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Cosmopolitan localism as a research framework for sustainability in graphic design practices

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ABSTRACT

Graphic design practices in a developing nation have a negative impact on sustainability, with researchers recommending several strategies to minimize it, yet much has not been achieved. Cosmopolitan localism has been proposed as a solution since contextual problems need contextual solutions. This paper attempts to establish a relationship between cosmopolitan localism and sustainability through exploring emerging innovations in cosmopolitan localism and their potential to minimize the impact of graphic design practices on sustainability. Data were gathered through observation, field notes of shared experiences, and unstructured interviews pertaining to designing packagings, labels, advertisement materials and by-products of graphic design production. The emerging innovations reflect three approaches, namely design policy, up-cycling of graphic design production by-products, and social media usage for design product dissemination. Results show how local approaches that are open and connected shape design decisions and reflect a connection to the global flow of ideas that minimize the impact of graphic design practices on sustainability. The paper concludes that cosmopolitan localism is a collaborative mode of production that creates an enabling environment for the practice of sustainability in graphic design, and that promotes distributed economics.

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Cosmopolitan localism; sustainability; emerging innovations; distributed economics

1. Introduction

This paper responds to Kossoff's (2019) assertion that the concept of cosmopolitan localism needs to be developed to inform visions of sustainability in the future. Cosmopolitan localism is an approach to community development that links global and local communities through distributed digital communication networks. It is a way to globally connect local communities in networks of shared exchange concerning both production and consumption (Manzini, 2015). The approach has 'dynamic potentials of our emerging globally distributed knowledge and design commons in conjunction with the emerging (high and low tech) capacity for localised production of value' Ramos (2017, p. 65). Localized production, based on globally distributed knowledge and the shared exchange in production, helps to reduce environmental and economic costs (Manzini & M'Rithaa, 2016). Although cosmopolitan localism may promote sustainability there have been relatively few discussions about its practical manifestation (Kossoff, 2019), and its connection to sustainability.

We propose Small, Local, Open and Connected (SLOC) facets of cosmopolitan localism (Manzini, 2015) as a framework to explore the relationship between sustainability and cosmopolitan localism through using emerging innovations that may minimize the impact of graphic design practices on sustainability. The following questions drove the research:

- (1) How do innovations in graphic design practices manifest cosmopolitan localism?
- (2) How do the identified innovations minimize the negative impact of graphic design practices on sustainability?
- (3) To what extent is cosmopolitan localism connected to sustainability in graphic design practices?

2. Background

This article emphasizes the contributions of design and designers in solving challenges to sustainability, and the potential of graphic designers to create a positive impact on sustainability through emerging innovations (Bonsu et al., 2020). We explored alternative approaches that may advance sustainability practices that are local but have global essence (Manzini, 2010). Cosmopolitan localism is central when it comes to societies' resilience to social and economic uncertainties (Manzini & M'Rithaa, 2016).

Emerging innovations in sustainable graphic design practices were explored, through the lens of cosmopolitan localism, in Ghana. These practices and their associated emerging innovations can be leveraged to address twenty-first-century problems that impact negatively on sustainability as captured by Manzini (2010), who outlined several such innovations and pointed out that they were still in their initial stages. Designers would have to develop them further and in different contexts to grow a general vision of small, local, open, and connected solutions that may fuel sustainable practice.

This research explored emerging innovations in designing packaging, labels and advertising materials. It also considered the management of by-products of graphic design production. The innovations were categorized into three approaches: (1) sustainable design policy, (2) up-cycling of used and by-products of graphic design production materials and (3) the use of social media for design dissemination.

3. Framing sustainable graphic design: what are the boundaries?

Graphic designers have not reached a consensus on the definition of sustainable graphic design (Dritz, 2014). Most definitions are for sustainable design or communication design – not for *sustainable graphic design*. The Society of Graphic Designers of Canada defines sustainable communication design as the application of sustainability principles to communication design practice. They explain that practising sustainable communication design implies considering the full life cycle of products, and services; and committing to strategies, processes, and materials that factor in environmental, cultural, social, and economic responsibilities (GDC, 2009). Dougherty's (2008) considers sustainable graphic design as both upstream (promoting products and services through concepts to meet marketing plans) and downstream practices (considering materials, manufacturing and distribution of products). Benson (2007, p. 3) defines it as a practice that factors respect and cares for the community, improves the quality of life, conserves the earth's vitality and diversity, and minimizes the depletion of nonrenewable resources. AIGA has adopted a roadmap called the Living Principles for Design, as a catalyst for positive cultural change driven by care for the environment, people, culture, and the economy (AIGA, 2010).

These definitions reflect different ways in which sustainable design has been conceptualized, and practised. The various definitions of sustainable communication design cover four trajectories: (1) the designer's behavior, (2) design method/process, (3) materials and tools, and (3) the after use of

the designed product. The Society of Graphic Designers of Canada (GDC, 2019) proposes a commitment to strategies, processes, and materials that factor in sustainability and designing for clients who are sustainability-conscious. Graphic designers should design with sustainable strategies, tools, and materials in mind, to reduce environmental damage, foster social and cultural well-being, and remain economically viable (GDC, 2019).

From these definitions, sustainable graphic design can be defined as a practice in which the designer displays a sustainable behavior and utilizes strategies, processes, materials, and tools that may reduce environmental damage, foster social and cultural well-being and ensure economic viability as shown in Figure 1. The definition still has limitations because the various facets of sustainability mentioned in the literature are shallow and will make its application very difficult. This study, therefore, employed the Sustainability Development Analytical Grid as the theoretical framework to operationalize the various components of sustainability to support the application.

4. Challenges to sustainability in graphic design practices despite various solutions or innovations; what is the way forward?

Although sustainable design solutions such as bio-mimicry, backward design, green design, and cradle-to-cradle design have been initiated (Ceschin & Gaziulusoy, 2016), there are still serious challenges to sustainability in graphic design practices. There is also a lack of adequate information on sustainable design and sustainability support structures (Dritz, 2014). The lack of sustainable design information makes it difficult for clients to connect to the values inherent in sustainability (Dritz, 2014). Benson and Napier (2012) lament that after teaching sustainability for four years it is apparent that students do not see sustainability as vital in their craft. 'Compliant' graphic designers are concerned about losing their clients to non-compliant designers who are unconcerned about their practices' effects on the environment and society, due in part to their lack of professional ethics (Shaughnessy, 2005).

In the Ghanaian context, there is a lack of sustainability education and its attendant lack of practical guidelines. The educational deficit could be seen in improper disposal of printing waste chemicals, air pollution from the burning of spoiled printed papers, and strong-scented printing inks, as well packaging for products that are harmful to society (Bonsu et al., 2020). Nevertheless, there may be innovations that already serve as improvised solutions to minimize the impact of graphic design on sustainability that should be explored and mainstreamed.

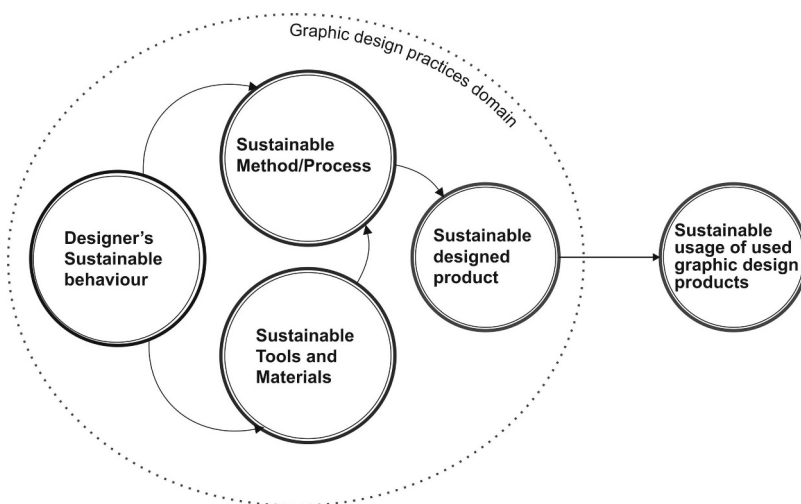


Figure 1. Sustainable graphic design trajectories (Authors' construct, 2020).

5. Cosmopolitan localism: a potential framework for sustainable graphic design practices

Cosmopolitan localism occurs in many forms. It could be through technological (Smart Systems), social, socio-technical (Human relationship with Artificial Intelligence) or even resilient (Innovative approaches for overcoming sustainability challenges) means to counter problems in a society filled with uncertainties and complexities. Cosmopolitan localism offers a creative balance between being rooted in a locality and being open to global flows of ideas, people and things (Kossoff, 2019; Manzini & M’Rithaa, 2016). Various global or local approaches have been developed to overcome the problems in our societies but there is a key challenge of disconnection between the two. Examples of such global approaches are Design for Sustainability, Grassroots Innovation, Frugal Innovation and Transition Design just to mention a few as elaborated in Table 1.

The approaches in Table 1 are valid in promoting sustainability to a degree but do not capitalize on the connectedness between the local and global flow of ideas, which keep the local attune with global happenings to overcome sustainability challenges from the local community with available local tools and materials. Cosmopolitan localism, therefore, creates a new appreciation of place and reinvents the communal in an open and resilient manner (Escobar, 2018). Thus, it transfigures the relation between locality and universality, respecting and promoting local communities across a global network of equal co-existence (Sachs, 1992) as captured in Figure 2.

The qualities that drive cosmopolitan localism are *small, local, open and connected*. *Small* in this context is the interconnected series of local systems that are easy to manage and control, but which are also *connected* to global hubs allowing utilization of global ideas in *local* ways creatively, from an *open* perspective. These four qualities are very significant because they are the product of synthesizing the results of twenty years of discussions, concrete experiences and designing sustainable solutions, starting from the notion of *local* (Manzini, 2010). Hence our use of cosmopolitan localism as a framework to explore its manifestation in the innovations for sustainable graphic design practices and to consider how it connects to sustainability or advances sustainability in practice.

6. Sustainable Development Analytical Grid – a theoretical framework for sustainability assessment

We adopted the Sustainable Development Analytical Grid (SDAG) for analyzing cosmopolitan localism innovations. The grid was derived from the Eco-Advising Chair of the University of Quebec in Chicoutimi (UQAC), developed from the work of Villeneuve (Villeneuve et al., 2017). It provides researchers with tools that allow them to assess holistic sustainability. It had been refined over the past 25 years because the traditional triple bottom line (economic, social and environmental) used by early sustainable development practitioners lacked a complete and thorough assessment framework and methodology (Villeneuve et al., 2017). The Sustainable Development Analytical Grid is recognized by the United Nations who use it as part of their Sustainable Development Goals toolkit. In addition, it has been tested and used in developed and developing

Table 1. Definitions of some key approaches to sustainability.

Sustainability Approaches and Definitions
The concept of Design for Sustainability (D4S) requires that the design process and resulting product take into account not only environmental concerns but social and economic concerns as well’ (UNEP & TUDelft, 2009).
‘Grassroots innovations describe networks of activists and organisations generating novel bottom-up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved’ (Seyfang & Smith, 2007).
“Frugal innovation refers to ‘an ability to do more with less by creating more business and social value while minimizing the use of resources such as energy, capital and time” (Radjou & Prabhu, 2014; Khan, 2017).
Transition Design advocates the re-conception of entire lifestyles, with the aim of making them more place-based, convivial and participatory and harmonizing them with the natural environment’ (Irwin et al., 2015).

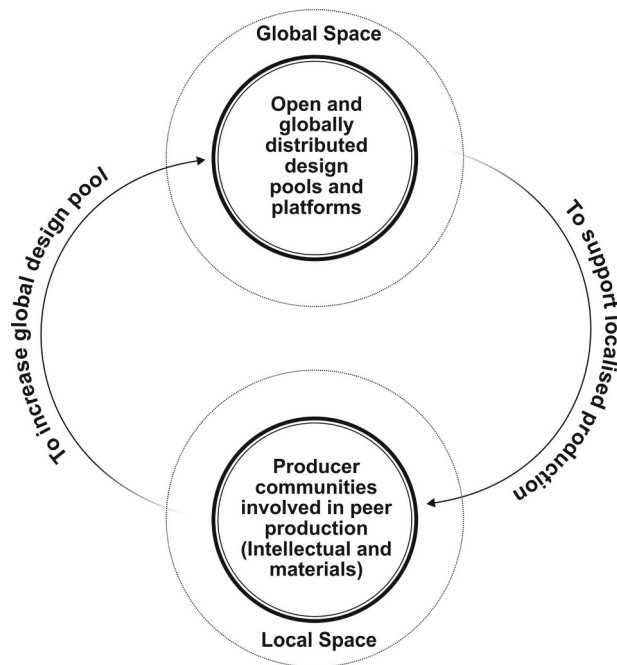


Figure 2. The concept of cosmopolitan localism (adopted from Ramos, 2019).

nations and can be applied to policies, strategies, programs and projects of different kinds. It is flexible in its usage, allowing for reconfiguration based on the researcher's study focus (Villeneuve et al., 2017). The 2016 Sustainable Development Analytical Grid was chosen because it has been refined, and it is robust, guaranteeing the reliability of using the dimensions or themes. In using the Sustainable Development Analytical Grid for analysis, some of the themes were selected based on their direct connection to graphic design practices.

The Sustainable Development Analytical Grid consists of six dimensions – ecological, social, economic, ethical, cultural and governance, which are used for the assessment of different projects, programs and policies relating to sustainability (Villeneuve et al., 2017). Table 2 shows all the 2016 Sustainable Development Analytical Grid dimensions and the associated themes. The underlined themes were the ones selected and used for the assessment of the graphic design practices.

Table 2. 2016 sustainable development analytical grid dimensions and themes of SDAG (adopted from Villeneuve et al., 2017, p. 5; Villeneuve & Riffon, 2012, p. 9).

Environment	Social	Economic
<u>Renewable resources</u>	<u>Health</u>	Ownership/Goods/Capital
<u>Nonrenewable resources</u>	<u>Safety/Security</u>	<u>Quality Goods/Services</u>
<u>Energy</u>	<u>Education</u>	<u>Responsible consumption & production</u>
<u>The output from human activities</u>	<u>Individual integration</u>	<u>Financial viability</u>
Biodiversity	<u>Freedom</u>	<u>Wealth creation</u>
Land use	<u>Recognition</u>	<u>Wealth sharing</u>
<u>Pollutants</u>		Work conditions
Governance	Ethics	Culture
<u>Decision-making</u>	<u>Responsibility</u>	<u>Transmission and cultural heritage</u>
Participatory/Democracy	<u>Peace</u>	<u>Cultural and artistic practices</u>
<u>Monitoring and evaluation</u>	<u>Benevolence</u>	<u>Cultural diversity</u>
Subsidiarity	<u>Sharing</u>	Contribution of culture to the development
Risk management	<u>Ethical process</u>	

7. Research method

The research was conducted in Ghana, and the specific site was Asafo, a suburb of Kumasi. Ghana was chosen on a typical case sampling basis because it is part of the developing nations in Africa (Africanvaul, 2016), and also the lead author is a Ghanaian and has observed and documented in his role as researcher/educator and graphic designer first-hand instances of sustainability/non-sustainability in graphic design practices in Kumasi. Asafo, a suburb of Kumasi, was selected because it has become the center for graphic design and printing firms sharing common characteristics with some of the other towns in the sixteen regions in Ghana (Ghana Districts, 2019). After selecting Ghana and Asafo, the rest of the sampling was done through purposive, convenient and random techniques based on the stated reasons (Creswell, 2009), as shown in Table 3.

7.1. Purposive sampling for graphic design practices that minimize graphic design's negative impact on sustainability

Transitioning to absolute sustainable graphic design practices is still in its infancy in developing nations, as revealed by Bonsu et al. (2020) in their study that looks at the challenges to sustainability in graphic design practices. It is thus clear that more attempts need to be made toward minimizing the impact of graphic design practices. These attempts will serve as the foundation for the shift toward sustainable futures in graphic design and thus, necessitated the focus on graphic design activities that minimize challenges to sustainability.

7.2. Data collection procedure and method

A qualitative approach was adopted because the research is an in-depth exploration of the graphic design practices in a developing nation from design briefing to delivery of finished work to clients (Williams, 2011). Data was collected using the research questions as a guide through observation, field notes of shared experiences, and unstructured interviews (Creswell, 2009). Participant observation was used for gathering data on the processes and methodologies used by the graphic designers for producing services or products to document the nature of their practices and to identify the emerging sustainable innovations in their practices. Table 4 gives details on the protocols that were used for the data gathering.

Table 3. Samples, sampling technique and reasons (Authors' construct, 2019).

Sample	Sample Size	Sampling Technique	Reason(s)
Graphic design firms	Five	Purposive and random	Out of the twenty-five graphic design/press firms, fifteen were selected because they had professionally trained graphic designers. The selection was made through a pilot study of the profiles of the graphic designers. Five of these graphic design firms were selected through a simple random technique for observation.
Graphic designers	Thirty	Purposive	The graphic designers were selected purposively using only those who availed themselves for the interview. A total of thirty graphic designers were selected for the interview, and the most significant number being six and a minimum of one per firm.
Creative directors	Five	Purposive	All the firms visited had one creative director, so each person was selected from the five graphic design firms for this research.
FDA & EPA Document Clients	Two Fifteen	Purposive Purposive	For document review on EPA and GFDA design policies Two regular clients were selected from each of the five graphic design firms selected.

Table 4. Data gathering methods, respondents and protocols.

Data Gathering Methods	Respondents	Protocols/Guides
Participant Observation	Graphic designers	(1) Observation of the graphic designer's receipt of the design brief from clients. (2) Observation of execution of design work. (3) Observation of imaging of design onto films for lithographic plate making. (4) Observation of the printing of the work and the distribution to clients.
Interview Guide	Graphic designers Creative directors	(1) How do you work with your clients when design briefs are received? (2) What stages do you go through in designing and what are the factors considered when designing? (3) Are there any new approaches you have adopted and how do you carry them out? (4) What are the factors you consider in the new approaches in your work? (5) What materials do you use in your new approaches? (6) What are your motivations for the new approaches? (7) How do you manage the waste that is generated after the trimmings of the finished work?
	Clients	(1) What materials do you instruct designers and creative directors to use? (2) What are the factors you consider in the choice of materials for your design projects? (3) What new approaches do you advise your designers to use? (4) What informed the choice of the new approaches? (5) What are your motivations for the new approaches? (6) How do you manage the post-life of your designed materials? (7) Do you work with external agencies that ensure a certain standard is achieved? (8) How do you work with them and the graphic designers or creative directors? (9) What are the standards required?

The observation used reflections and recall, pre-analysis (ideas and inferences), experiential data (expressions and personal feelings) and planning for revisiting the field for missing data (Gray, 2009). The observation consisted of three stages: off-site preparation, on-site or field observation, and post-observation. Face-to-face on-site, face-to-face off-site and WhatsApp voice-note interviews were conducted. The audio recordings were transcribed verbatim and corrected only when grammatical errors were detected. Transcribed data was copied into Excel and the respondents were coded; the graphic designer was coded as GD, the creative director was coded as CD and the clients CL. The data was then analyzed thematically. In ensuring the reliability and validity of data, triangulation and member-checking were used. The triangulation method consisted of observation, interview, storytelling and document/graphic design product review. The resultant data were cross-checked for convergence (Fielding, 2012). Member checking was also used by showing respondents re-coded data for validity and authenticity (Creswell, 2009). In situations where the recorded data did not reflect the words of the interviewee due to an error in transcribing, the recording data was corrected based on the interviewee's input. Reflexivity was adopted in the reporting of the findings to remove as far as possible, bias in the research (Mortari, 2015).

7.3. Analysis of the gathered data (a multi-level approach)

The analysis was done on two levels. The first analysis was done using the cosmopolitan localism components, which are *small, local, open and connected*. The second analysis was done with the same data using the selected themes in the Sustainability Development Analytical Grid (SDAG) as a guide. The details on the criteria for the inclusion and exclusion of the SDAG themes for the analysis of the gathered data are also discussed. Before discussing the selected themes, it is essential to note that though the 2016 SDAG has six dimensions, however, they can still be collapsed into the three sustainability components (social, economic and environmental) for easy assessment and presentation as depicted in Table 5.

Table 5. Selected SDAG themes and justification.

Sustainability Dimensions	SDAG Themes	Justification for themes selection
Social	Governance Ethics Health Safety/Security Education Individual integration Freedoms Recognition Culture	Governance and ethics regulate graphic design practices for compliance to environmental considerations, social responsibility and economic viability. Health and safety are linked to printing inks and lithographic plate developers' effects. The education graphic designers and creative directors receive also affect sustainability. Individual integration relates to designers collaborative mind-sets. Recognition relates to an award given for contribution toward sustainability. The culture was selected because artistic practices may use images such as the <i>adinkrah</i> symbols (Kquofi et al., 2018) images of a tribe or festival-related apparel that reflect the culture of the Ghanaian people.
Economic	Quality Goods/Services Responsible consumption & production Financial viability Wealth creation Wealth sharing	Quality goods/services were selected because of the quality of the printed works, while responsible consumption and production are linked to the usage of materials and production strategies. Wealth creation was selected because it is linked to the financial viability of the graphic design firms as small scale enterprises, while their distributed nature leads to project sharing among the design firms, which promotes wealth sharing. Work condition in economic sustainability was not selected because it was not pertinent to sustainable graphic design practices.
Environmental	Renewable resources Nonrenewable resources Energy The output from human activities Pollutants	These were selected because they are directly linked to sustainable graphic design practices in terms of the materials used, the production process and the by-products from the value chain of graphic design production. The themes: biodiversity and land use under the environmental dimension were not selected because graphic design practices have little to do with land usage and biodiversity.

7.4. Analysis of the link between cosmopolitan localism and sustainability based on emerging approaches in graphic design practices

After the two levels of analyses, the cosmopolitan localism research outcome and the Sustainability Development Analytical Grid outcome were also analyzed. The essence of the analysis was to attempt to determine the nature of the relationship between cosmopolitan localism and sustainability.

8. Findings and discussions

The innovations occurred within and outside of the graphic design practice circles, as indicated in [Figure 1](#). Sustainable utilization of used products, which falls outside the circle of the graphic design practices domain, influenced the design decisions of the graphic designer. Following this, the findings have been categorized into design policy, reuse/repurposing of graphic design production by-products and the usage of social media for design dissemination. Next are the research questions and the respective findings.

8.1. How are the innovations in graphic design practices manifesting cosmopolitan localism?

Under this question, the context of cosmopolitan localism is analyzed based on the concept of small, open, local and connected. This section establishes how cosmopolitan localism manifests in emerging innovations. [Table 6](#) gives a summary of the innovations and the extent to which they manifest cosmopolitan localism.

Table 6. Cosmopolitan localism's manifestation in the various innovations.

Innovation/ Approach	Small manifestation	Local manifestation	Open manifestation	Connected manifestation
Reuse/repurpose/ up-cycling – Different graphic design firms engaged in the usage of off-cards for drug envelopes, receipt books and paper packages as wrappers for finished graphic design products.	These approaches are carried out at the various small press houses and design firms and show the concept of small.	All these reuses, repurposing and up-cycling are happening within the Asafo design/press houses.	These approaches are not patented allowing everyone interested in any of the innovations to practice them.	The design and the press houses have become a community and cross-pollinate ideas and receive help from one another in respect of practicing these approaches through social media.
Design Policy - Ghana Food and Drugs Authority (GFDA) and Ghana Environmental Protection Agency (GEPA) regulate advertisements, packages and labels designs.	The concept of small manifests in the adherence to the design policies by the small design firms.	The policies are made to address local not global needs of health and safety issues in Ghana. It is also peculiar to the behavioral nature of the designers.	The design policies are open in the sense that they are available on the websites of the GFDA and GEPA for everyone concerned to use as a guide for their designs.	Due to the availability of the design policy on the websites of these two regulatory bodies, these small design firms obtain access nationally to the design policies through the internet, which is also shared among designers via social media.
Social Media platforms for dissemination of designed works – Designed works like magazines, brochures, invitation cards and catalogs are not printed of late but rather shared on social media platforms.	The dissemination of designed works via social media platforms is done by almost all the small graphic design firms to a small number of their clients.	These social media applications are used locally but mirror global trends- thus in the context of cosmopolitan localism, this approach is locally used and globally situated.	Social media platforms are free open-platforms that allow for synchronous communication between clients and designers.	Social Media platforms allow for connectivity on a one-to-one or one-to-many approach. Creating a network of designers and clients.

8.2. How are the identified innovations minimizing the negative impact of graphic design practices on sustainability?

The extent to which the innovations are minimizing the negative impact on sustainability are discussed based on the following approaches that were selected as a result of their manifestation in cosmopolitan localism:

- (1) Design Policy – Ghana Food and Drugs Authority (GFDA) and Ghana Environmental Protection Agency (GEPA) regulate advertisements, packages and labels designs.
- (2) Reuse/repurpose/ up-cycling – Different graphic design firms engaged in the usage of off-cards for drug envelopes, receipt books and paper packages as wrappers for finished graphic design products.
- (3) Social Media platforms for dissemination of designed works – Designed works like magazines, brochures, invitation cards and catalogs are not printed of late but rather shared on social media platforms.

8.3. Design policy for advancing social and environmental sustainability

Design policy is not a new concept. Many institutional design bodies have a design code of conduct for their members, to guide them in their design practices, mostly in developed nations. However, in Ghana, the institutional design bodies are not proactive in creating, monitoring and enforcing design policies for practitioners. Instead, the Ghana Food and Drugs Authority and the Environmental Protection Agency are those that have initiated design policies and ensure that visual communication designers adhere to them. These governmental agencies seek the welfare of the environment and society in Ghana. The Ghana Food and Drugs Authority (GFDA) and the Environmental Protection Agency (EPA) issue the design guidelines (design policy) to companies who seek certification for designed packages, labels and advertisement materials. Some of the critical design policies by GFDA (2016) are:

- (1) No advertisement shall be framed in such a manner as to exploit superstitious beliefs and induce fear in the consumer to purchase the product. An example of this is an advertisement that has a text that states that this product is for smooth skin and also contains herbal products that repel evil spirits.
- (2) All advertisements shall be accurate, complete, and clear and designed to promote credibility. Statements or illustrations must not mislead directly or by implication. A typical example of this is an advertisement that shows chicken on a product but the product does not contain chicken.
- (3) No advertisement shall state or imply in absolute terms that it is 'safe', 'non-toxic' or 'has guaranteed efficacy'. This implies that an advertisement for a product cannot say it ensures 100% efficacy for everyone.

Most of the graphic designers who work with clients consult GFDA and work strictly according to the given guidelines. The clients then send the designed prototype of the package, label or advertisement billboard for approval to both agencies. The GFDA checks the information on the label designed for bottles or packaging to ensure that all the necessary items in their design policy are captured and are legible. They also ensure that the product is not harmful when consumed. The EPA, on the other hand, ensures that the packaging material is not harmful to the environment when disposed of. In the case of agricultural chemicals, they check for color codes, chemicals' effects on human health, and the graphic designers' usage of the right symbols on the packages and labels (EPA, 1994). The EPA (1994) also checks how waste from industrial activities is disposed of. These

are the core activities relating to graphic design and sustainability that are spearheaded by the GFDA and the EPA. The following comments given by some of the graphic designers show their compliance to the design policies:

- ‘... When we receive the design brief from the clients, we inquire whether the GFDA and EPA have certified their products and that they are not harmful for society’s consumption. We do that because we feel it is our responsibility to ensure safety in all spheres of our designs. We use this approach because we want to create a standard that is recognized by the government. We have recognized that most of our clients are ignorant of the need for Ghana Food and Drugs Authority to certify their products, so when we inform them of the need, they welcome the idea and follow suit’ (Graphic designer 25).
- “... Mostly what I do is to lead the clients to achieve the Ghana Food and Drugs Authority certificate. So what I do is to send them to Ghana Food and Drugs Authority for certification of product and design. Recently I refused to put an FDA fake code on the label, so I lost that job, but I am ok because the safety of society is more important than the money I will gain (Graphic designer 15).

All the extra activities, like the approval of the designs, ensuring that all checked designs, especially advertisements, are not altered, signal to the graphic designer that their design activities are monitored. These indirect GEPA and GFDA activities force the graphic designers to comply since any infringement will lead to legal action against them (GHANA FDA, 2013). Thus design policy that has legal backing is paramount to ensure that social and environmental sustainability are achieved. The legal backing enshrined in the design policy position of the GFDA and GEPA ensures they act as ‘design police’ for the design community. From the description of the activities of the EPA and the GFDA, it is clear that the design policy ensures that sustainability in social issues such as health, safety, ethics and responsibility and governance are met. Environmental sustainability issues such as reduction of pollutants and proper disposal of output from human activities are also addressed by the GEPA. These two agencies practice recognition by listing the companies that do not comply with the set standards. The design policies by the GEPA and the GFDA do not meet all the criteria of the Sustainability Development Analytical Grid because not all the criteria are relevant to their context. Notwithstanding, the other criteria, which were not met, will be captured under other approaches linked to graphic design production yet to be discussed.

8.4. Reuse and repurposing of graphic design production by-products

Reuse and repurposing is not a new term because people reuse things daily. Crocker (2015), states that the exponential increase of wastage has led to a global renaissance in reuse, driven by necessity or profit. Mills (2012) defines reuse as intentionally utilizing a product again for its original intended purpose, while repurposing is simply assigning a new purpose to a product without processing the product. The reuse and repurpose approaches manifested in the graphic design production activities, which we observed in the graphic design community. They illustrate that conscious efforts are being made by graphic designers and their clients in graphic design production to reduce the environmental pollution that the by-products might cause.

The first scenario is the usage of off-cards – trimmed excess sheets with no immediate use after obtaining the press-size sheets for printing. These sheets were kept and used for all kinds of purposes such as tickets, drug envelopes, or even receipt books. The strip-like off-cards were bought by bag sellers to stuff their bags, which generate extra income for the graphic designers. These bag sellers use them continually without disposing of them. Hitherto, they were bought and processed by paper converters that lead to environmental pollution based on their production method. Also, the paper package was used as wrappers for finished design products, as shown in Figure 3. The off-cards reuse helped the graphic designers to reduce unnecessary cost – based on the response from the interview with them – but it also invariably helped in the reduction of environmental pollution



Figure 3. Paper package used for wrapping graphic design products (Authors' photograph, 2019).

due to fewer disposals of these items in landfills. The reuse of off-cards also promotes responsible consumption and production, which helps sustain economic viability, by making sure that no off-card goes to waste.

The second scenario is the repurposing of waste developers (chemicals) from image-setters and lithographic plates' development. Jewelers buy weak developers for washing their pieces of jewelry to remove stains and to polish them due to the high percentage of alkali components in the developer. The repurposing prolongs the life span of the developer and weakens the potential impact the developer may cause when disposed of into the environment. The third scenario is the repurposing of out-dated banners for covering products in the market, as shelter in the construction of some houses, shown in [Figure 4](#), and as a tarpaulin for drying agricultural products such as maize and beans. These repurposing applications prolong the life span of the banners, which would have been dumped into a landfill, thus increasing waste that takes a long time to degrade.

All the innovations or approaches on the reuse and repurposing indicated that most graphic design production by-products usage contributes to sustainability by limiting their impact on the environment and promoting economic viability. These generate a stress-free system where designers work comfortably in an innovative-intelligent community – conscious of the impact their practices have on the environment. These innovations help reduce environmental challenges connected to nonrenewable and renewable natural resources such as converting lithographic plates into cooking pots to promote environmental sustainability and economic viability.



Figure 4. Out-dated banner repurposed for covering a structure against rain and sunlight (Authors' photograph, 2020).

8.5. Leveraging the power of social media to promote environmental sustainability and economic viability

Information Technology is currently changing the creation and dissemination of graphic design products. The use of social media for information sharing to some extent promotes environmental sustainability by creating a cleaner environment due to avoidance of the production processes and materials – the production processes make use of papers, inks, plates, lithograph plate fixing chemicals, plate developers, and plate washing chemicals. In the case of social media, electricity is the only resource needed to power smartphones and laptops. The sources of electricity may be renewable (hydro/solar/wind) or nonrenewable such as crude oil, and since the usage of social media depends on devices that are in turn also dependent on these natural resources, using social media does not fit perfectly as sustainable innovation. However, when social media usage and the graphic design production processes and materials are considered, social media for information sharing to some extent minimizes graphic design production's impact on sustainability. The following comments mirror the usage of social media by graphic designers as captured in Figure 5:

- 'Technology is helping to advance our business now. I send designed works such as flyers, brochures, and invitation cards through WhatsApp to clients for onwards disseminations to friends and relatives through Social Media' (Graphic designer 29).
- 'Social media platforms have eradicated the use of paper, shifting us into a paperless system to check deforestation that goes a long way to affect our climate system. In this way, I make money through just design, which is positive for me' (Graphic Designer 16).

Graphic designers also used social media for personal education. Education is a component under the social dimension of the SDAG that shows that for graphic design practices to be labeled as sustainable, the designers need to be abreast with the current happenings in the field to influence their practices. These comments shared by the graphic designers reflect how they make use of social media for personal education

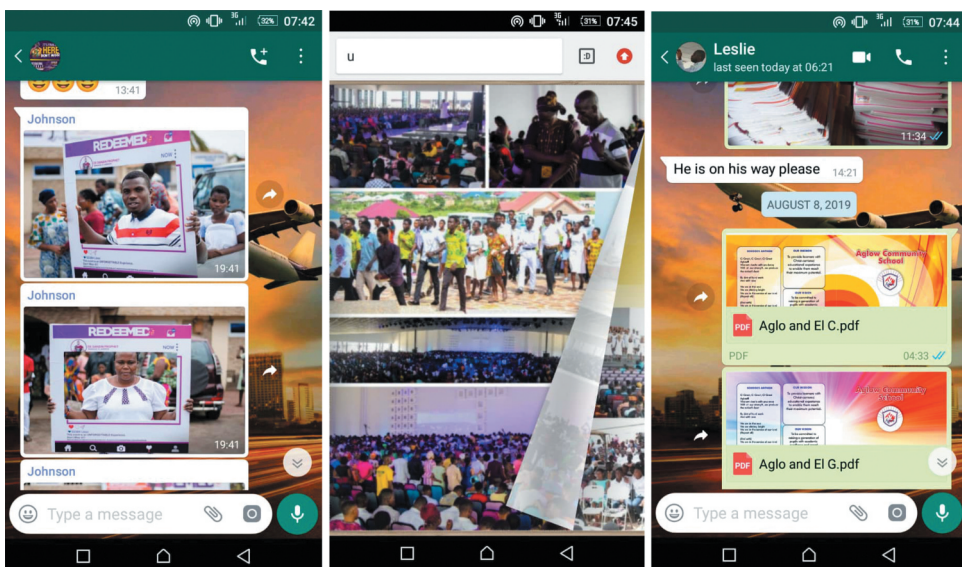


Figure 5. Graphic design works disseminated via WhatsApp platform (Authors' photograph, 2019).

- 'I upgrade myself in education through learning about updates of programs via YouTube. I search for new trends in designing on YouTube and then apply the skills as I watch the video. There are other forums too where I share my challenges and receive feedback about how to solve my application challenges' (Graphic designer 24).
- 'I mostly resort to YouTube for learning. I just follow the instructions as I watch and do the same. I believe that I need to upgrade myself if the management of where I work has not taken the initiative towards human capital development' (Graphic designer 19).

Graphic designer 24 adds another dimension of sharing ideas, which reflect the integration aspect of the social dimension in the SDAG, as shown in [Figure 6](#).

All three approaches discussed showed promising responses to aspects of the SDAG. The design policy was environmentally inclined and also responded to few elements in the social dimension. In the case of the reuse/repurpose/up-cycling, the environmental and economic dimensions of the SDAG were included. The last was the leveraging of social media for information dissemination, which also responded to environmental, social issues and economic concerns. Thus among the three, the use of social media platforms was the only approach that responded to all the dimensions of the SDAG and most of the themes under each dimension. [Figure 7](#) gives details on how the approaches responded to the SDAG.

How do these approaches lead to sustainable graphic design practices? In the case of the design policies, they control the designers' behavior toward responsible design that factors the health and safety of the end consumers of the product, the packaging or labels that are designed. The design policies also ensure that the right materials and methods are used in line with environmental sustainability standards. The reuse, repurpose and up-cycle of graphic design by-products also influence the material choice of the graphic designers. In this way, some practices like laminations of finished works are avoided and usage of too many colors are avoided to save ink. The e-designs also influence the designers to avoid physical design products.

8.6. To what extent is cosmopolitan localism connected to sustainability in graphic design practices?

In discussing the relationship between cosmopolitan localism and sustainability, we will start with the findings from the exploration of the manifestation of cosmopolitan localism in the three innovations. The innovations showed the concept of cosmopolitan localism as an

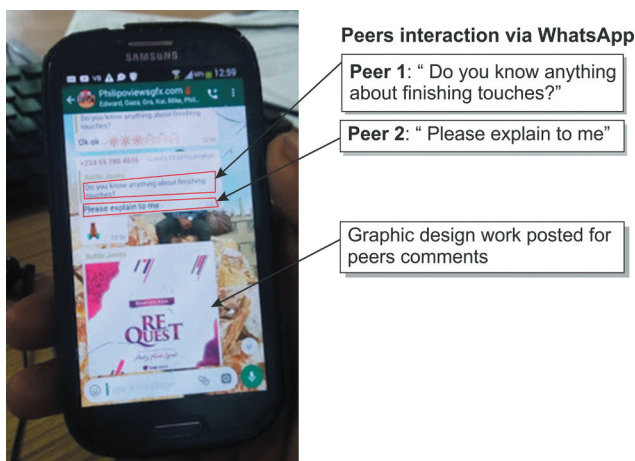


Figure 6. Peer learning via Social Media through cross-pollination of ideas (Authors' photograph, 2019).

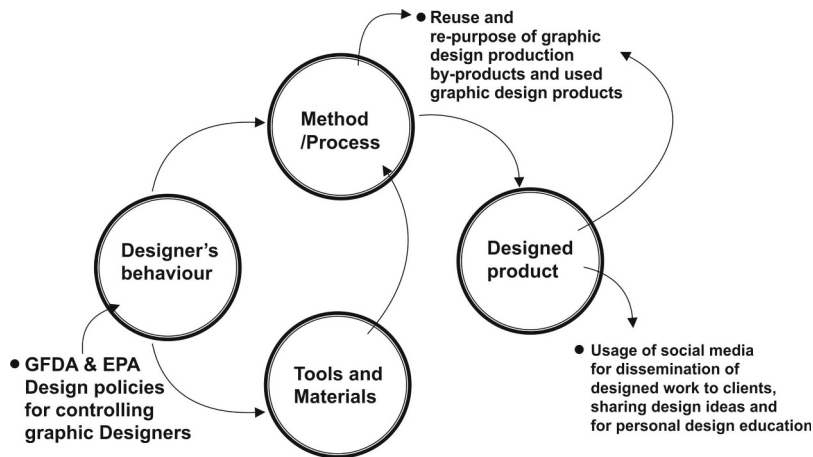


Figure 7. How the innovations respond to the SDAG dimensions (Authors' construct, 2020).

Table 7. The relationship between cosmopolitan localism and sustainability.

Cosmopolitan Localism (SLOC)	Sustainability	The relationship between cosmopolitan localism and Sustainability
Small	Social, economic and environmental	Sustainability (Social, economic and environmental) is practiced by few people in small firms and small ways and thus cosmopolitan localism nurtures sustainability practices.
Local	Social, economic and environmental	Sustainability (Social, economic and environmental) is practiced using place-based (local) approaches (materials and tools) and thus cosmopolitan localism promotes sustainability in local ways.
Open	Social, economic and environmental	Sustainability (Social, economic and environmental) tools, materials and practices are used by local people without any claim of ownership or patents and thus promote design sharing.
Connected	Social, economic and environmental	Designers shares ideas on sustainability (Social, economic and environmental) solutions among themselves and thus SLOC promotes cross-pollination of ideas about sustainability

approach for promoting them because the facets – Small, Local, Open and Connected (SLOC) showed how they flow from global to local and vice-versa through open and connected systems in small production units facilitated by the designers. Thus, cosmopolitan localism is a managerial framework that will allow communities to develop local self-managed economies (Kossoff, 2019, p. 58). The findings on the impact of the innovations for minimizing graphic design practices on sustainability, on the other hand, underscored design regulatory policies, up-cycle (the reuse and repurpose of printing materials) and the adoption of social media. These themes emerged after the analysis of the innovations through using the Sustainability Development Analytical Grid as a lens and the outcome was socially, environmentally and economically inclined to some extent.

Now, exploring the connection between cosmopolitan localism and sustainability, it is clear from the findings that cosmopolitan localism serves as a managerial tool for nurturing, sharing and connecting practices of sustainability among designers. It can also be regarded as a framework for promoting sustainability by tackling global challenges (social and ecological) using local or place-based tools through an exchange of information, technology and resources (Manzini, 2013; Sachs, 1999). Therefore, based on the research findings cosmopolitan localism is linked to sustainability as detailed in Table 7.

9. Conclusion

The first question concerns innovations in graphic design practices' manifestation of cosmopolitan localism. Three innovations/approaches (design policy, reuse/repurposing of graphic design production by-products, and the usage of social media for design dissemination) were assessed in the context of *small, local, open* and *connected*. The innovations rest on local approaches and collaborations but also internationally as the key pillars for manifesting cosmopolitan localism. These three innovative approaches affect the design decisions of graphic designers. Thus, the graphic designers' choice of tools, materials and processes are governed by the design policy and the emerging innovations that promote sustainability in a form that is practical to the graphic designers, especially in a developing nation context. More so, the emerging innovations fuel the distributed economies by giving the graphic designers room to create small scale enterprises like the drug envelopes business. Trying different innovative approaches help bring 'real' design innovations that promise sustainable futures.

The second question concerned identifying how the innovations minimize the impact of graphic design practices on sustainability. The three innovations influenced the design decisions of the graphic designers in their choice of materials, tools and processes, which factored environmental, social and economic trajectories of sustainability to some extent. However, in the case of social media, the usage of technological gadgets also may lead to environmental challenges in the long run due to obsolete conditions but in the interim, they may help to reduce paper, ink and other materials usage that may cause social and environmental challenges. The last question concerned the relationship between cosmopolitan localism and sustainability. A critical look at the two concepts through using the three innovations as the basis show that cosmopolitan localism nurtures sustainability, promotes cross-pollination of sustainability innovations and creates a platform for graphic designers to engage in similar sustainability innovations from colleagues. The innovations discussed in this article, therefore, hold potential for advancing sustainability on economic – (profitability), social – (health, safety and ethics) and environmental consciousness (protection, environmental stewardship) fronts.

Policy recommendations

These approaches indicated much innovation in Ghana, which needs to be supported. Rather than looking to follow foreign sustainability ideas, graphic designers are well-positioned to contextualise global concepts for benefit. Thus, there should be state policy to support design practitioners.

Practical recommendations

Design practitioners should create an enabling environment that nurtures the creativity of graphic designers for the increased development of innovations that narrow the distance between the present and sustainable futures. The education system should also emphasize the need for students to rethink and develop more innovative approaches—such as the utilization of graphic design production by-products that contribute to solutions.

Further studies recommendations

Researchers should fuel the innovative environment with visions and proposals (Manzini, 2011) and organise workshops that encourage graphic designers to join creative commons that will allow them to share their ideas at the grassroots level with other international designers. The research delineation was Asafo, and thus a small sample size was used. We, therefore, suggest that other researchers expand the sample size to cover most of the regions and towns in Ghana to explore the various innovations pertaining to graphic design and its quantified impact on reducing sustainability challenges. Further research would also be needed to examine the connections between the SDAG themes and SLOC factors.

Disclosure statement

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