Impact of graphic design on sustainability practices

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Abstract:

Environmental sustainability has emerged as a common buzzword in the contemporary world with different industries being required to demonstrate compliance with environmentally friendly practices. An explanation for the focus on environmental sustainability arises from the fact that governments across the world are actively collaborating to mitigate the effects of climate change. The graphic design industry has also faced pressure to adopt environmentally friendly practices through 'green graphic design' initiatives. The focus of this research was to investigate the impact of graphic design on sustainability and environmentally friendly practices. Data was collected using the qualitative method where semi-structured interviews were conducted among ٦graphic designers. The qualitative data was analysed using a thematic analysis process. The insights obtained showed that graphic design was enhancing environmentally friendly practices through the adoption of UV-curable and water-based inks, printing promotional materials on recycled plastics, use of LED lighting, and minimising waste in the printing process. The findings also highlighted that in the future, more graphic design firms are anticipated to adopt sustainable and environmentally friendly practices to leverage their benefits and ensure their processes do not adversely affect the environment .

Keywords: environmental, sustainability, graphic design, practices, waste, printing

Introduction

Background and Problem Statement

In the contemporary world, graphic design plays an integral role in facilitating sales and marketing operations by raising awareness about

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products sold by a business. Hong and Byun (2021) align with this view where they report that innovative visual designs enhance marketing and attract the attention of customers towards stores. Clement, Aastrup, and Forsberg (2015) also report that visual aesthetics have a significant impact on the purchase behaviours of customers and their decision-making processes hence improving durability, perceived ease of use, and the innovativeness of new products. As such, it is essential for firms to either hire graphic designers within the company or outsource the talent to create innovative visuals that promote their products to customers.

Further review shows that in the past few years, the concept of green graphic design has also emerged where there is a focus on enhancing sustainability through finding ways to save energy and resources throughout the design process (Du and Ma, 2023). In elaboration, Du and Ma (2023) posit that green graphic design underscores harmony with nature and is integral in innovating traditional design concepts, the use of materials, and technical methods to reduce the impact on the environment and foster its overall conservation. Leung and Luximon (2021) also observe that graphic designers can contribute to environmental sustainability through eco-friendly printing as an alternative to petroleum-based ink. Examples of green graphic design initiatives in eco-friendly printing include the use of water-based, vegetable-based, and UV-curable inks (Malone, 2023). A further strategy by Adam et al. (2022) regards the use of digital billboards instead of traditional paper-based ones that contribute higher carbon footprint.

The problem identified in the current research is that minimal study has been undertaken to identify how graphic design can advance the agenda of sustainability and environmentally friendly practices. The current study aims to bridge this gap and contribute to both practice and academic debate on the particular problem area. The outcomes from the study will highlight recommendations for designers to enhance sustainability and environmentally friendly practices.

Aim of the Study and Objectives

The research aims to investigate the impact of graphic design on sustainability and environmentally friendly practices. The following objectives will be addressed:

i. To examine underlying theories on environmental sustainability and environmentally friendly design practices
ii. To evaluate the underlying issues challenging sustainability and environmentally friendly design practices
iii. To examine strategies that can be adopted to ensure graphic design supports sustainability and environmentally friendly design practices.

Research Questions

i. How is graphic design enhancing environmentally friendly practices and sustainability?
ii. What is the future outlook of graphic design in enhancing environmentally friendliness and sustainable practices?

Structure of the Report

The dissertation report is structured into five chapters. Chapter one is the introduction where the aim of the study and research questions are delineated. Chapter two presents the literature review where current literature on the related research topics is reviewed. Chapter three is the methodology, which examines the techniques employed for the collection and analysis of data. Chapter four presents the findings and discusses them to address the research questions in the study. Finally, Chapter five is the conclusion where the insights from the research are presented and recommendations to advance practice and research.

Literature Review

In this section, the theory guiding the current research is justified. The research adopts the institutional theory which is focused on how organisations and groups can secure their positions by aligning themselves to rules such as regulatory structures and norms of the institutional environment (DiMaggio and Powell, 1983). As such, the political,

economic, and external social pressures impact firms to adopt strategies and implement decisions as the firms aim to legitimise their practices in the view of their stakeholders (Scott, 2014). The rationale for adopting the theory arises from its effectiveness in explaining how changes in social value, advancement of technology, and regulations impact 'green' sustainable activities (Ball and Craig, 2010). In this view, the theory explains how the pressure for organisations to adopt environmentally friendly practices and ensure sustainability in their operations further impacts the nature of graphic designs that are developed in the companies. As the regulation by the government pressurises firms to support sustainable practices, the graphic design processes adopted are also anticipated to adhere to the requirements for green activities.

Graphic Design, Environmentally Friendly Practices, and Sustainability

The focus of this section is to examine empirical literature linking graphic design, environmentally friendly practices, and sustainability. The examination of different studies reveals that eco-friendly practices are adopted in different phases in the design process, for example, during printing where sustainable techniques are used such as ultraviolet (UV)-curable and water-based inks (Malenica et al., 2023). In further elaboration, Malenica et al. (2023) reported that sustainable printing involved the use of UV-curable or water-based inks that had a reduced solvent content hence being associated with lower volatile organic compound (VOC) emissions. Figure 1 below illustrates UV-cured screen printing which is sustainable.

Figure 1. UV LED ink-curing printing technology (Packaging Strategies, 2021)

Figure 1 above showcases the UV-curing printing technology which promotes sustainability by providing an alternative to oil-based inks.

However, Fischer (2022) contradicts Malenica et al. (2023) by reporting that water-based inks are disadvantageous as they dissolve in water when the water-based prints end up in the processes of paper recycling. The implication is that ink particles are difficult to remove from the pulp suspensions based on their hydrophilic features and size. A further contradiction is that the water-based inks that are not removed from the pulp suspensions can be toxic to the environment when they are disposed of.

Nevertheless, using UV-curable inks and curing instead of the conventional techniques offers more sustainability advantages. For example, Bolte (2010) identifies similar insights as Malenica et al. (2023) where they report that UV printing is both eco-friendly and is associated with rich vibrant colours and sparkling gloss. The final print appeals to high-end labels suitable for different types of substrates including plastics, board, and foil. Close inspection of these studies indicates that the sustainability of the printing techniques arises from the use of instantly curable inks that do not require high energy or heat during the drying processes. As a result, less energy is involved during printing leading to higher environmental sustainability.

A further review also highlights the use of UV LED printing which is more sustainable than conventional techniques. In their study, Zoppi (2018) posited that UV LED curing involved drying inks using photomechanical processes where light was employed. The sustainability of UV LED curing arises from the fact that VOCs are not released into the air while the quality of printing is highly improved as the inks are not absorbed by the material they are printed onto. Ink World Magazine (2023) reiterates Zoppi (2018) where they postulate that UV LED lamps are more sustainable due to lower energy consumption, more consistent outputs, and a longer shelf life. The studies also indicate that the inks that are curable using UV incorporate recycled binder content hence minimising reliance on fossil fuels. Furthermore, Altay, Bolduc, and Cloutier (2020) posit that green

printing techniques such as UV printing do not incorporate any solvents and are more environmentally friendly since they use less energy than thermal curing techniques.

In addition to using UV LED-cured inks, sustainability in the printing industry is also achieved by using eco-friendly print materials such as recycled waste and organic-based materials. Zhang et al. (2022) postulate that moulded fibre and pulp products which are based on plant-based or recycled materials are receiving attention due to their sustainability advantages in the packaging industry. Iroegbu and Ray (2021) also support the argument by highlighting the use of bamboo-based lignocellulosic packaging promotes sustainability as fewer emissions are generated in comparison to non-renewable plastics. Jia et al. (2022) reiterate Iroegbu and Ray (2021) and add that recycled plastics such as polyethylene are used in disposable paper cups hence promoting sustainability as they replace the traditional and costly pulp. The inspection of these studies indicates that sustainable printing emerges from the use of eco-friendly materials made from agricultural waste, recycled plastics, and organic materials such as bamboo instead of conventional printed materials from recycled paper or trees. Figure 2 showcases printing on recycled plastic (polyethylene) substrates to promote sustainability.

Figure 2. Printing on recycled plastics (EuroPlas, 2021)

Figure 2 above illustrates printing on recycled plastics to enhance the sustainability of the printing process. A further review also indicates that

graphic designers can promote eco-friendly practices by adopting sustainable visual solutions. García et al. (2014) support the argument by revealing that the switch to LED street lighting led to energy savings of 64% and a significant reduction of greenhouse gas emissions of 33,192 tCO2e annually. Morse (2022) supports García et al. (2014) where they posit that the use of LED lights in offices has led to a significant reduction in energy demands with less consumption of electricity for lighting and lower greenhouse gas emissions. Tajudeen et al. (2020) add to Morse (2022) where they postulate that LED lighting contributes to both economic advantages in the reduction of monetary and social costs and minimal pollution where greenhouse gases are eliminated in the atmosphere. However, Mohamed (2022) contradicts Tajudeen et al. (2020) and Morse (2022) by revealing that the predominant use of different types of LED lights such as blue LEDs can lead to negative consequences for plant and animal health, especially where they suppress the release of melatonin, the hormone involved in sleep regulation. The contradiction suggests that there are drawbacks associated with the adoption of LED lights in graphic design offices where they may be adopted to save energy and ensure eco-friendliness. Figure 3 details an office setup using LED lighting.

Figure 3. LED lighting in an office setup (Block, 2018)

Figure 3 above showcases the use of LED lighting to promote energy efficiency in an office setup. Finally, graphic designers can enhance sustainability by reducing the waste generated from their work processes. In this case, the designers ensure that they design visual solutions that generate as minimal waste as possible during the printing process (Bonsu, Chisin, and Cronjé, 2019). The strategies imply the maximisation of the print area and the reduction of any waste from the printing processes. Butlewski et al. (2014) also observe that human error is a source of up to 80% of failures reported in different industries and hence reducing human error helps avoid costly and unsustainable practices. In graphic design, human errors in the design process can lead to waste during reprints hence causing waste and high economic costs. The inference from Butlewski et al. (2014) and Bonsu, Chisin, and Cronjé (2019) is that there is a need to provide proper training to graphic designers to ensure they avoid errors that would lead to reprints and waste of material during the printing process. As a result, the graphic design industry can contribute to eco-friendly practices and ensure less energy loss and waste to the environment.

Methodology

The interpretivism philosophy was adopted in the current research based on its emphasis on the creation of knowledge in a subjective manner (Chowdhury, 2014). In the current research, it was essential to understand the impact of graphic design on environmental sustainability and environmentally friendly practices through a subjective process. The research further adopted the inductive approach where the focus was to first collect data and thereafter, evaluate it to identify the existing relations between the different concepts in the research (Azungah, 2018). In particular, it was essential to identify how graphic design was contributing to environmental sustainability and environmentally friendly practices. The research also adopted the qualitative method. Tenny, Brannan, and Brannan (2022) posit that the qualitative method focuses on answering ‘why’ and ‘how’ questions regarding a given phenomenon hence explaining patterns of human behaviour that are difficult to quantify. The rationale of the

qualitative method in the study arose from the need to embrace subjectivity in establishing how graphic design promoted environmentally friendly practices.

Data Collection

The research collected qualitative data based on the subjectivity observed in the study where semi-structured interviews were selected to facilitate the collection. Jamshed (2014) describes semi-structured interviews as a method of in-depth data collection where preset open-ended questions are prepared to guide the interview process. The rationale for adopting the semi-structured interviews arose from their suitability in collecting subjective data from the perceptions of different individuals. In the research, in-depth data was obtained regarding the impact of graphic design on environmental sustainability and environmentally friendly practices.

The selection of the respondents in the study was undertaken based on the purposive sampling method where participants were required to meet set criteria set by the researcher (Campbell et al., 2020). The researcher required the respondents to work as graphic designers and to be knowledgeable about the impact of graphic design on environmental sustainability and environmentally friendly practices. The participants were recruited from the LinkedIn platform where messages to participate in the research were sent to different designers in various parts of the world. The research selected 6 graphic designers in the study and interviewed them using Zoom video conferencing tool. Each participant was allocated 1 hour to ensure they answered the questions comprehensively. Appendix A details the interview questions considered in the study. Table 1 illustrates the details of the participants in the research.

Table 1: Participant details

Participant	Work Experience	Position
R1	6 years	Senior graphic designer
R2	5 years	Art director
R3	10 years	Creative director
R4	8 years	Graphic designer
R5	7 years	Art director
R6	6 years	Graphic designer

The analysis of Table 1 above showed that participants were experienced in the graphic design industry with their positions ranging from creative director to art director and senior graphic designer.

Data Analysis

The qualitative data obtained from the interviews was examined using a thematic analysis process. Castleberry and Nolen (2018) posit that thematic analysis is the standard technique adopted in undertaking qualitative data evaluation. As such, the justification of thematic analysis arose from its transparency and wide use in the scientific community (Nowell et al., 2017). To implement thematic analysis, the researcher reviewed the interview responses and identified patterns of similarity which were highlighted as codes. Thereafter, the codes were combined into themes that succinctly summarised the findings of the study.

Research Ethics

One of the ethical factors considered in the research regarded informed consent where it was essential for the participants to agree to take part in the interviews without any form of coercion (Kadam, 2017). As a result, participants were required to sign the consent letter in agreement to voluntary participation in the research. Appendix B further presents the consent form that the graphic designers were required to assent to before participation in the research. Second, there was a need to preserve the privacy of the identity of the participants where pseudonyms were used in place of their real names (Kisselburgh and Beever, 2022). Finally, the researcher ensured that the data provided by the respondents was maintained in a strictly confidential manner and away from unauthorised third parties

(Tegegne et al., 2022). Additionally, the data sourced from the respondents would not be shared without prior permission.

Limitations of the Methodology

Methodology limitations are described as weaknesses that hinder the credibility and outcomes of research (Greener, 2018). In the current study, the limitation emerged from the collection of data from only a few samples where only 6 graphic designers were interviewed. As such, the findings reported in the research were not readily generalisable to the graphic design community. The limitation was mitigated by examining diverse empirical studies that provided further insights into the role of graphic design in enhancing environmentally friendly practices and sustainability.

Findings and Discussion

Introduction

The findings collected in the research and further discusses them to address the research questions in the study. To evaluate the interview responses, the study adopted a thematic analysis method where several themes were identified. Table 2 illustrates the themes of the research.

Table 2: Themes in the study

Theme	Description
Theme 1: Achieving sustainability in the graphic design industry	The theme elaborated on the adoption of sustainability in the graphic design industry
Theme 2: Implications of sustainable graphic design	The theme described the implications of sustainable graphic design and factors that motivated the adoption of eco-friendly practices.
Theme 3: Challenges of achieving sustainability in the graphic design industry and future outlook	The theme elaborated on the challenges hindering the adoption of sustainable processes in graphic design and the future outlook of sustainability techniques

The themes in Table 1 above detailed the use of sustainability in the graphic design industry and the implications of sustainable practices as well as their future outlook.

Findings and Discussion

Theme 1: Sustainability in the graphic design industry

The first theme was addressed by the examination of responses to the first interview question. The respondents were asked to describe how they had adopted eco-friendly and sustainable practices in their work in the graphic design industry. The responses revealed different strategies, for example, R1 revealed that their company switched to UV-curable and water-based inks. R1 reported;

> 'In our case, we have opted to use water-based and UV-curable inks that are important in reducing waste and ensuring that we use less energy when producing different printed artwork.' (R1)

The response indicated the awareness of the respondent about the energy efficiency of UV-cured and water-based inks in terms of lower energy consumption during the printing process. As such, conventional printing techniques using thermal heating were avoided to enhance sustainability.

Further responses indicated the use of alternative printing materials, for example, R4 cited the use of recycled plastics instead of paper from trees. R4 said;

> 'Recently, we began using recycled high-density polyethylene in our signage printing due to their immense benefits not only economically, but also, environmentally. We incur fewer costs and have minimal impact on the environment as less paper is used. The materials are also durable and we can use them for a long time.' (R4)

The analysis of the response indicated that the switch to recycled plastics as printing materials for signage and promotional materials was an eco-friendly practice that boosted the conservation of the environment by reducing the use of paper from trees.

However, participants such as R6 argued that their company did not switch to any alternative printing material to ensure sustainability. Instead, the management focused on retraining workers to minimise human error and ensure less waste from the printing processes. R6 reported:

> 'We are yet to adopt alternative printing materials such as recycled plastics in our company. However, we have focused on reducing waste by retraining our designers to maximise the print area and minimise the waste generated in the printing process.' (R6)

The analysis of the response was indicative that lowering mistakes at the workplace was an eco-friendly practice since less material was wasted during printing. Therefore, although oil-based inks and paper were still used, less waste was generated hence conserving the environment.

Theme 2: Implications of sustainable graphic design

The second theme was addressed by examination of the second and third interview questions. In the second question, the respondents were asked to describe the impact of adopting eco-friendly and sustainable practices in the graphic design industry. From the responses, insights showed that the practices were leading to a lower environmental footprint. R3 reported:

> 'The graphic design industry generates a lot of waste especially when promotions end and the printed visuals have to be disposed to the environment. This contributes to high emissions when waste marketing materials are burned in incinerators. We can avoid the high emissions by switching to eco-friendly practices such as using organic materials for print and packaging that can degrade when disposed to the environment.' (R3)

The evaluation of the response showed that the uptake of eco-friendly practices was beneficial to the environment due to minimal pollution and emission of greenhouse gases during the disposal process.

R5 added to R3 where they argued that less emissions could also be generated by using LED lighting instead of traditional fluorescent lamps. R5 argued:

'In some instances, graphic designers are required to work overnight to meet client deadlines. As a result, a lot of energy is directed to lighting the offices which leads to increased use of fossil fuels to generate electricity. However, by switching to LED lights, less energy is used and a lower economic footprint is observed.' (R5)

The response from R5 reiterated R3 where they pointed out that eco-friendly practices were reducing greenhouse gas emissions through the lower energy requirement.

The third interview question examined the different factors that motivated graphic designers to adopt eco-friendly and sustainable practices. R1 revealed that regulatory compliance influenced their company to adopt sustainable methods. R1 stated:

> 'The government introduced legislation that required different industries to comply with the set requirements for environmental sustainability. In our case as a graphic design firm, we need to demonstrate compliance to ensure we continue operations.' (R1)

The analysis of the response was indicative that political factors influenced graphic design firms to comply with environmental sustainability requirements to continue operations.

R2 added that the decision to adopt eco-friendly practices was driven by economic factors where reducing costs was a major motivation. R2 reported:

'Eco-friendly practices are more cost-effective than the traditional alternatives in my view. An example is using water-based inks that are relatively cheaper and also guarantee high-quality print. We switched to ensure we saved more in our work processes.' (R2)

The analysis of the response showed that some graphic design firms were motivated to adopt eco-friendly practices due to their lower economic costs. As a result, the practices led to multiple benefits including environmental friendliness and lower costs.

Theme 3: Challenges of achieving sustainability in the graphic design industry and future outlook

The final theme was addressed by analysis of the responses to the fourth and fifth interview questions. In the fourth question, the respondents were asked to describe the various challenges that hindered the adoption of eco-friendly and sustainable practices in the graphic design industry. R1 argued that a challenge identified was the high costs incurred in acquiring alternative technologies such as UV-curing devices. R1 stated:

'In our case, we run several offices in town. We incurred very high costs in switching from traditional oil-based inks to UV-curing technology which is more environmentally friendly.' (R1)

The response showed that the adoption of eco-friendly technology was also expensive despite the advantages of lower environmental pollution. The interpretation was that firms were required to allocate enough finances to facilitate the transition to eco-friendly technology in printing.

R4 added that high expertise was also required to manage advanced technologies such as UV-curing and printing on recycled plastics. R4 reported:

'Operating emerging technologies can be a challenge especially where we lack the technical expertise. An example is printing on recycled plastics which is different from traditional paper. Therefore, this has hindered many firms from adopting the advanced technology.' (R4)

The analysis of the response showed that there was a need for graphic design companies to further invest in the necessary expertise to ensure eco-friendly practices would be adopted successfully.

The final question investigated the outlook of eco-friendly and sustainable practices in the graphic design industry. R5 argued that in the future, more graphic design firms would be forced to switch to eco-friendly practices due to the need to mitigate climate change. R6 argued:

As the world focuses more on sustainability and climate change, many industries including graphic design will be forced to adopt

eco-friendly practices that have a minimal impact on the environment.' (R6)

The evaluation of the response suggested that a shift to more eco-friendly practices was expected in the graphic design industry with increased trends towards the conservation of the environment.

The evaluation of the response reiterated views by R6 where a trend focusing on the adoption of eco-friendly practices was expected. As a result, companies would focus more on alternative materials for print and packaging.

Discussion

The first research question sought to investigate how the graphic design industry was enhancing environmentally friendly practices and sustainability. Addressing the question also facilitated addressing the first and third research objectives which investigated theories on environmental sustainability and strategies that could be adopted to ensure graphic design was environmentally sustainable. The review of the findings showed that different graphic design companies had adopted eco-friendly practices to ensure compliance with the existing legislation. Such insights aligned with DiMaggio and Powell (1983) who reported that the institutional theory advocated for the alignment of organisations to the existing rules of the institutional environment. The findings were also in line with Ball and Craig (2010) who had argued that the institutional theory explained how regulations impacted the adoption of green and sustainable activities in firms. The similarity between the findings and the literature indicated that the institutional theory framework was justified in the research in explaining how the graphic design industry adopted sustainable practices.

Further examination of the findings also revealed the various strategies adopted by graphic design firms to ensure eco-friendly practices were implemented in their firms. From the responses, participants revealed that they employed strategies such as UV-cured and water-based inks to enhance the sustainability of their processes. The use of recycled plastics was also highlighted as an eco-friendly practice to facilitate sustainability in

printing. Such findings were aligned with previous literature where Malenica et al. (2023) reported that using water-based and UV-curable inks was more environmentally sustainable due to the lower VOC emissions. The findings also reiterated Bolte (2010) and Ink World Magazine (2023) where insights showed that the water-based inks were controlling energy use and reducing overall waste generated. The findings were also in line with Jia et al. (2022) who had shown that printing on recycled plastics promoted environmental sustainability processes. The similarity between findings and literature indicated that the graphic design industry was adhering to environmental sustainability by adopting alternative printing technologies and materials. The findings also indicated an alignment with DiMaggio and Powell (1983) who argued that the institutional theory explained how firms adapted to change in their environments by following the set norms to secure their positions in the market. In this view, the adoption of sustainable practices in graphic design firms ensured that they were fulfilling the requirements of environmental sustainability. However, the findings contradicted Fischer (2022) who argued that the disadvantage of water-based inks was their difficulty in removing them from pulp suspensions as they dissolved in water. The contradiction suggested that despite the advantages of water-based inks, they were still difficult to process from pulp. As such, further work is important to identify solutions to such problems.

The second research question investigated the future outlook of graphic design in enhancing environmentally friendliness and sustainable practices. Addressing the question also helped answer the second research objective regarding the challenges hindering the uptake of sustainable practices in the graphic design sector. From the findings, insights identified challenges such as a lack of expertise in using sustainable techniques and the high costs of their implementation. The results also indicated that the future outlook encompassed the increased adoption of eco-friendly practices in line with the demands for climate change. Such findings were aligned with previous literature where Du and Ma (2023) had reported that green graphic design was receiving attention as it promoted sustainability by

saving energy. The findings also reiterated Ink World Magazine (2023) where it was argued that sustainability was emphasised across different industries with the use of UV LED lamps that had lower energy consumption and longer shelf life. The implication was that in the future, more companies would adopt more sustainable strategies including LED lighting. The identified challenges in adopting sustainable graphic design practices contradicted the views from the institutional theory where DiMaggio and Powell (1983) argued that firms would secure their positions by aligning to the existing regulatory structures and rules in the institutional environments. The contradiction arose from the fact that issues such as high costs and lack of expertise were hindering the uptake of sustainable practices in the firms.

Conclusion

The overarching aim of the research was to investigate the impact of graphic design on sustainability and environmentally friendly practices. The aim was addressed by answering three research objectives and two research questions. The first research objective was addressed where findings showed that the institutional theory explained the underlying factors that influenced the graphic design industry to adopt environmentally friendly practices where the need to comply with regulations was underscored. The second research objective was addressed where the findings showed that the high costs of switching to environmentally friendly printing and lack of expertise in using the proposed methods were the main challenges hindering sustainability. The third research objective was further addressed where strategies to promote sustainable graphic design practices were identified including encouraging the adoption of alternative printing methods and printing materials.

The first research question was also addressed where findings revealed that the graphic design industry was enhancing environmental sustainability through the adoption of UV-curable and water-based inks instead of the traditional oil-based alternatives. The findings further highlighted the use of recycled plastics as printing materials and LED

lighting to save energy and reduce adverse environmental emissions. The second research question was also addressed where findings revealed the outlook of graphic design where more firms were expected to adopt environmentally friendly methods in the future.

Implications of the Research

The research findings imply that green graphic design is an increasing trend in modern graphic design firms and there is a need for existing companies to pay attention to using more sustainable processes. The findings also imply that further training is necessary for graphic designers to ensure they can adopt sustainable processes in their work operations. In this regard, firms should focus on equipping their workers with the right skills to facilitate the switch to more environmentally friendly graphic design practices. As such, more collaboration with universities and research organisations is anticipated in future to equip graphic designers with the necessary sustainable practices.

Recommendations for practice

The research recommends graphic design companies to adopt environmentally friendly practices that ensure minimal harm to the environment through either the release of VOCs or the disposal of waste to the environment. A second recommendation is that more awareness ought to be raised regarding the benefits of switching to eco-friendly practices in the graphic design industry to ensure that more firms are encouraged to adopt the methods. The awareness campaigns should also highlight the potential shortcomings of sustainable graphic design strategies to ensure companies can make informed decisions to adopt the technology.

Recommendations for future work

The research recommends that in future work, a larger sample is considered to provide the required data in the research. Future work should also consider quantitative methods such as surveys to collect more comprehensive insights about the use of environmentally friendly practices in the graphic design industry. The second recommendation is that scholars should investigate strategies to address the limitations of sustainable graphic

design practices, for instance, how to lower costs of the alternative printing technologies.

Limitations of the Study

The limitation faced in the study regarded the narrow focus on data collection where only semi-structured interviews were used in data collection. As such, the findings obtained in the research were not easily generalisable.

Data Availability Statement

The data supporting the findings of this study (interview and consent form) are available within the article in the appendix A and B.

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Appendix A

Interview Questions:

1. How have you adopted eco-friendly and sustainable practices in your work as a graphic designer?
2. What is the impact of eco-friendly and sustainable practices on the graphic design industry?
3. What factors motivate you as a graphic designer to adopt eco-friendly and sustainable practices in your work?
4. What challenges hinder the uptake of eco-friendly and sustainable practices in your work as a graphic designer?
5. What is the future outlook of eco-friendly and sustainable practices in the graphic design industry?

Appendix B

Consent Form

Dear participant,

You are invited to participate in this research which seeks to investigate how graphic design is enhancing environmentally friendly practices and sustainability. The research is purely voluntary and you are requested to participate in a short interview that will only take 30 minutes.

All data obtained from the interviews will be maintained in a strictly confidential manner and all participant details will be anonymous. The information from the interviews will facilitate addressing the research questions in the study and will only be used for research purposes. All participants are free to withdraw from the study at any time without any negative ramifications.

n	Participant Name	Signature	Date
1			
2			
3			
4			
5			
6			

Researcher Signature Date

تأثير التصميم الجرافيكي على ممارسات الاستدامة

د. نورة باخت العتيبي *

الملخص العربي:

برزت الاستدامة البيئية كمصطلح شائع في عالمنا المعاصر، حيث يُطلب من مختلف الصناعات إثبات التزامها بالممارسات الصديقة للبيئة. ويعزى التركيز على الاستدامة البيئية إلى التعاون الفعّال بين الحكومات حول العالم للتخفيف من آثار تغير المناخ. كما واجهت صناعة التصميم الجرافيكي ضغوطاً لتبني ممارسات صديقة للبيئة من خلال مبادرات "التصميم الجرافيكي الأخضر". ركّز هذا البحث على دراسة تأثير التصميم الجرافيكي على الاستدامة والممارسات الصديقة للبيئة. جُمعت البيانات باستخدام المنهج النوعي، حيث أُجريت مقابلات شبه منظمة مع ستة مصممي جرافيك. وحُللت البيانات النوعية باستخدام عملية تحليل موضوعي. وأظهرت النتائج أن التصميم الجرافيكي يُعزز الممارسات الصديقة للبيئة من خلال اعتماد الأحبار القابلة للمعالجة بالأشعة فوق البنفسجية والأحبار المائية، وطباعة المواد الترويجية على البلاستيك المعاد تدويره، واستخدام إضاءة LED، وتقليل النفايات في عملية الطباعة. كما أبرزت النتائج أنه من المتوقع أن تتبنى المزيد من شركات التصميم الجرافيكي في المستقبل ممارسات مستدامة وصديقة للبيئة للاستفادة من فوائدها وضمان عدم تأثير عملياتها سلبًا على البيئة.

الكلمات المفتاحية: البيئة، الاستدامة، التصميم الجرافيكي، الممارسات، النفايات، الطباعة

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