Embracing Cosmopolitan Localism for Sustainable Graphic Design Practices in Ghana

Ginn Bonsu Assibey: Cape Peninsula University of Technology
Alettia Vorster Chisin: Cape Peninsula University of Technology
Johannes Cronje: Cape Peninsula University of Technology

Abstract

This study expands the concept of cosmopolitan localism by Manzini (2010), which supports the approach of contextualised design solutions and not necessarily a global approach due to context differences. The research adopted an ethnographic approach for studying emerging sustainable graphic design practices with the aid of Sustainability Development Analytical Grid and Activity Theory. The results show the practice of sustainability through the aid of Ghana Food and Drugs Authority and Ghana Environmental Protection Agency who checked the content and materials of graphic design products for conformity to set standards. The by-products such as trimmed papers and used offset plates were also converted into other products by the locals and foreign companies implying that developing nations have off-the-grid solutions to their problems and must be allowed to develop their resilience through innovation without forcing them to practice other mainstreamed sustainable design approaches. Design educators can also modify the emerging local solutions with exotic ideas for the benefit of society.

Keywords: Sustainability, ethnography, cosmopolitan localism

Introduction

For the past decade, the practice of sustainability has been adopted by many disciplines in a bid to contribute their quota towards the agenda of sustainability development. Many international sustainability programmes have been initiated to serve as the vehicle to carry the agenda to guide institutions on the appropriate path in confronting challenges to sustainability (United Nations 2018). Among these programmes are the Sustainable Development Goals (United Nations 2018). Irrespective of the numerous programmes that have sprung forth from this initiative, the United Nations' Secretary-General, António Gutterres advances that "without evidence of where we stand now, we cannot confidently chart our path forward in realising the Sustainable Development Goals" (United Nations 2018, p. 3).

The situation is also reflected in the practice of sustainability in graphic design (sustainable graphic design practices ensure that the practices are environmentally friendly, societal friendly and economically viable). Benson and Napier (2012, p. 207) complain that after four years of further experiments in teaching sustainability to communication designers they have recognised that communication designers are zealous about their own social causes and as long as they had a steady job after graduation, learning about sustainability was not vital to their course. On a similar path, Dritz (2014) concluded in her research into challenges in the practice of sustainability in graphic design that most graphic designers were not engaged in practising sustainability. Dritz (2014) further pinpointed that the challenges identified were lack of adequate information on sustainability and its support structures emanating from vague and narrow sustainable graphic design definitions, which made it difficult for clients to identify with the value of sustainability.

The findings by Dritz (2014) and Benson and Napier (2012, p. 207) indicate that the practice of sustainable graphic design is still at the base of the ladder of sustainability irrespective of the various sustainable strategies proposed by Ceschin and Gaziulusoy (2016, p. 141). Could the identified challenges by Dritz (2014) and Benson and Napier (2012, p. 207) result from the assessment models used for their research? In searching for the various exploratory and assessment models for sustainable graphic design practices to ascertain their relationship with the various research outcomes by Dritz (2014), Benson and Napier (2012) and Benson (2007), the major approaches found were green design, eco-design, cradle-to-cradle and bio-mimicry (Ceschin & Gaziulusoy 2016, p. 139). All the approaches were environmental-inclined and inefficient when viewed from overconsumption perspective. The environmental approaches did not cover societal and economic components of sustainability, and thus no holistic sustainability model was found. The discovered environmentally biased approaches for sustainable graphic design justifies that sustainable graphic design has been underexplored. Due to the inadequacy of the green graphic design models used, could there be a possibility that there are local emerging social innovations in the practice of sustainable graphic design that have not been explored?

The underexplored nature of sustainable graphic design due to 'green graphic design' bias gives room for graphic design practices to be explored from the context of cosmopolitan localism. The exploration may pave the way for uncovering the emerging local approaches to sustainability in graphic design practices. Manzini and M'Rithaa (2016, p. 279) purport that cosmopolitan localism is ideal because it makes societies more resilient to social and economic uncertainties through a creative balance between being rooted in a locality and opening up to the global flow of ideas. Thus mainstreaming fragile models (Manzini & M'Rithaa 2016, p. 276) presents several challenges to local societies in the adaptation processes. Mainstreaming is based on exploring graphic design practices from a holistic sustainability perspective that we embarked on this research to:

- Explore and adopt an established sustainability framework;
- Explore emerging cosmopolitan localised sustainable graphic design practices through the lens of Activity Theory; and
- Propose a knowledge-transfer concept for contextualised sustainable graphic design education.

The delineation of this paper is the production aspect of sustainable graphic design practices and the graphic design effects on society. The literature review was done with the aid of Activity Theory. The theoretical grounding for the paper was a combination of Activity Theory and Sustainability Analytical Grid. The research method used in this paper was qualitative. The research was done in Ghana. The samples and samples sizes were fifteen graphic design firms, thirty graphic designers, fifteen creative directors and thirty graphic design products. The data

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were gathered through interviews, participant observation and document review and analysed thematically. The results showed that sustainable graphic design is practised by several the graphic design firms in the design community through the aid of Ghana Food and Drugs Authority, which checks for the credibility of information on packages and advertising materials. Most of the by-products from the materials used were reused or converted into other products reducing environmental impact while gaining economically and ensuring society's safety. The outcome of the research implies that developing nations have off-the-grid solutions to their problems and must be allowed to develop their resilience through innovation without forcing them to practice other mainstreamed sustainable design approaches. Design educators can also modify the emerging local solutions with exotic ideas for the benefit of society.

Sustainable graphic design practices from an Activity Theory perspective

The review of literature on sustainable graphic design is done using Activity Theory. The essence of using Activity Theory for the review is because graphic design is an activity-focused discipline. Thus, in reviewing the literature on sustainable graphic design practices, Activity Theory was used. Kuutti (1996, p. 13) and Jonassen and Rohrer-Murphy (1999, p. 62) substantiate that Activity Theory is a framework for analysing activities that people engage in. Activity Theory consists of units, which are subject, object, tools, community, rules, division of labour and outcome, as shown in Figure 1 from a sustainable graphic design perspective. In Activity Theory, the object is the focus. Thus, all the units interrelate to produce the desired object that leads to an outcome (Stetsenko & Arievitch 2004). Using Figure 1 as a guide, the next sections give a review on the state of sustainable graphic design practices through the various units of Activity Theory.
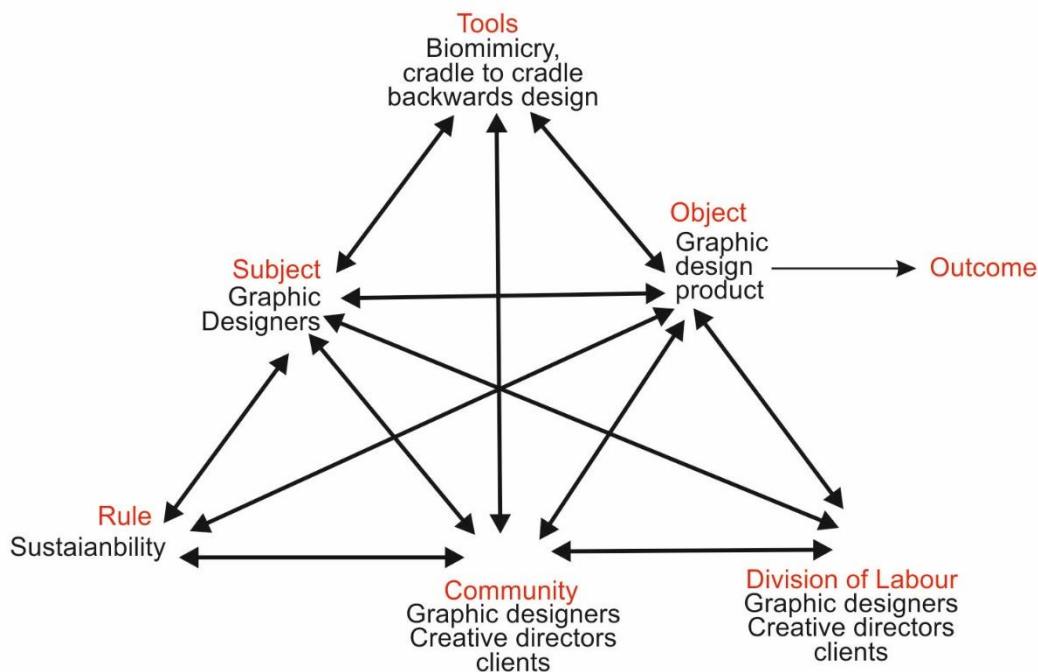

Figure 1: Sustainable graphic design from Activity Theory perspective
(Adapted from Engeström 1987:78)

Graphic designers (subjects)

The subject(s) in the Activity Theory is defined as the individual or group of actors engaged in an activity (Jonassen & Rohrer-Murphy 1999, p. 63). Graphic designers were the subjects and were responsible for executing the graphic design activities through individual or group-driven motivations. In the review, it was discovered that communication designers care less about sustainability having been driven by their own private social causes resulting from a steady job after graduation (Benson & Napier 2012, p. 207). Dritz (2014) added that some graphic designers perceive sustainable graphic design definitions as vague, making it difficult for clients to identify with the value associated. Other graphic designers envisage sustainability as an economic threat to their profession because if they reject jobs, they might lose them to non-sustainable graphic designers (Mietkiewicz 2016, p. 15). Notwithstanding, there were also several graphic designers with sustainability mindsets and did practice it but felt unsupported (Dritz 2014) indicating that there are still challenges with the understanding of the entire concept of sustainability in graphic design practices. The situation, therefore, either requires an urgent redefinition of sustainable graphic design practices or possibly a pedagogy upgrade.

The tools, rules and activity units in sustainable graphic design

This section comprises of the interaction of two units within the activity unit. Jonassen and Rohrer-Murphy (1999, p. 63) define activity as the actions and operations that transform an object into an outcome. Thus, sustainable graphic design in the context of activity is defined as the "application of sustainability principles to graphic design practise by considering the full life cycle of products and services and committing to strategies, processes, and materials that value environmental, social and economic responsibility" (Society of Graphic Designers of Canada 2018). The strategies, processes and materials are the tools used within the activity from a sustainability perspective for transforming an object into an outcome (Engeström 1998). The interaction among the strategies, processes and materials are governed by rules applied by a graphic designer.

There are myriad strategies, processes and materials used as tools. The first reviewed was the 'green design' approach, which capitalises on minimising environmental impact through redesigning products but lacks depth and promotes green consumerism (Ceschin & Gaziulusoy 2016, p. 139). The next approach was eco-design with a focus on using a life-cycle approach to minimise environmental decay caused by products, but this approach also fuels overconsumption (Ceschin & Gaziulusoy 2016, p. 139). The cradle-to-cradle approach focuses on a regenerative approach to closed-loop waste that is also termed, 'waste is equal to food'. Although the cradle-to-cradle approach is accepted, it is not technically justified because of the different ways users experience products. Though the tools are skewed towards environmental sustainability, the majority of graphic designers still lack the methodologies for integrating these sustainability principles in their practices (Dritz, 2014, p. 13). In the space of regulations instituted for the practice of sustainability in graphic design, several graphic design industrial bodies such as the American Institute of Graphic Arts (AIGA) and Society of Graphic Designers of Canada all have well-outlined sustainability guidelines for graphic designers who are members of the mentioned professional bodies. However, despite that, not much has been done in terms of sustainability practices in graphic design.

The community and division of labour in sustainable graphic design practices

In Activity Theory, the relation between a subject and their environment is considered through the component of a community (Hashim & Jones 2014). In sustainable graphic design practice, the key actors within the community are the graphic designer, creative director and clients. The core mandate of the graphic designer is to solve [visual] communication problems (Collins et al. 2012) while taking into consideration the sustainability factors with the consent of the clients. However, the clients still could not connect with the economic value of sustainability.

The object and outcome units' effects on the society, economy and the environment

The influence of graphic design stretches across social, economic, cultural and environmental landscapes. One of the means to explore the effects of graphic design is to examine the life cycle of a graphic design product. According to MacAvery (2010), a product undergoes the following life-cycle stages: design, material choice, production, distribution, consumer and end of life then finally disposal onto landfill. The design effects from a communications perspective are linked to consumption, social and cultural issues, while material choice, and production and distribution are connected to environmental and economic issues.

Graphic design, as a tool, is manipulated by companies for their economic gains irrespective of the negative effects (Leblanc 2010, p. vi). The aid to companies by graphic design manifests mostly in advertising design and package design. Packaging waste generated especially in the western world constitutes one-third of the non-industrial solid waste, and as other countries strive to improve their economy, more packages will be produced, and more waste will be generated (Jindal 2010, p. 108). Some of this waste makes its way to water bodies and drainages causing toxicity and flooding (Jindal 2010, p. 109). It is obvious that the connection between graphic design and environmental decay may seem difficult to overcome, looking at the available literature.

In conclusion, Figure 2 gives a summary of the entire picture through the lens of Activity Theory on tensions that are emerging in the practice of sustainability in graphic design from the literature review. All these challenges point to the fact that research and education on sustainable graphic design practices are urgently needed.
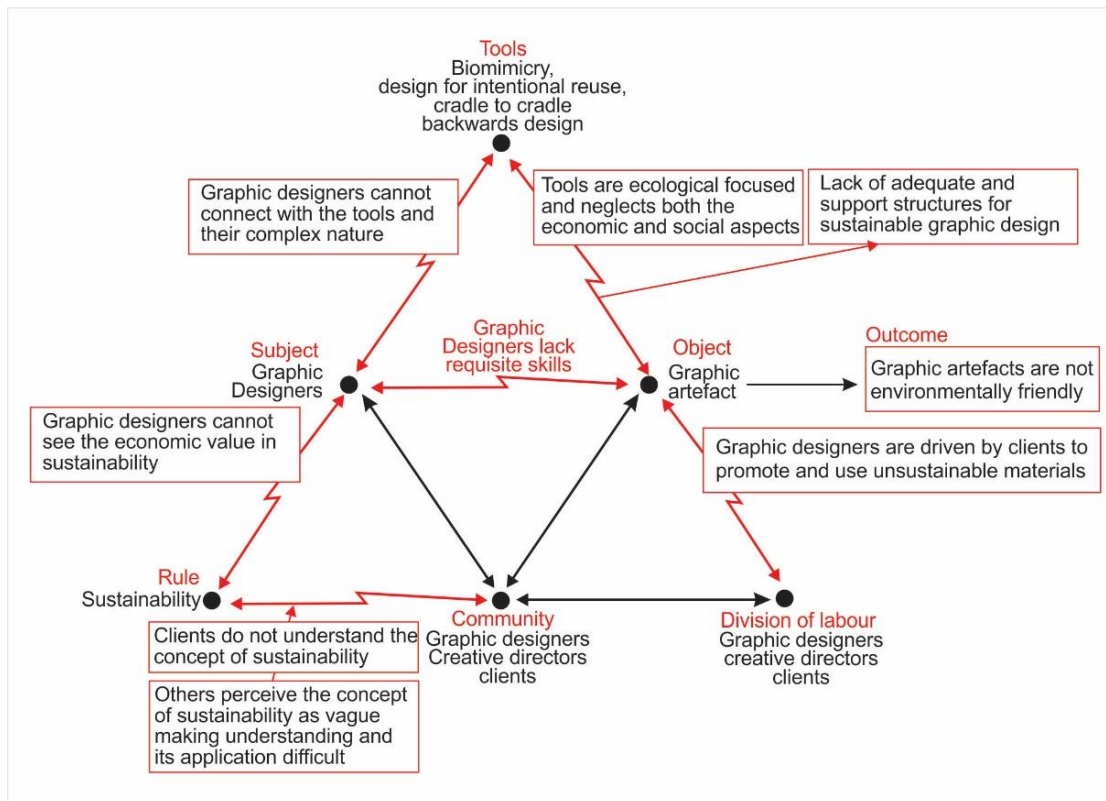
Figure 2: Challenges in sustainable graphic design practices (adapted from Engeström 1987, p. 78)

This research, therefore, tows the path of cosmopolitan localism that capitalises on the off-the-grid approaches adopted by social actors in overcoming challenges contextually that have global essence. The essence of adopting cosmopolitan localism approach is because, in spite of all the available sustainable approaches, there are still challenges in the graphic design practices. The exploration may help in discovering alternatives emerging solutions from the local level that are advancing sustainability. It is based on this premise that this research was conducted by adopting a sustainability framework that is open, well defined and theoretically grounded vis-à-vis the Activity Theory to uncover innovative local approaches adopted by the graphic designers and the social actors within the community at Asafo in Kumasi, Ghana.

Theoretical model

In using sustainability as the lens for exploring graphic design practices, the Sustainable Development Analytical Grid was adopted because it is established and tested by researchers (Villeneuve et al. 2017, p. 5). The grid consists of five indicators (ethical, social, ecological, economic, and governance) instead of the three known sustainability dimensions, so only the three (economic, environment, and social dimensions) that were in line with the established definition of sustainability were selected. The selected dimensions (economic, environment, and social) had various themes that were allocated to the various units of the Activity Theory based on the purposes of the units as depicted in Figure 3, creating an amalgamation between the Activity Theory and the Sustainability Development Analytical Grid. The ensuing new structure from the amalgamation was used for the data gathering, presentation and discussion of the findings.

The essence of exploring sustainable graphic design practices through the lens of Activity Theory was to make the data gathering and presentation easy through the units of the Activity Theory.
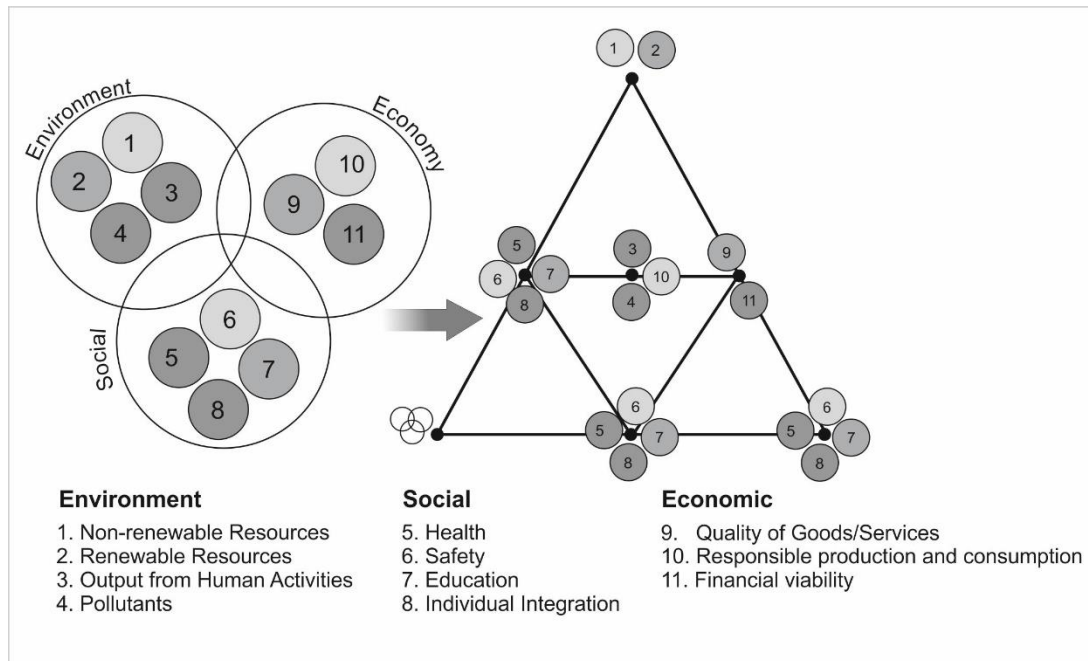

Figure 3: Amalgamation of Activity Theory and Sustainability Development Analytical Grid (author's construct, 2019)

Research method

The research design was based on the exploratory approach because it is mostly an appropriate approach for seeking new insights (Saunders 2009, p. 141). A qualitative approach was also used because it uses an inductive approach that is purposefully centred on [in-depth] describing, explaining and interpreting of collected data (Williams 2011, p. 67), making it appropriate for exploring local, sustainable graphic design approaches. In gathering the data, the study population and site were firstly selected, after which the key informants were also selected using purposive and convenient sampling techniques that are elaborated in the next sub-sections.

Research population, samples and sampling techniques

The research was conducted in Ghana, and the exact site was Asafo, a suburb of Kumasi. Ghana was chosen because it is part of the fifty-one countries in Africa and part of the developing nations in Africa and thus shares common characteristics with the other fifty nations (Africanvault 2016). Asafo as a suburb of Kumasi was also selected because it is has become the centre for graphic design and printing firms. Asafo has approximately 25 graphic design and above 50 printing firms. For easy presentation, all the samples and sample sizes have been tabulated in Table 1.

Table 1: Samples, sampling technique and reasons (author's construct, 2019)

Sample	Sample Size	Sampling Technique	Reason(s)
Graphic design firms	15	Purposive and simple random	Out of the 25 graphic design/press firms, 15 were selected because they had professionally trained graphic designers, 4 of these graphic design firms were selected through a simple random technique for the ethnographic study
Graphic designers	30	Purposive	The graphic designers were selected purposively using only those who availed themselves for the interview
Creative directors	15	Purposive	All the firms visited had at least 1 creative director, so 1 person was selected from the fifteen graphic design firms for this research
Graphic design product	30	Simple random	For the document review, 2 graphic design products were selected from each graphic design/press firms

Data collection methods, data gathering tools and analysis

Data was collected using the research questions as a guide through ethnographic enquiry by using unstructured or semi-structured interviews, observations, documents and visual materials reviews (Creswell 2009, p. 178). Table 2 shows the sub-research questions and the associated data gathering tools.

Table 2: Sub-research questions developed with corresponding data gathering tool (author's construct, 2019)

Main research questions	What are the challenges to sustainability in the graphic design practices of a developing nation?	
Activity theory Component	**Sub-questions**	**Data gathering instrument(s)**
Subject	Why do graphic designers engage in designing graphics products? (Motivations and interest)	Interview guide
Object	What is the nature of the communications content and the graphics designed products produced by graphic designers?	Document review
Tools	What physical materials, object, knowledge and skills do the graphic designers depend on to achieve the purpose of their activities?	Interview guide
Rule	What norms and conventions do graphic designers adhere to in their graphic design activities?	Interview guide
Activity	How do the graphic designers and multiple actors engage in their activities to produce the	Participant observation

	graphic design product?	
Community	Who are the multiple actors who share a common graphic design product?	Interview guide
Division of labour	What are the various tasks executed by the multiple actors in the community, and which actor controls the tasks?	Interview guide
Outcome	What are the effects of the graphic design product produced on the environment, society and economy?	Interview guide, Observation
Development	What are the disruptive innovations in graphic design practices in the light of sustainability?	Interview guide, Observation

After the data were gathered, the audio files were transcribed verbatim and inputted into Microsoft Office Excel. The analyses were done on two levels. The first was thematic analysis, and the second was sustainability analysis. During the thematic analysis, the raw data was coded, reduced into keywords, which were also combined into categories for easy interpretations and discussions. The obtained data was then analysed again through the lens of Sustainability Development Analytical Grid.

Ethical considerations

All the participants were informed about the intended purpose of the study. After which collected data from participants were treated confidentially to avoid the invasion of privacy and psychological harm. The researchers also ensured that manipulations of data collection procedures, data analysis and interpretations in favour of the researchers' personal interest were avoided.

Findings and discussions

The findings on the graphic design practices from a sustainability perspective have been categorised into the various units of the Activity Theory. The findings are as a result of assessing the graphic design practices through the lens of Sustainability Development Analytical Grid.

The subject (graphic designers)

From the findings on the **subject** (graphic designers), graphic designers engaged in graphic design practices based on motivations and educations they received that determined how they carried out their design activities. The facets of the motivations were passion-driven, client-satisfaction-driven, publicity-driven and economically-driven. On the front of education, the mode and content of their education were also major determinants of the quality of design they produced. The mode of education enveloped online learning, peer learning via social media, on-the-job learning while that of the content was driven by graphic design trends, graphic design application usage and graphic design house-style orientation. The findings on motivations did not project into sustainability awareness, but the graphic designers were aware, which were apparently based on personal concerns for the environment and society and their interaction with Ghana Food and Drugs Authority and Ghana Environmental Protection Agency.

From a sustainability perspective, there were no challenges posed by the graphic designs to the safety and health of the society due to the regulations by the Ghana Food and Drugs

Authority and Ghana Environmental Protection Agency. The graphic designers received regular design education, as mentioned earlier in this paragraph and integrated with one another easily for ideas and other design-related help. Figure 4 gives insight into the things that influence the mindset of graphic designers.
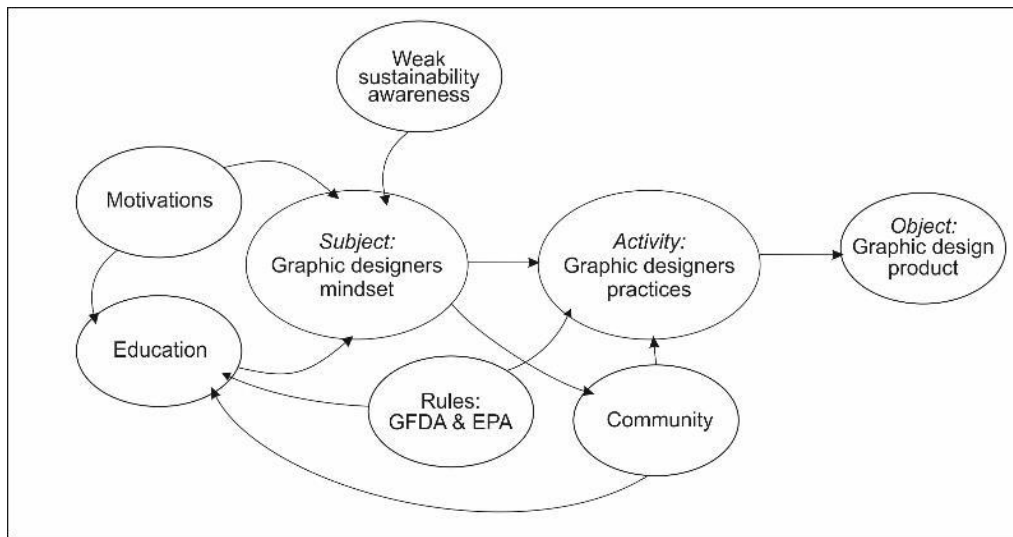

Figure 4: The factors that influence the mindsets of graphic designers

The tools used in graphic design practices

The next unit was the tools. The tools consisted of physical materials, skills and knowledge for graphic design. The skills and knowledge were considered intangible but consisted of graphic designing and design application usage skill, factors for selection of the materials and tools and factors considered in the selection of production plan. The design skills and knowledge focused on good layout and colour combinations, communicative abilities of text and images and design aesthetics with quality product finishing. The selection of materials and tools were also governed by the purpose of design, clients' preferences, cost, quality of materials and graphic design firms' standards. These were some of the responses given on skills and factors considered for the selection of materials:

- We use approved developer, fixer and films for the imagesetter that creates the images on the films to be transferred unto a plate for lithographic printing or offset printing. Plates, inks, papers, oil for the printing machines and roller wash are some of the materials we often use. We do not use petrol like other presses because of the effect it has on the roller (Graphic designer 6).
- In our environment, aesthetics is a key component that clients consider, but we try to go an extra mile by ensuring that the works communicate with tacit clarity while ensuring that we do not downplay the aesthetic values (Graphic designer 7).

From a sustainability perspective, paper was the major source of material used, which is from renewable resources and was used with care to reduce waste by graphic designers. The offset plates, on the other hand, were from non-renewable resources and were converted into other products, even after their usage for printing and thus environmental challenges from these materials were reduced.

The rules used in graphic design practices

In the *rule* unit, the facets that were discovered were personal ethics, institutional standards that consisted of Food and Drugs Authority guidelines and Environmental Protection Agency

standards. These institutional guidelines helped to ensure sanity and standards of designs for the society's safety by ensuring that the contents of the graphic design products were regulated, which was the situation on the ground in most cases. These were some of the comments given by graphic designers:

- I also try to avoid legal issues that are more of professional ethics, for instance, when a client brings a work such as making a copy of an institution's certificate and altering the name on the certificate, I will never engage myself in it due to the legal implications associated. When the project is not morally sound, I also try to avoid it because my guilty conscience will not let me off the hook (Graphic designer 6).
- Mostly what I do is to lead the clients to achieve the Ghana Food and Drugs Authority certificate. I recently I refused to put a barcode on a client's label, so I lost that job, but I am ok because the safety of the society is important than the money I will gain (Graphic designer 15).

Most of the graphic designers were jointly cooperating with Ghana Food and Drugs Authority because the Guideline 7 of the Ghana Food and Drugs Authority. Guideline 7 states, "In the event of any publication of an advertisement [or packages] not approved by the Authority, the sponsor, advertising agent and the advertising media organisation shall be jointly and severally liable (Ghana FDA 2013, pp. 1–2). This caution from the Ghana Food and Drugs Authority connotes legal action against offenders in a three-fold responsibility approach, making the graphic designers also liable for any infringement, which has possibly led to the compliance by most graphic designers.

Activity, community and division of labour in the graphic design practices

The next units were combined and consisted of *activity, community and division of labour.* The interactions among the units happened within three spaces, which were pre-press, press and post-press.

The pre-press consisted of:

- Clients' interaction with graphic designers during design briefing and the actual designing of the graphic product;
- Factors considered during designing;
- Colour separation with an imagesetter; and
- Platemaking and disposal of films.

In the aspect of integration among the graphic designers, creative directors and the clients, there was cohesion in their interaction towards the achievement of desired graphic design output. In graphic designers' interaction with clients and creative directors, these were some of the comments shared:

- Designing with my clients has always been easy for me based on the fact that my designs meet my clients' choices (Graphic designer 29)
- Working together by sharing ideas creates an atmosphere where everyone feels needed. We believe in the fact that no one is complete in terms of designing and that everyone's comment is necessary to ensure complete attainment of a designed piece (Creative director 6).

The press consisted of printing of the graphic design work with an offset printing machine while the post-press sorted out issues of trimming, binding, lamination or ultra-violet coating. The major waste materials from this section were spoiled printed sheets from test prints,

machine error and offset printing ink residue. Under the post-press, the waste was offcuts and trimmed papers that were bought for and converted into egg crates, toilet rolls and recycled papers such as newsprint. The waste chemical developers from the imagesetters were also bought and for processing jewels, while the used offset plates were bought by blacksmiths for conversion into metal cooking pots for industrial purposes (Figure 5). The findings show that waste is minimal in the press and post-press.

Figure 5: Used offset plate converted into metal cooking pots to reduce environmental impact

The object of the graphic design practices

In the space of the *object* unit, the graphic design products were aesthetically pleasing due to quality printouts having a high potential for the economic viability of the graphic design profession. Some of the comments given elucidate design value for economic viability:

- The business is viable, especially when your designs are nice. For instance, my design keeps my clients because some even after travelling afar even still contact me for my design service only (Graphic designer 5).
- We want to grow a clientele based on the quality of graphic design product. I run a system where the design becomes centre stage and then charge for design. I believe that when design becomes the centre stage but equally functional will help to sustain the business (Graphic designer 8).

The outcome of the graphic design practices

The *outcome* unit revealed several interesting findings. The first was on physical benefits from the graphic design products in the societal and economic contexts. This was followed by the effects of the by-products resulting from the graphic design practices, impacting on the sustainability of the environment that was controlled by the Ghana Environmental Protection Agency (GEPA).

Apart from GEPA serving as a regulatory body, there was a bank of collected and used packages, such as plastics and boxes that industries resorted to for raw materials. Most of the used flex banner materials were also repurposed for canopies, table covers at market places, and used on farms as tarpaulins for drying farm produce such as maize, cocoa and seeds. The latter encapsulates disruptive technological innovations to the graphic design profession posing challenges to traditionally oriented graphic designers and gradually pushing them out of business. However, these innovations are in line with the sustainability agenda. Therefore,

graphic designers need to leverage the potentials in the innovation rather than see them as a threat to their profession.

These were some of the concerns shared:
- Now, most people or clients use WhatsApp to disseminate their information, so when the design is done, they are given to the clients without being printed. WhatsApp and other social media channels are used that affects the publishing or the design industry economically because we do not charge much for designing in our part of the world (Graphic designer 21).
- Social media has become the current trend, so people prefer that because it is cheap when it comes to dissemination of information. To add, many firms are now using software that has made their systems paperless. All these technologies have affected the industry (Graphic designer 16).

The implication of the findings from a sustainable graphic design perspective is that the various activities such as the conversion of used offset plates into metal pots are not directly a graphic design practice, but it influences the graphic designers' choice of materials. The easy conversion of used offset plates' guarantees less environmental impact and economic benefits from the sales of the used plate, which is one of the reasons for the choice of such materials. The regulations of the Ghana Food and Drugs Authority also influence the designs of the graphic designers. All these influence the design decisions by the graphic designers in their practices and making their practices more sustainable.

Conclusion and recommendation

The graphic designers were practising sustainability at a different level than that supported by governmental agencies. The Ghana Food and Drugs Authority and Ghana Environmental Protection Agency were responsible for controlling the content and the materials the graphic designers used for graphic design products. The graphic designers considered their health and safety and subjected themselves to all forms of education while interacting smoothly with few hitches with creative directors and clients. The graphic design products were of the required quality and were financially sound. The output from activities and pollutants were controlled under the auspices of GEPA. Most by-products from the production activities were reused for other products minimising the environmental impact of graphic design practices, thereby ensuring responsible production and consumption.

The implication of the findings on design education is that solutions to problems primarily reside within the field of work. The concept of generating solutions from the classroom and testing them on the field may be costly and difficult to implement. Therefore, design educators should probably relook at changing the approach. Instead of generating solutions from the classroom, design educators can study emerging-already working solutions from the field, modify the emerging local, sustainable graphic design solutions with exotic ideas and give them to students who in turn will use the modified solutions in their respective disciplines in the field (Figure 6). Embracing cosmopolitan localism for sustainable graphic design practices can indeed lead the way towards a contextualised solution in the Ghanaian graphic design industry.
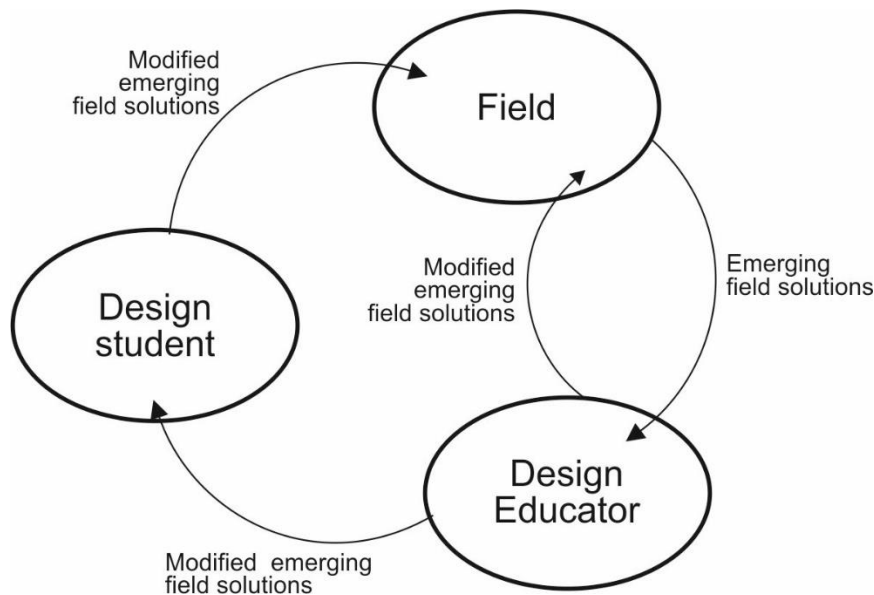
Figure 6: Modified emerging field solutions for design educators

References

Africanvault 2016, '17 Most developed countries in Africa — African vault', viewed 10 May 2018, <https://www.africanvault.com/most-developed-countries-africa/>.

Benson, E 2007, 'Ideas for integrating sustainability into graphic design pedagogy: American Case Studies', in *FLUX: Design Education in a Changing World DEFSA*, pp. 1-17.

Benson, E & Napier, P 2012, 'Connecting values: teaching sustainability to communication designers', *Design and Culture*, vol. 4, no. 2, pp. 195-21, <doi: 10.2752/175470812X13281948975521>.

Ceschin, F & Gaziulusoy, I 2016, 'Evolution of design for sustainability: From product design to design for system innovations and transitions', *Design Studies*, Elsevier, vol. 47, pp. 118-163, <doi: 10.1016/J.DESTUD.2016.09.002>.

Collins, W. et al. 2012, 'Graphic design and print production fundamentals', <https://opentextbc.ca/graphicdesign>.

Creswell, J 2009, 'Research design', *Journal of Chemical Information and Modeling*, vol. 53, no. 9, pp. 1689-1699, <doi: 10.1017/CBO9781107415324.004>.

Dritz, A 2014, 'Closing the sustainability gap: the emerging role of sustainable graphic designer', Minneapolis, pp. 1-72, viewed 12 July 2018 <https://www.academia.edu/17535241/Closing_the_Sustainability_Gap_The_Emerging_Role_of_Sustainable_Graphic_Designer>.

Engesgröm, Y 1987, *Learning by expanding: an activity theoretical approach to developmental research*, Helsinki, Orienta-Konsultit Oy, <doi: 10.1016/j.intcom.2007.07.003>.

Engeström, Y 1998, 'Activity theory', <doi: 10.1207/s15327809jls0702_4>.

Ghana Fda 2013, 'Guidelines for the advertisement of drugs, cosmetics, household chemicals & medical devices', viewed 13 August 2018, <https://Fdaghana.Gov.Gh/Images/Stories/Pdfs/Press Release/2015/Guidelines For The Advertisement Of Drugs,Herbal Medicines, Cosmetics,Medical Devices & Household Chemicals.Pdf>.

Hashim, NH & Jones, M 2014, 'Activity theory: a framework for qualitative analysis', <http://ro.uow.edu.au/commpapers/408>.

Jindal, M 2010, 'Unpacking the Packaging: environmental impact of packaging wastes', *Journal of Environmental Research and Development*, vol. 4, no. 4, pp. 1084-1092, <http://www.jerad.org/ppapers/dnload.php?vl=4&is=4&st=1084>.

Jonassen, DH & Rohrer-Murphy, L 1999, 'Activity theory as a framework for designing constructivist learning environments', *Educational Technology Research and …*, vol. 47, no. 1, pp. 61-79. <doi: 10.1007/BF02299477>.

Kuutti, K 1996, 'Activity theory as a potential framework for human-computer interaction research', *Context and consciousness: activity theory and human-computer interaction*, pp. 1744.

LeBlanc, C 2010, *A radical stance: addressing consumerism and sustainability through communication design*, Doctoral dissertation, NSCAD University).

MacAvery, E 2010, 'Ethics: a graphic designer's field guide', <http://www.ethicsingraphicdesign.org/field-guide/>.

Manzini, E & M'Rithaa, MK 2016, 'Distributed Systems and cosmopolitan localism: an emerging design scenario for resilient societies', *Sustainable Development*, vol. 24, no. 5, pp. 275-280, <doi: 10.1002/sd.1628>.

Mietkiewicz, H 2016, *Graphic Design+ethics+capitalism*.

Saunders, T & L 2009, *Research Methods for business students*, 5th ed., Prentice-Hall, pp. 130.

Society of Graphic Designers of Canada 2018, *GDC | Sustainable design*, *society of graphic designers of Canada*, viewed 30 July 2018, <https://gdc.design/sustainable-design>.

Stetsenko, A & Arievitch, I M 2004, 'The self in cultural-historical activity theory: reclaiming the unity of social and individual dimensions of human development', *Theory & Psychology*, vol. 14, no. 4, pp. 475-503, <doi: 10.1177/0959354304044921>.

United Nations 2018, 'The sustainable development goals report', *United Nations Publications*, pp. 1-56. <doi: 10.18356/3405d09f-en>.

Villeneuve, C. et al. *2*017, 'A systemic tool and process for sustainability assessment', *Sustainability*, vol. 9, no. 10, p. 1909, <doi: 10.3390/su9101909>.

Williams, C 2011, 'Research methods', *Journal of Business & Economic Research*, 5 January 2010, pp. 65-72, <doi: 10.1093/fampract/cmi221>.