shows that there was a fair distribution of both female and male participants in all the areas of design chosen for the study. The lowest academic qualification of all the designers was a higher national diploma, indicating a knowledgeable target population. Zimbabwe has seen a steady growth in the number

of tertiary institutions offering a wide range of subjects taught from the lower levels up to degree level. One subject that has been introduced widely in high schools as part of the new curriculum is Design and Technology, which has resulted in more students taking up design-related degrees and diplomas at the tertiary level.

In the design field, the entrepreneurship dimension is much more pronounced, as the skills exhibited can result in the formation of a business that can be grown into a larger operation. In this study, 53% of the respondents indicated that they were self-employed while the other 47% were formally employed. As stated by Fernandes (2019), students who graduate from the creative or design-related disciplines tend to benefit more in terms of entrepreneurial orientation as innovation is part of their key learning outcomes.

Sustainable design knowledge and education

All the respondents pointed out that they knew what sustainable design entails. One respondent said, "*They are designs that are timeless and are produced using organic fabrics*" (Participant 4). The respondents showed that they had an appreciation of the issue of raw materials used in design and also the issue of durability as compared to fast fashion products. Another respondent said, "*Sustainable design is a concept that emphasizes the utilization of the earth's natural products without depleting them so that future generations can also benefit from them*" (Participant 6). Overall, the appreciation of sustainability as a concept that is important in design was evident from all the respondents. Though the respondents reflected knowledge of sustainability, it was evident that those who are self-employed tend to practise it more than the formally employed. This was attributed to formal ways enforced by companies on the design processes that are always rigid. Self-employed creatives tend to explore without limits and thus quickly move with the economic trends.

According to Gwilt (2012), in the case of fashion designers conforming to sustainability, they are affected by the design brief which in turn is part of the fashion brand. Thus they have very little to change as the manufacturer is keen to make as much profit as possible from the particular design. The issue of practising or implementing sustainable design becomes a difficult option as the designer has few options to employ. Only one respondent stated that environmental sustainability is incorporated in their research and development activities and that is when they try to ensure that the design problem is solved.

All the respondents in this study indicated they went through formal design education and they acquired knowledge on sustainability and sustainable design. About 75% of the respondents stated they attained knowledge in sustainability from the various design education qualifications they undertook. The respondents (66%) also cited personal study as their source of knowledge on sustainability. Social media platforms were also highlighted as key sources of information on sustainability. One respondent acknowledged, "*I got to know about sustainability through a Facebook advert on sustainable fashion and started following it, and ever since I am now actively participating in some initiatives on sustainable design and eco-design in fashion*" (Participant 2).

Zimbabwe is a developing economy, and as such social media plays an active role in promoting sustainability, a view also supported by Bruce et al. (2022), who conducted a similar study on SMEs in Ghana. From this study, it was highlighted that very few companies are doing on-the-job training for their employees, especially on issues to do with sustainability, a finding also supported by Chipambwa et al. (2023) and Sumter et al. (2020). This could be attributed to economic challenges facing many companies

in the country in that they end up trying to cut costs by not conducting training, which businesses view as a financial burden to their operations.

Challenges faced by designers in sustainable design

The respondents cited several challenges they faced as designers in promoting or implementing sustainable design. One respondent said, "*The society as a whole is finding it difficult to practise sustainability as they are stuck with what they are used to/they are familiar with*" (Participant 10). The respondent further explained that people are usually not comfortable with new ways of doing things, hence as a designer it is risky to bring in new ideas that promote sustainable design. Another respondent said, "*There is a lack of time and commitment from designers themselves and also a lack of financial resources to effectively connect key stakeholders in raising awareness and contributing to the local pool of sustainably designed/made solutions*" (Participant 11).

Many players also cited the worsening economic situation as a key setback, as designers cannot expand their operations with ease. It was also highlighted that some sustainable design concepts are difficult to push onto the market. Upcycling fashion products or industrial products for example can be a challenge as customers might view the products as trash. This then makes it difficult for the designer to actively promote issues of sustainability, as the market may not yet be ready for such products. The graphic designers highlighted the fact that the absence of sustainable organic inks and paper to print in the market is a challenge. Another designer stated, "*The concept of less is more (minimalism) can be mistaken for laziness*" (Participant 14), and this can hurt one's business. The designer added that the consumers of designs also need to be made aware of sustainability issues so that they can appreciate the designer's perspective in the design of new products.

Another respondent stated that there is a need for homegrown solutions that take all players in the industry aboard. She highlighted the fact that "*There is a need for promoting the use of our abundant local raw materials like our own cotton that has to be spun, woven and dyed using environmentally friendly methods*" (Participant 12). The respondent further stated that there is a need to promote the go green concept with proper care labels on clothes so that consumers are constantly reminded of the role they also have to play in sustainability. Another respondent, a graphic designer, affirmed that "*Consumers need to be made aware of the issues to do with the environment through billboards and also using paper bags that carry the message to promote responsible behaviour amongst the consumers*" (Participant 13).

Promoting sustainable practices

Educating designers was highlighted as key to promoting sustainable design. Though the respondents explained that they acquired knowledge on sustainability through formal education systems, it was pointed out that many tend not to put it into practice. One respondent said, "*Yes, I learned about sustainability at college but the content was too basic compared to what I know now. It was more of an introductory nature and less about practice"* (Participant 4)*. A related response was, "*There is a need to educate learners on sustainability from the primary level in the form of projects they can undertake so that they develop a better understanding and an appreciation of sustainability and hence become responsible citizens*" (Participant 9).

From the responses above, one can conclude that there is a need to improve the way sustainability is taught so that there are environmentally conscious consumers and designers. Another respondent also suggested that symposia or workshops could be held for specific industrial sectors so that designers

recognize how their operations affect the environment and have them suggest workable solutions specific to their sector. Graphic illustrations that encourage users to recycle or reuse various packages can also be used as a way of communicating with users so that they play a role in promoting sustainability. Designers can also use the eco-friendly design concept so that they produce durable products that are designed with the environment in mind.

Conclusion

This study points out several key issues that affect the design industry in Zimbabwe and how these could be solved. In the area of fashion and textiles, there is a need to promote the use of natural fibres like cotton as this promotes the local cotton farmers and at the same time supplys sustainable material for use in fashion design. In graphic design and printing, use of organic inks that are not harmful to the environment is also another alternative that can be adopted by users. Social media can also be used to promote sustainability initiatives as it can easily reach out to a larger audience unlike workshops or symposiums that target specific groups. Educating design consumers on sustainability also results in a knowledgeable community that can take initiatives in promoting sustainable behaviour and consumption. The educational curriculum can also be improved such that sustainability issues are imparted early in the educational journey of students and through tasks or projects that can make students learn from experience. Workshops or symposia to upgrade skills for the informal sector in the creative design industry can result in positive reaction from these players as they play a key role in these economies.

The designer must take an active role in promoting sustainability, as their design ideas result in products or services consumed by users. Designers should be ready to explore new horizons and continuously learn new ways or strategies in design practice that conform to the continuously changing standards set for sustainability. Manzini (2009) states that if designers are to be active agents of change for sustainability, they should move out of their comfort zone and continuously learn to perform their duties differently. The designer plays a crucial role in influencing the sustainable adoption, use and disposal of any product by fully embracing the design process of sustainable products.

A generation of designers is needed who can work with the industry in promoting sustainable designs in Zimbabwe. The higher education curriculum must be audited to establish if it responds to the expectations of sustainability. Designers in today's world need to change the way they approach their design projects by going beyond the aesthetic value of a product but rather looking at how the product is going to be made, used and discarded. As a developing economy, Zimbabwe still has an opportunity to develop a more holistic approach towards the use of its natural resources, and designers or the creative industries sector can prove to be very useful in such national agendas.

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