



Design Education Forum of Southern Africa

DESIGNED FUTURES

Design educators interrogating the future of design knowledge,
research and education.

8th International DEFSA Conference
9-11 September 2019

CONFERENCE PROCEEDINGS

Hosted by

IIE VEGA SCHOOL
CAPE PENINSULA UNIVERSITY OF TECHNOLOGY



Editors

Dr Susan Giloi
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Introduction – Conference overview and publication of proceedings

The 8th International DEFSA Conference was hosted by the IIE Vega School and the Cape Peninsula University of Technology from the 9th to the 10th of September 2019 on the Vega campus in Cape Town South Africa. The broad theme of the conference addressed *DESIGNED FUTURES: Design educators interrogating the future of design knowledge, research and education*. The theme and subcategories of design knowledge, design research and postgraduate design education drew a broad range of responses from the design education community. A workshop on postgraduate education and supervision was held and for the first time, and research posters of postgraduate work were displayed at the conference.

A call for abstracts was published on the DEFSA web site and circulated to member institutions in August of 2018. This resulted in the submission of 90 abstracts – an increase of 41% on the previous conference held in 2017. The abstracts were evaluated using a double-blind, peer-review process that involved 41 peer reviewers. The review process was managed through the DEFSA online system, ensuring the anonymity of the authors and reviewers. Posters abstracts received from postgraduate students received automatic entry to the conference. Of the 90 abstracts received, one was withdrawn, and 50 presentations and one poster presentation were approved through the peer-review process. Ultimately, 46 presentations took place at the conference, and 14 posters were displayed.

For the conference proceedings, 44 full papers were submitted for double-blind peer review, two were withdrawn, 13 were rejected, and 29 were accepted for publication. Acceptance of full papers for the proceedings was based on a second, double-blind peer-review process. Authors received letters indicating acceptance or not. The online double-blind peer review of the full papers ensured that each paper was reviewed by two peer reviewers. Where necessary, a third reviewer was asked by the editors to review papers that had conflicting outcomes from the two original reviewers. Based on the reviews, individual papers required revisions that were indicated in a feedback document. Ultimately, 29 papers and one poster are published in the 2019 DEFSA Conference Proceedings.

Keynote speaker

Andrew Morrison, Director of the Centre for Design Research at the Oslo School of Architecture and Design, leads design research projects on Communication and Interaction Design. These projects include collaborations on service, systems and product design for the Institute of Urbanism and Landscape at AHO. His work includes design writing, fiction and criticism, and design and technology critiques. His recent publications include *Inside Multimodal Composition* (2010), *Exploring Digital Design* (2010) and *Futures and Design Studies*. He has co-authored books on doctoral design education and the network city. Morrison has also coordinated the AHO PhD School, supervised and examined widely and is on the board of several international journals. Prominent projects that Morrison has been involved in include YOURban, co-chairing the Design + Power NORDES 2017, participating in the Anticipation 2017 Conference and leading the AHO Research Review 2014-2017. He will be chairing the 3rd International Conference on Anticipation in Oslo in autumn 2019. Morrison's presentation incorporated language, visuals and concepts to provide a unique perspective on futures and an interdisciplinary approach to addressing design problems. The topics that he addressed resonated with similar challenges experienced in Southern Africa.

Foreword by the editors

Herman Botes and Susan Giloi

The 2019 DEFSA conference proceedings reflect the conference theme that challenged design educators and researchers to consider how design education will be impacted by technology, a global economy, societal changes and a response to the damaged environment. Authors were asked to reflect on how design education might prepare students for an unpredictable future in which they will have to rapidly acquire new knowledge, learn new skills and adapt to new contexts and cultures. A further question posed was how design research and postgraduate studies might support the production of new design knowledge for a rapidly changing world.

This collection of twenty-six papers selected for publication in the conference proceedings, strongly reflect design as a discipline with the characteristics of what Bernstein refers to as a region. Regions face inwardly to disciplinary knowledge and outwardly to the real world, both facets influence curriculum design, pedagogy, assessment and research. The various design disciplines face inwardly in consideration of disciplinary knowledge and procedures and face outward to the world of work, extended contexts and evolving technologies. Although design education has always had to accommodate these two influences, the papers in this collection reveal future details of how two facets impact what design education is and what it might be in the future.

In considering the many exterior contextual influences on design, education papers in the proceedings explore the demands of preparing graduates for professional practice where soft-skills, business and entrepreneurship know-how prepare them for the commercial world. However, a commercial context is not the only consideration as papers provide insight into how design students should be faithful to their local culture and have greater agency over their learning. In 'becoming' a designer culture, there are elements that should be acknowledged, namely, gender, climate change, sustainability and new design processes that include community and user participation in the design process. The push and pull of context on curricula are clearly illustrated in studies that explore where graduates are employed and how students might be encouraged to think critically and creatively.

The papers focused on research and postgraduate education, paint a picture of the limited number of design master's and doctoral graduates and the impact that this might have on design education moving forward. The unique approaches found in design research, such as practice-based and practice-led research, result in challenges for design educators when negotiating institutional policies, ethical clearance procedures and acceptable forms of research outputs. In addition, authors consider how design thinking, the application of theory in practice and research supervision may enhance postgraduate study and even provide richness to other areas such as staff development.

The papers in this collection establish the significance of the research conducted on design education and how a publication, such as these proceedings, contributes to the building of knowledge in this rather unique field of education. The proceedings, which are provided on an open platform, reaffirm the importance of DEFSA as an organisation that circulates new knowledge of benefit to design educators in Southern Africa and to design educators elsewhere.

We wish to thank all those who were involved in organising the DEFSA conference and the publishing of the papers.

Herman Botes and Susan Giloi

Editors

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Mr	Thinus	Mathee	NHD Photography	Photography, Design Education
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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

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 Guterres 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

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 & Arievitich 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.

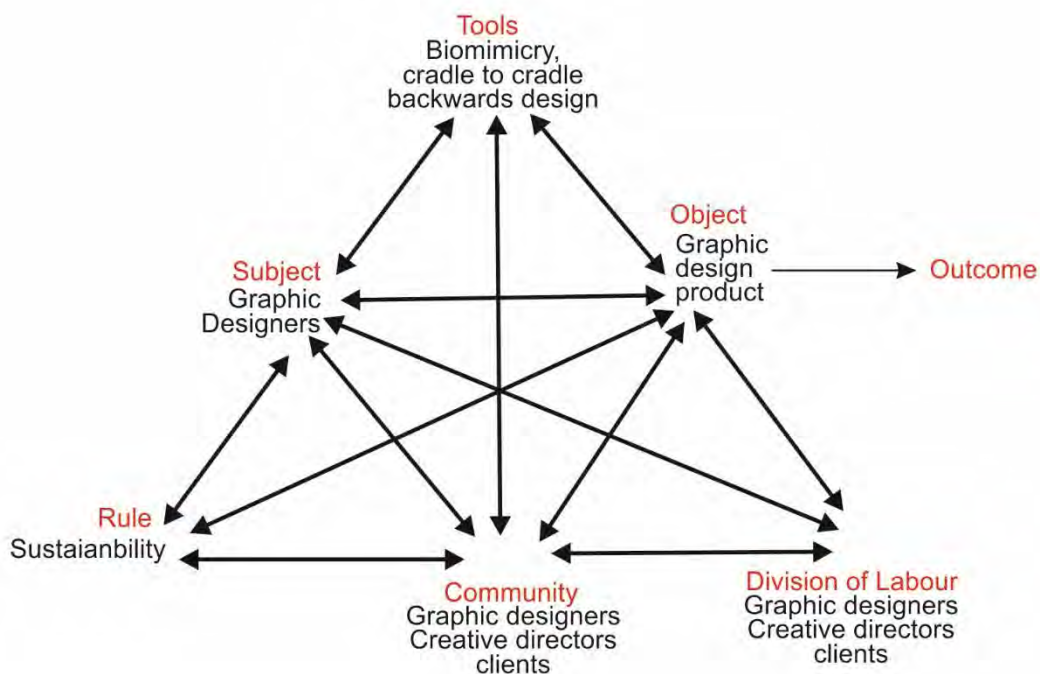


Figure 1: Sustainable graphic design from Activity Theory perspective
(Adapted from Engeström 1987:78)

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.

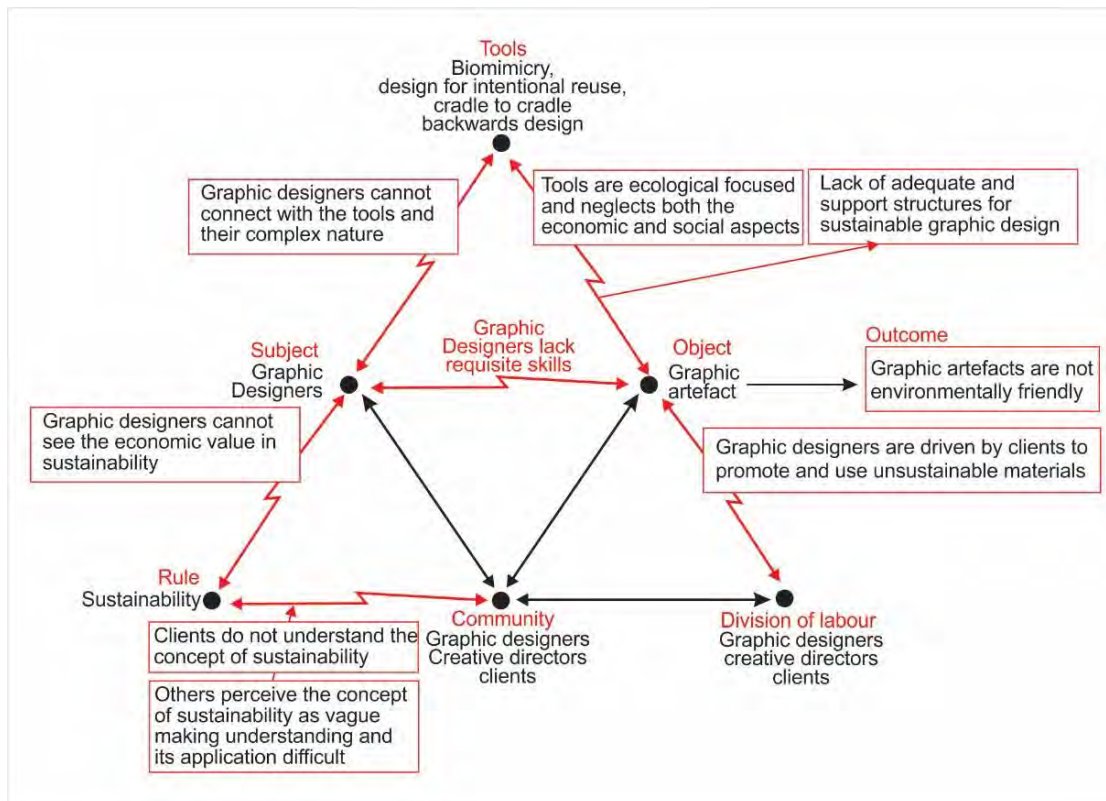


Figure 2: Challenges in sustainable graphic design practices (adapted from Engeström 1987, p. 78)

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.

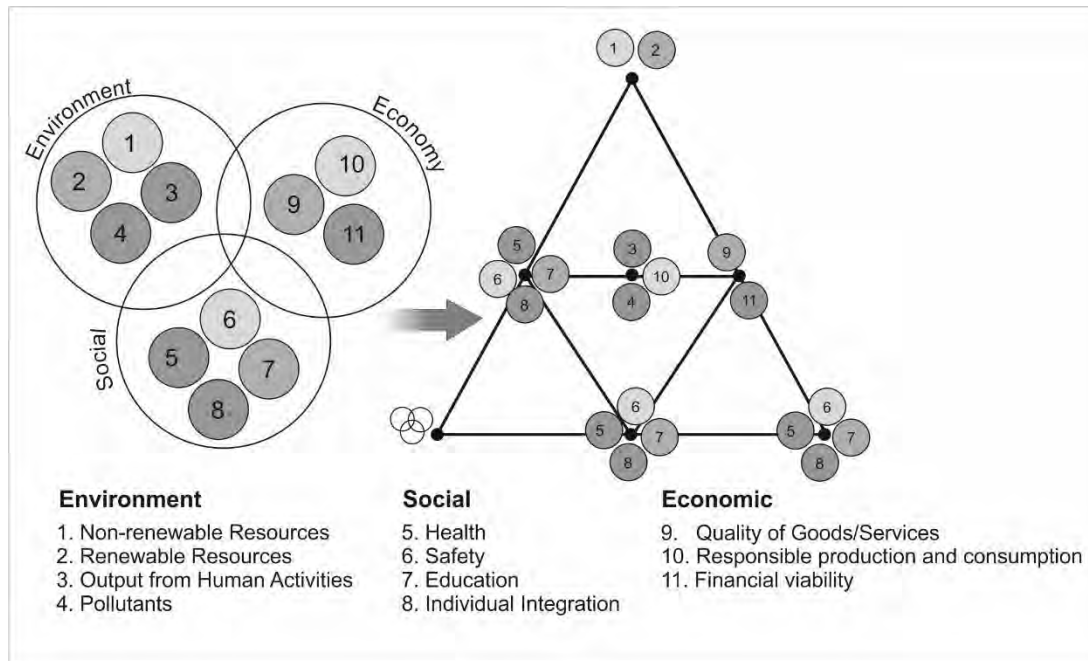


Figure 3: Amalgamation of Activity Theory and Sustainability Development Analytical Grid (author's construct, 2019)

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.

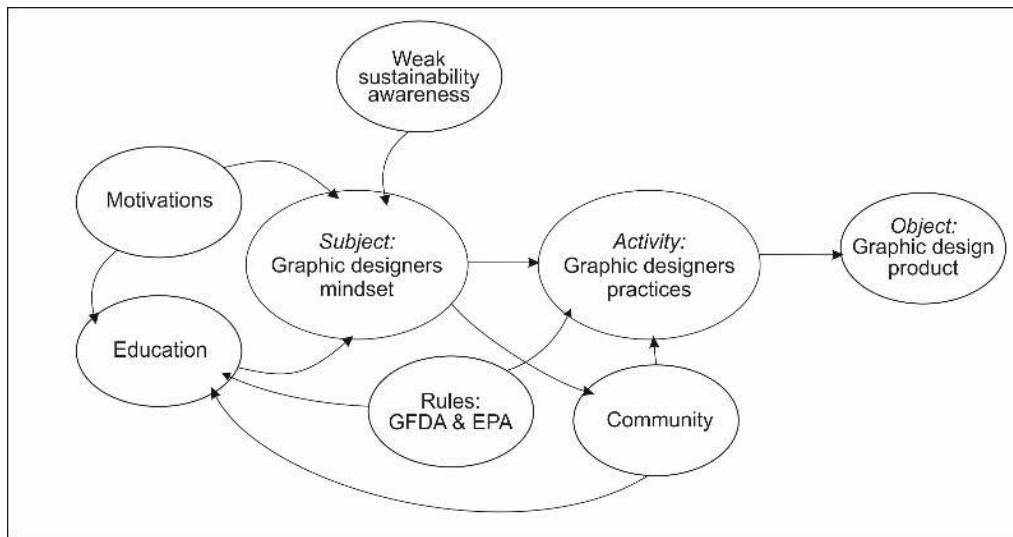


Figure 4: The factors that influence the mindsets of graphic designers

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 onto 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.

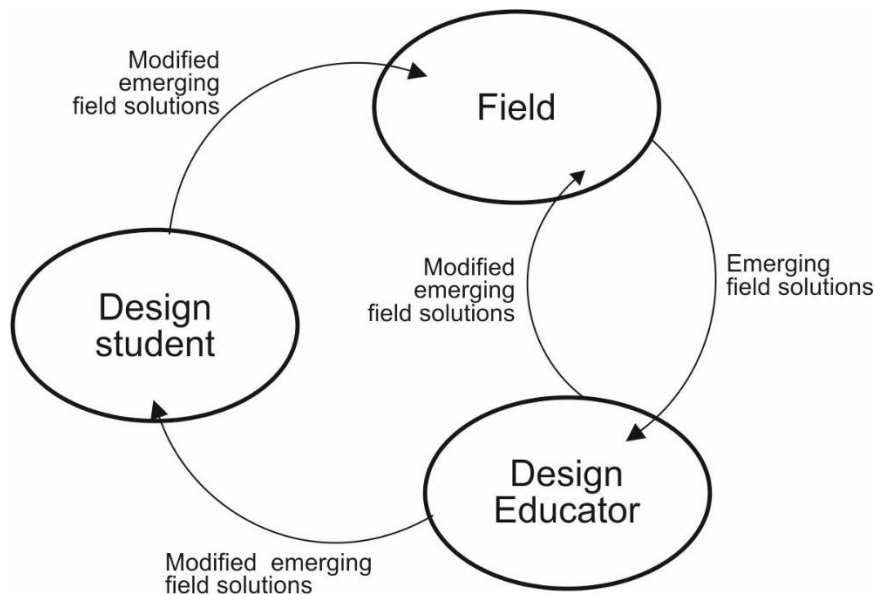


Figure 6: Modified emerging field solutions for design educators

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

The Postgraduate Supervision Space: From formal meetings to late-night calls

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Emmerencia Petronella Marisca Deminey: University of Johannesburg

Abstract

Undergraduate studies in design disciplines focus the design student's attention on solving problems through designing projects in purpose-built studios or workshops while having regular face-to-face contact with design lecturers. Postgraduate research requires students to shift their focus from a practically orientated physical space to a theoretical-orientated mind space. The design research requires the student to engage with the solitary deep independent thinking supervision space in which contact and reflection occur. This paper will focus on the supervision space, which is described as both space and place in which the supervision interaction between student and supervisor takes place.

The paper aims to understand how students manage their supervision space through understanding the contact, communication and interaction they have with their supervisors. A reflection of current relevant literature is included, which presents the perspectives of the supervisor to understand the changing nature of the supervision space. The perspective of the students is obtained by incorporating open-ended interviews with two groups of participants. They are students that were on campus during their studies and students that were located either in another province or abroad. The participant groups comprise students that were registered in the Interior Design programme at the University of Johannesburg. Although the main aim of the paper will be to reflect on the student experience, the impression of the supervisor will be included to describe and understand the supervision style that informs the supervision context and space.

The paper concludes with a discussion of the findings that reflects on the changing nature of the postgraduate supervision environment, with a particular shift from the traditional supervisory models to the development of closer mentoring models. The findings will incorporate the impact of digital technology and communication applications (apps) on the supervision space and conclude with recommendations that can assist in design education, postgraduate students and supervisors.

Keywords: Postgraduate supervision space, supervision strategy

Introduction

This paper considers the changes in postgraduate supervision, not only as described in the literature, but also as it has been evident in supervision models employed in our daily practices. This reflection takes into consideration the supervision practices that took place in one department over ten years to gain a deeper understanding of how supervision space has changed from both a supervisor and student perspective.

Our research into the topic identified that the supervision role and position of supervisors are well documented and describe various changes that occurred in relation to supervision space. However, two distinct gaps are evident in current research. The first is the change in student interaction and communication that coincides with a change in communication technology. The second gap is that although supervision models refer to the student-supervisor relationship, the student's perspective and experience is seldom included. This paper, therefore, aims to make a contribution to these two knowledge areas through delving deeper into current practices and reflecting on feedback provided by postgraduate students. The main question of the paper, however, will focus on the student experience through begging the question – how do students experience their supervision space? This question will be investigated through focusing on meetings, interaction, forms of communication and student-supervisor relationship.

Methodology

The research methodology used for this paper comprises a literature review and the consolidation and analysis of data that was gathered from open-ended interviews conducted with postgraduate students. An investigation into literature assisted in providing insight to relevant theories, models and practices that pertain to postgraduate supervision models and changes within postgraduate supervision. Gaps were identified in the literature to identify the significance in research contribution.

Student feedback was obtained by interviewing seven postgraduates, which could be divided into two participant groups. They are students that were on campus during their studies and students that were located either in another province or abroad. The participant groups comprise students that were registered in the Interior Design programme at the University of Johannesburg. The data was collated and analysed by following a qualitative research method. To analyse the textual data, coding, themes and subthemes were used. Supporting quotes were extracted and included in this paper to support the discussion of the research findings.

The paper is presented in the first-person voice of the two researchers. The two authors have investigated the two different perspectives that are represented in the paper, namely one of a supervisor and the other the postgraduate student. The supervisor has over ten years' experience in postgraduate supervision and introduces the paper from a supervisor's perspective that observed drastic changes in supervision and higher education that impacted on the supervision space. The postgraduate student's perspective was obtained by a young academic, who recently completed her postgraduate studies and could obtain objective reflections from seven graduates. To enrich the content of the paper, the two distinct perspectives provide personal observations and explanations of critical decisions that were made during the supervision process.

The supervisor's perspective

A close and personal experience – the voice of the supervisor

My research into postgraduate supervision practices was triggered by observing personal challenges and obstacles postgraduate students experience. In our department, students are mostly part-time students with full-time work responsibilities. They are hardworking individuals but have to manage late-night research hours, family commitments and full-time work responsibilities. My postgraduate students seldom have the opportunity to meet me in person and have to communicate through emails, telephone calls or Skype sessions.

Through reflecting on the supervision styles as presented by Lee and Green (2009), I observe that my personal supervision style has developed from being a master and mentor to a coach and even a friend. My supervision style has changed over ten years, and I foresee that it might evolve to further dimensions, as I continue the supervision journey with postgraduate students. I have to confess that this growth and developed takes place with students throughout their two or three-year study period. A supervisor grows and develops with students. A supervisor needs to understand the personal circumstance of their students, which lead to having a closer friendship relationship. This results in telephone calls, cell phone message and e-mails that I receive after hours and over weekends. However, my personal approach to supervision was received with great concern at a postgraduate presentation in 2018. Experienced supervisors warned me that this approach infringes on my personal life and those clear boundaries need to be in place between contact sessions during working hours and feedback session after hours. To find a balance and reflect on my own personal supervision style, I have consulted the literature to gain a deeper understanding into how experienced researchers manage their supervision spaces within the demands and challenges of our current higher education environment.

The pressure to develop quality supervision and increase student numbers

Ali, Ullah and Sanauddin (2019:16-17), summarise the notion of quality supervision and identify common qualities that should be present in effective research supervision. These include regular meetings, the devotion of quality time, keen interest in the research project, guiding the student towards successful completion of the research and adopting a supportive and encouraging attitude that appreciate the student's ideas. A sound relationship between student and supervisor is described as an important factor in the successful completion of a postgraduate study (Bitzer 2011). Manyike (2017) observes that to deliver quality supervision is a worldwide challenge and not unique to South Africa. However, quality supervision is a global imperative, since it assists in developing knowledge and contributes to global competitiveness (McCormack 2012; Manyike 2017). The increase in postgraduate students with different levels of capabilities, increase in student numbers and pressure to deliver students within a prescribed time has a notable impact on quality supervision (McCormack 2012).

In South Africa, national and institutional targets have increased the pressure to increase postgraduate research output in higher education. The National Development Plan for of 2011 (SA 2011) requested transformation of the entire system, including an acceleration of human capital development, an increase in research output and postgraduate students. Supervisors are therefore requested to increase their student numbers and focus on the minimum time of completion.

Quality supervision is further depended on regular contact sessions with students, which is compromised with distance students. Manyike (2017) explains, “[P]ostgraduate supervision often involves the geographical distance between student and supervisor”. Dual-mode

systems or alternative modes of communication are therefore required to assist in managing the communication challenges and regular interaction between the student and supervisor (Manyike 2017).

The contemporary debate: supervisor-student relationship

To assist the postgraduate supervision challenges across the world, alternative models of supervision and supervision styles have become acceptable. Lee and Green (2009) describe the supervision space as complex and ambivalent, as well as an intensive investment by both the supervisor and the student. Lee and Green (2009) introduce the use of metaphors to identify and explain different roles and associated tensions that are experienced in the supervisor-students relationship. These metaphors include – masters, slaves, disciples, mentors, coaches, friends, authors, apprentices, sisters, fathers and midwives (Lee & Green 2009). The one-on-one discussions negotiate the personal distance or space between the student and the supervisor. In a short period, the traditional role of a mentor can change to being a confidant or a friend. Students share personal experiences and challenges that often reside outside the domain of the supervision project, but gives the supervisors insight into associate difficulties that impacts on the academic performance.

The traditional supervision styles have been replaced by styles and supervision spaces that are described as a more intimate experience. Hermer (2012, p. 827) argues that at a postgraduate level the supervisor-student relationship marks a shift in both physical and mental space from undergraduate studies. This change takes place through the one-on-one discussions that take place and can be experienced as a more intimate experience, while it has to remain 'socially acceptable'. These discussions can take place off-campus, in a private space and if possible, over a cup of coffee (Hermes 2012).

Manyike (2017) shows with feedback obtained from supervisors in South Africa that they do not only assist students to succeed academically but take responsibility for their overall wellbeing. Their role is described as a 'long-term commitment' (Manyike 2017). The responsibilities of the supervisors have extended in the contemporary supervision debate from being a master and mentor to a friend, confidant and counsellor (Manyike 2017; Lee & Green 2009; Blythe, 2018; Bitzer & Albertyn 2011). Blythe (2018, p. 410) reflects that by positioning himself as a friend in the supervision space, he was able to be more attentive to the needs and expectations of the students. Therefore, the total student experience and 'their situation as a person' are taken into consideration (Blythe, 2018, p. 410).

In the contemporary supervision space, the students require more encouragement from the supervisors and positive communication along with constructive feedback (Ismail et al. 2013). Salmon (1992) explains that due to the dynamic nature of the research process supervisors need to be more flexible in addressing the needs of students. A static approach to the supervision process results in "late submissions, or drop out from the economically and intellectually highly invested degree programs" (Saleem & Mehmood, 2018, p. 25).

The postgraduate student's perspective

Research participant group

Open-ended interviews were conducted with seven research participants who were supervised in the Interior Design programme. The interviews were conducted by the second author, who is a recent graduate of the master's programme. She could manage a confidential discussion and encourage an objective reflection. The participants were asked to reflect on the supervision space in which supervision interaction between themselves and their supervisor occurred. Research participants comprised of two groups. They are students that

were on campus during their studies or in close proximity and students that were located either in another province or abroad.

From the feedback, four primary themes emerged, namely:

- The supervision space: virtual vs physical;
- Information and communication technology that aid the research supervision space;
- The connected supervisory experience: adaptability and flexibility; and
- The supervision space: connectivity and availability.

The supervision space: Virtual versus physical

Due to the increase in part-time and distance students, the student and the supervisor are often geographically separated. This makes the act of face-to-face engagement between the student and supervisor a negotiated task. Information and communication technologies (ICT), therefore, were used to facilitate virtual contact sessions. Students in close proximity described the interactions as follows:

Contact sessions were “in the supervisor’s office and over the phone via WhatsApp calls” (Participant 6).

Because I work there [on campus], it was possible to have contact in terms of physical space. Sometimes we would set up meetings, and we would consult in her office. Other times it was either over email or via WhatsApp (Participant 5).

The majority of participants explained that although they were able to effectively communicate and engage with their supervisor in the virtual space, face-to-face interaction was still the preferred method of interaction. Even though the technology was successfully used to support the virtual space of supervision, face-to-face contact in a physical place was preferred as “this was a comfortable, familiar space” (Participant 6) that mirrors the undergraduate learning experience.

I gained more value from the in-person contact because we would read things together and discuss things together, and it was also more fun (Participant 3).

I like meeting physically more than phone call chatting because I feel like I lose concentration quickly with phone calls (Participant 3).

I enjoy interacting with a person, face to face, as you can see body language and facial expressions. This face-to-face interaction also builds a professional relationship with your supervisor. During my previous studies, as a design student, I would always meet in the lecturer or supervisor’s office and discuss designs. So, this was a comfortable, familiar space due to this experience (Participant 6).

During the physical contact sessions, research participants felt that they could actively engage with their supervisor. The distance student expressed that compared to emails that are exchanged between them and their supervisor, and the physical contact session provided immediate feedback. Therefore, both distance and onsite students expressed that, onsite students had an advantage by having ease of physical access to their supervisor and that physical meetings worked better. The following observations explain these observations:

I was lucky to be an onsite student because I could have [face-to-face] meetings with her (Participant 1).

Because I was on site, I often just go to her office (Participant 1).

It remains a challenge if you are a distance student. Because I felt that I sometimes just want to go and knock on her door to ask something quickly. I cannot substantiate this, but I felt that if I was an onsite student that you had access to the supervisor and that you could get feedback quicker (Participant 4).

I found that the physical meetings worked very well for me. I like the connection about being with someone and being right there [...] that for me, was my first choice (Participant 7).

ICTs that aid the research supervision space

A full-time onsite design student's undergraduate learning experience primarily consists of guaranteed practical face-to-face scheduled studio sessions where they can engage with their lecturer. In contrast, at a postgraduate level, students have to shift their focus from a practically orientated physical space to an abstract and theoretically orientated mind space. This often leads to an isolated, solitary and unconnected form of study that is one of the main contributing factors that result in unsuccessful completion of postgraduate studies.

The implementation of ICTs can effectively bridge the face-to-face communication gap to provide a connected supervision experience. ICTs that were used in the supervision space include Skype, WhatsApp, phone calls and emails.

The way we communicate was what we had at our fingertips, so we used it (Participant 4).

By incorporating this type of ICTs, the students were able to have direct contact with their supervisor. The supervision space was supported with ICTs in the following manner:

Used email for submitting chapters and research sections (Participant 1).

Through WhatsApp, we were able to get real-time feedback on queries (Participant 1).

Whatever information I might find, or she might find she would WhatsApp me an article that was interesting or I would WhatsApp her with something regarding my research (Participant 1).

Most of the usable knowledge was from a Skype session or a physical session (Participant 7).

The combination of different communication technologies had the following results:

WhatsApp would be more like the questions that I have. She would usually call me depending on the type of questions I have asked her. [Email is used for] when I want to send her my work. And if she wants to send me attachments like readings or comments she made on the work (Participant 3).

The telephone or Skype calls helped a lot because I can immediately get an answer to a question. It was a quicker feedback session (Participant 4).

All the participants made reference to the use of WhatsApp. It is used as a form of quick, cost-effective and immediate communication. This is explained as follows:

WhatsApp we use a lot. In fact, [my supervisor] will find really nice articles and WhatsApp me links. And sometimes I'll take images of books I'm reading and send those to her as media. And general texting. We do use WhatsApp a lot (Participant 5).

WhatsApp was used for quick messages. WhatsApp phone calls was an “easy way to connect” (Participant 6).

With the use of available technology, it would be required of both the supervisor and the student to be proficient in the use of ICTs.

I believe both parties need to have good computer literacy if the mentoring process happens long distance. I would have hated to go through the process and have a supervisor that wasn't PC literate. It would drive me insane (Participant 6).

The connected supervisory experience: Adaptability and flexibility

Limited time interaction between supervisor and student is two-fold. First, postgraduate students have varied commitments outside the realm of research. Due to factors like work and family commitments and geographical location, students cannot always engage with traditional formal supervision interaction that takes place in a physical 08h00 to 17h00 face-to-face space. Second, apart from supervision responsibilities supervisors also have limited time due to various institutional responsibilities, increase in workload and the focused time that is required to conduct supervision discussions. Adaptability and flexibility in managing the supervision space are therefore required. One participant explains this as follows:

[My supervisor] always made me aware of when she won't be available and the dates she will be available when she will be in the office, so I could work around that (Participant 1).

To facilitate both contact and distance, students' schedules can become a difficult task. The supervisor thus has to be flexible to provide an enriching supervision space. Research participants explained how their supervisors accommodated them from formal meetings to late-night calls. Collectively the participants explained that their supervisor was willing to accommodate their schedule.

Usually, it would have been in the mornings in coffee shops (Participant 3).

I was constrained to after hours because I was working full-time. Six o'clock in the evenings. There were some later calls maybe eight o'clock (Participant 4).

Mostly late afternoons to late evenings. When I had to submit some stuff previously it will sometimes go from 9, 10 sometimes at 12 o'clock we will send an email at night. Late night. Sometimes 4 o'clock in the morning as well (Participant 5).

Usually, my supervisor came to me because I work ... then we would sit in a coffee shop around here. Lunchtime (Participant 3).

Not only did the supervisors accommodate the students' schedules in relation to theirs, but they also had to wear different hats, not only that of a supervisor. Supervisors also adapted to the identities of their students. The multiple identities that postgraduate students are responsible for, often in one day, included being a student, a wife, a partner, a family member, a parent, a friend and a full-time employee. Two participants explained this as follows:

We would also discuss everyday life, not necessarily just varsity [...] that worked well (Participant 2).

It is not just about the studies, it is also about the fact besides being a master's student, you also have a life. As a mentor, [my supervisor] is quite understanding that you have to work around a whole lot of things to get this done. Not only does she mentor you on how to complete your study, but she also takes into account

the life you have around you, and she helps you to work with that. I think that gives you a good balance in terms of mentoring (Participant 5).

A supervision space: Connectivity and availability

Traditional mentoring processes have often been criticised in relation to the unsuccessful completion of postgraduate studies. The end goal for the postgraduate student is to complete their research study successfully. To arrive at a successful end-goal, it requires a journey to be walked alongside the supervisor during the mentoring process. Participants were thus asked to reflect on how they experienced their supervision journey.

I actually think that [my supervisor] being my supervisor opened a lot of communication links where we are able to chat with each other. I have heard that with most supervisors you have to make an appointment to see them. Whereas [my supervisor] is quite flexible. She allows you to WhatsApp her. She does not mind a late-night message. She has allowed us to interact more freely and more flexibly which works much better (Participant 5).

The participatory nature of supervision involves the concept of connectedness. Participants specifically commented on the successful outcome of their postgraduate studies in relation to their supervisor's supervision style. The success of the supervision style was to be able to remain connected with their supervisor throughout their supervision journey.

The only document in academic writing was in my BTech year, which was a very small document. I had to learn quite a lot in terms of academic writing and the feedback and support in that regard was quite helpful. The results of my document were really good. It goes to show that the support and guidance I had was of quality (Participant 4).

The outcome of my study really showed the quality of the supervision that I have received. She is also someone that is motivational even if you feel you are floundering and you not going to make it; she is so positive [...] you can't help to work harder. The proof is definitely in the results (Participant 2).

The participants explain that their interaction with their supervisors was informal, however, professional. Participants said they looked forward to contact-session as it provided insight and clarity. The participants explain that due to how the supervisor facilitated the research study allowed them to engage comfortably with their supervisors.

I have a good relationship with my supervisor, so the type of language is nonchalant. The feedback is obviously formal, but the setting I suppose is more casual (Participant 3).

I wouldn't say informal, but it was a comfortable conversation. It did not feel like she was preaching at me. [The contact sessions] were systematic, but I felt I could still converse with her. I did not feel like I was getting a lecture (Participant 4).

Evident from the participants' responses, is that the communicative relationship between themselves and their supervisor had a considerable impact on their research journey. The majority of the participants have explained that they were nervous and unsure of the research process due to the unfamiliarity of postgraduate research. All participants have expressed that their supervisor, however, put them at ease. This was achieved through how the supervisor communicated with the student, whether it was in the physical or virtual space.

Conclusion

Traditional supervision styles and spaces have changed noticeably to accommodate various pressures and challenges in the postgraduate environment. The paper identifies that the successful completion of postgraduate studies can significantly contribute to how the student-supervision relationship and space are managed. The contemporary debate in relation to supervision space shows that it is a more intimate experience, where the supervisor is required to be more flexible and considerate of the entire student experience. The study shows that the position of master and mentor has evolved to a position where the supervisor establishes a closer relationship with the student and that the position of friend and confidant is often included in a more intimate supervision space.

Feedback from the seven participants interviewed shows that the contemporary supervision space requires a different approach to the traditional models. Postgraduate students face various challenges, which require a more flexible, adaptable supervision styles and space. Alternative forms of communication, such as the inclusion of cell phones and WhatsApp application, could assist in providing quick, easy communication between the supervisor and student. Distance students benefit from Skype sessions or WhatsApp calls but prefer face-to-face contact sessions. Part-time students appreciate after-hours consultation sessions and contact with their supervisor.

However, the paper indicates the difficulties that supervisors face within the current postgraduate environment. Managing an increase in student numbers and meeting the demands of throughput rates and success rates, requires supervisors to find alternative approaches within the supervision space that can assist in improving student success. These alternative approaches could require not only a more flexible and adaptable supervision style but also an extension of boundaries from formal meeting spaces to informal discussion that takes place after hours and extends into weekends. The students interviewed in this paper were appreciative of alternative, flexible supervision methods and describe various situations that show the positive effect it had on their postgraduate experience.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

From Experiment to Social Action: The shift in critical design

Bruce S Cadle: Nelson Mandela University

Abstract

Critical design has been philosophically positioned as that which opposes the affirmative role of design as the status quo, offering itself as social critique located in the formalised spaces of museums and galleries. This paper contests that reasoning by firstly showing that in the contemporary sphere, criticality in design now resides in a more socially aware and humanistically engaged space. Design propositions can be expressed from the perspective of modes of enquiry that ask both What if? and How else? questions in the vein of Malpass and Slotnick. These then propose alternative ways of considering design not as a way of seeking answers but as a way of asking questions. Furthermore, participatory engagement and an understanding of the importance of community involvement in generating solutions have become normalised. This paper addresses this shift in thinking around the role of critical design, questioning how this may be addressed in design education such that it challenges affirmative design and foregrounds social awareness.

Keywords: Critical design, collaboration, participatory engagement, social awareness, design education

Introduction

Capital and culture bookend design and its role in society. Into the twenty-first century, Sparke (2013, p. 181) points out that this notion of design occupying such prominence between consumer desire, style and lifestyle, and social, cultural and economic roles, has led to its ubiquity. One may speculate on the inevitability of this viewpoint, as design and the creators of it, express 'our humanness' (Nelson and Stolterman (2014, p.11) and manifest, through 'design thinking' (Sparke 2013, p. 181) the cultural artefacts that have come to define us. It, therefore, seems entirely valid to investigate how the most recent 'category' of design, critical design, has evolved to encompass, not only the poetic and pragmatic but also the social and humanistic paradigms. This paper will contextualise critical design as it applies to the current era, and argue the case for an art-meets-design interface through presenting examples of collaborative student practice and discuss the value of participatory engagement in generating social awareness.

Critical design in context

Some 30 years back, before the emergence of the critical design concept, Victor Margolin (1989, p. 28) expressed design's role as the intersection of 'feeling' and 'reason', the unexpected and the rational, purposeful thinking and making, and creativity and logic. Embedded in the products of design are value systems, theories and ideologies that inform our worldview. Adding further layers to design's roles, Royal College of Art's, Anthony Dunne and Fiona Raby, in the 1990s, coined the term 'critical design', in reference to an activity that attempts addressing (Dunne & Raby 2013) a series of *What if?* questions: "possible, unthought-of situations for everyday life are imagined and objects [are] designed in response to these questions" (Julier 2014, p. 102). The reasoning here is that by focusing on poetics and fictions, they become defamiliarised and thus are able to critique the status quo more effectively. For Dunne and Raby (Bardzell & Bardzell 2013, p. 3298), bringing about social emancipation required disrupting and transgressing "social conformity, passivity, and similar values of capitalist ideology" embodied by affirmative design practices.

Hawley (2018, citing Dunne & Raby 2013, p. 35) adds that,

Critical design is often used as an umbrella term to describe [...] conceptual design that works closely with the notion of the everyday object and the quotidian experience, applying the practice's wider freedom of expression to explore design's possible relationships to ecology, private experience and civic life. Criticality and socially engaged, intellectual design exercises are shown to address a range of design rhetoric, terminology and perspectives.

Malpass (2013, p. 352) contemplates the critical/speculative design relationship noting how satire, narrative, ambiguity and rational thinking can coexist as criteria for measuring critical design's critique value. Hunt (cited in Slotnick 2015) argues that it is entirely plausible and relevant for the critique to be located between the poetic/pragmatic, commentary versus action dichotomy. Needless to say, there are many divergent views regarding the relationship between design poetics and design pragmatics, some advocating for their coexistence and others critical of criticality for the sake of intellectual curiosity.

Critical reflection (and criticality) must of necessity become embedded in professional and educational, academic practices, as an essential dimension of design, and it should question the traditional perception of design as a bridge between art and capital. This is evident in the design of new visual arts curricula at Nelson Mandela University (NMU).

A key tenet of the learning [in this programme] resides in stimulating personal growth through practising analytical, critical, reflective and problem-solving skills. Further to this is the intent to develop the student's world view such that there is a deeper understanding of the role the visual art and design disciplines have in influencing society (Cadle 2015, p. 2).

Dilnot's (2008, p. 177) standpoint that criticality should "define[s] the very state of being of a [design] practice" resonates with this and points to the importance of understanding that the capital versus culture dichotomy and its relationship to everyday life may be better represented by the design culture/design anthropology connection. Julier (2014, p. 239) offers that "[d]esign culture is about processes, people, relationships, flows, fluxes and vectors, but it is also about stuff. Knowing what stuff is, being able to read it, handle it and experience it and think deeply and critically about it". Cadle (2015, p. 1), discussing a learning outcome of the Bachelor of Visual Arts Honours degree at Nelson Mandela University echoes this view that it should "[a]pply advanced critical thinking, problem-solving and research skills in pursuit of knowledge application". This synergises with design anthropology, the academic field that combines the elements of design and anthropology in debate (Gunn et al. 2013, in

Anastassakis & Szaniecki 2016, p. 124) about knowledge production, collaboration between designers, anthropologists and users, and co-creative practices (participatory design) (Otto & Smith 2013, p. 124). “In particular, design anthropology has emphasised collaboration and co-creation” (Gunn, Otto & Smith 2013 in Mazé 2016, p. 50), the participatory practices discussed later in this paper, allowing for new ways of understanding design epistemologies and their connection to the human condition, according to Otto and Smith (2013). Mazé (2016, p. 50) notes that Ingold (2013) “argues for an anthropology not *of* but *with* design, art and architecture and emphasises *making* as a way of creating knowledge”. This notion plays into critical design discourses where humanising factors are central to purpose.

Depending on cultural, economic, political and social factors, a good example of how this poetic/pragmatic, art/capital scenario is exemplified is through the Knotty Objects Conference 2015 discourses. Antonelli (cited in Slotnick 2015), at the *Knotty Objects Debate: On Critical Design*, held at MIT Media Lab in 2015, presents Tim Parsons’ view that “critical or speculative design [...] does not work from the problem-solution paradigm but from the position of raising awareness of issues through the creation of fictional scenarios that the creators do not necessarily advocate”. Audiences are expected to question, contest, discuss and challenge these proposals as they seek to make sense of the world.

Ansari (cited in Slotnick 2015) proclaims that most critical design is “driven by aesthetic and intellectual questions rather than political ones [and that] grappling with complex [...] systems requires [rather] asking *How else?* [questions]” *How else?* emphasises a connection to current structures and systems where the principal project is not framed as an aesthetic, exploratory, intellectual exercise but as a political, transformative, active enterprise (Slotnick 2015). Hawley (2018, p. 6) posits the relationship between the *What if?* and *How else?* questions from the perspective of how these might apply to “modify[ing] everyday [...] transactions”. These very questions are germane to the relationship between critical design and participatory engagement, as reflected in the Collab Project discussed later in this paper. Intrinsic to this discussion is, in my view, the shift of critical design into the space of embodied criticality, as proposed by Rogoff (2006) that allows students and emergent practitioners to ‘see’ how else critical design may be employed as a discursive device. Ansari’s (Slotnick 2015) response is that “critical design is not sufficiently critical or imaginative in its provocations, reflecting the fears, anxieties, desires, imaginaries and ultimately, the politics of an intellectual, liberal, white, middle-class that believes in the promise and purity of technological progress” The [critical design] projects do not commit to any programme of action instead they continue to highlight global inequality and new forms of colonialism, among other injustices. Despite this, the perspective of this paper is reliant on there actually being a relationship between these opposing views. Malpass (2012, p. 59) notes that a conceptual thread, exhibiting design’s capacity to work boldly with the relationship between design and people [exists], and, for the purposes of questioning, needs to find its own taxonomy (perhaps this taxonomy lies in the heretofore contested duality ‘separating’ design from art).

The design versus art issue

I argue that these apparent dichotomies, discussed in the previous section, co-exist in the educational space, as the former introduces critical design process and thinking to students and emergent practitioners where the imaginaries, play, aesthetic and exploratory approaches that drive both artistic and design expression are equally relevant to the desire for a designed outcome that is in the service of society’s needs and the business imperative. Heskett (2017, pp. 54–57) is more scathing of this notion, insisting that design should not be ‘equated with art’ as this is a trivialisation of the role that design plays, even as there are multiple ways in which designers’ competencies and capacities can be deployed. The least of which should be the ability to encompass thinking that is acknowledging of social responsibility and social

awareness, and asks difficult questions, like *What if?* and *How else?* in pursuit of innovative 'answers'.

Consequently, opportunity presents itself that allows for the transition into, or link with, the design art space to be made. It is an important connection to establish as it serves to mollify those who suggest that the creative processes that birth art and design artefacts are intrinsically different. Folkmann (2013, p. 5) states that "imagination is not only an internal matter of consciousness actively operating in the phase of creative production; it is also mediated and, as imaginary meaning, made tangible by and detectable in design objects". Aesthetic creations like these reside in the space between poetry and pragmatism, and although Folkmann (2013, p. 5) advocates for a distinction between design and art, such that even if the former is not overtly focused on solving a problem, he believes that design relates more to 'basic organising principles of human life'. Design art (or art design), according to Julier (2014, p. 103), however, "should be read much as a function of a particular commercial circumstance as a desire by some practitioners to poeticise design". The emergence in the 2000s of 'design as art' practice relates to 'crossover' fine art practices in the 1990s where material things and materiality support art concepts and inject the every day into creative practice. It is not a major leap of the imagination to see how this resonates with similar artistic techniques employed by the pop artists, and the use of 'ready-mades' by Duchamp and his ilk. The use of found objects as a design technique, albeit similar to the fine art intent, takes the "ordinary, everyday stuff of life [to be] re-used to suggest a story or, more straightforwardly, enhance its beauty" (Julier 2014, p. 104). I suggest, therefore, that critical design and speculative thinking approaches and fine art creative imaginings can coexist, especially when operating in a participatory hybrid environment of collaboration as illustrated in the following section.

The Collab Project

The Bachelor of Visual Arts qualification at Nelson Mandela University was devised to provide for transdisciplinary learning,

[A]cknowledg[ing] the growth of hybrid industries within the visual and design arts, where boundaries between the disciplines are blurred, where technological developments spur innovative developments, and where collaborative projects are commonplace, [and] question[ing] the very narrowly defined parameters and obvious skills needs formerly required of these disciplines (Cadle 2012, p. 3).

Synchronous with this, the Collab Project's learning and teaching experience were devised as a way of exploring the engagement opportunities available in collaborative student activities, hence the title. Collett (2019, p. 1) states that the project intent is to "facilitate collaboration across disciplinary boundaries [...] illustrat[ing that] through practice, [...] in the 'real' world, creative projects are frequently hybrids where multiple voices contribute to a unified output or product". By stimulating participatory creative engagement and learning, this project, run over a two-week period with 140 second and third-year visual arts students, from diverse streams: fashion, fine art, graphic design, photography and textiles, "engage[s] with Sethembile Msezane's work as a trigger [such that] [t]he outcome of this process [is] a hybrid product/artefact [or performance] that is created by the group" (Collett 2019, p. 1). Four or five students worked in mixed disciplinary groups towards a consensus-based creative end-result. Aspects of Msezane's (Msezane 2019) artistic production have "examined the processes of myth-making which are used to construct history, calling attention to the absence of the black female body in both the narratives and physical spaces of historical commemoration". These impetuses informed the themes underpinning the critical enquiry that the students were tasked with, namely history, heritage and memory; performativity of identity; the

gendered body and narratives of public space. All of these themes allow for a degree of embodiment in the creative tasks directly but also in the nurturing of group and self-awareness through a series of 'awakening' activities.

Rogoff (2006, p. 1) argues that "the notion of an 'embodied criticality' has much to do with [the] understanding of our shift away from critique [...] towards criticality, a shift [...] essential for the actualisation of contemporary cultural practices". In this sense, the Collab Project allows students to explore the creative process from the perspective of 'being within' and 'awake to the collective dynamic' as participants in a group. Here they inhabit a problem, exercise collective critical judgement and intuitively propose a 'solution' (Rogoff 2006, p. 1). Engagement with outside 'actors' is an expected and natural spinoff of this approach, allowing opportunity to experience others' views, ideas, and lived realities. In this uncomfortable space of otherness, they are able to perceive differences and alternative worldviews. This is an example of participatory action research at work, although the students were unaware of this as their guiding methodology. Cassidy (2017, citing McTaggart 1997) clarifies that this occurs through "active engagement in critical dialogue and collective reflection, which helps them recognise that they have a stake in the overall project". An important aspect of the trajectory of this process lies in the participatory nature of the group engagements. As Carlin et al. (2018) point out, "a fluid and playful process of negotiation, self-reflexive observation, speculation, listening, writing and embodied interaction [...] could provoke people to re-imagine, discuss and interrogate an [...] artefact". The philosophy underpinning the participatory, collaborative strategies is to improve lives through social change, creating meaning and expressing values where participants are able to share their knowledge towards the achievement of a united purpose (McIntyre 2008, p. 1). It was precisely this approach that Msezane employed to provoke critical, creative responses from the students and encourage the asking of *What if?* and *How else?* questions in the design of their group's artefact, resulting in a recursive cyclical process of questioning, reflecting, developing responses and implementing findings (Cassidy 2017, p. 278). Perhaps central to this learning/research approach is that it is the product of three underlying principles: collective commitment to investigate an issue; to gain clarity of the issue under investigation through reflection; a joint decision to pursue a course of action that benefits all involved (McIntyre 2008, p. 1)

Adjunct to this is the foregrounding of social engagement and awareness in academic programmes in the twenty-first century (Clarke 2016, p. 72) using "co-design, design research, design thinking and design cultures [... together] with experiential events and workshop-based activities" (as in this Collab Project) to encourage students to see themselves as agents of change, able to operate in an increasingly complex world (ibid.). This emphasis on the social, participatory and the creative collaboration is the engine upon which this project allowed the students to insert their own ethnographies into the "practice of material and immaterial making, [...] speculat[ion and] transformat[ion]" (Hunt 2011, p. 35). To capture the spirit of this ethos, Msezane, through a series of action workshops that included sharing histories, acknowledging group and individual voices; focusing; physical activities like singing, dancing and rhythm exercises; intellectual exercises that challenged gender norms, performed identities, fears, preconceptions and more; upended the canons of the acceptable and the affirmative in favour of braveness, brio, curiosity, conscience, truth and inhabiting the uncomfortable. Together students were 'coaxed' into a place where they could not ignore their roles in living and influencing social awareness and provoking criticality within and through their respective disciplines, thereby discovering the hybrid artefact. Throughout this sequence of engagements, staff served as mentors, encouraging critical reflection and guiding the scaffolding of ideas. Also, the imperative to resolve the *What if?* and *How else?* questioning and make decisions regarding the efficacy of the artefact, thus created with some urgency was determined by a tight, five-day timeline. Projects had to be brainstormed, conceptualised, crafted and displayed within that period.

Some Collab Project successes

This section will feature three of the projects' resultant artefacts in an attempt to illustrate how the groups responded to the themes. The artists' statements/abstracts are reported verbatim so as not to diminish their conviction and passion regarding their collective and individual involvement with the projects. I have also not applied ekphrasis to their efforts, as the works should be adequate to the task of expressing their own meaning.

Come Play (Figure 1), based on the theme *narratives of public space*.

In this artwork, we explore the narratives of public space and address the issue of public safety. This artwork highlights the problem of betrayed public spaces that were created for a specific audience but were interrupted and destroyed by others.

As a group, we explored public parks and areas designated for children, where we experienced the unsettling atmosphere and activities of these areas. We also noticed that no children were playing in these areas. We used the contrast between innocence and brutality by using the metaphor of children and their harmful surroundings. We did this by creating a model of a playground for children using dangerous and inappropriate objects found in these public spaces: needles, broken glass bottles, blades, barbed wire, pins, rusty nails, etc.

The purpose of the artwork is to highlight that public parks increase crime and instil fear instead of bringing the community together in a safe space. The artwork should create awareness for those who are not affected and not aware of the atrocities that occur and attempts to expose the hidden, underlying narratives of public spaces. Everyone in our group realised how important it is for the public to know about unsafe spaces and we wanted to challenge society's view of public spaces to bring about change (Bucksey et al. 2019).



Figure 1: Bucksey, Matthee, Msuma, Smith & Sokutu, *Come Play* 2019. Multimedia (concrete, wood, spray paint and found objects) (photo by Bruce Cadle)

Roadblock (Figure 2) based on the theme *narratives of public space*.

[T]he aim was to create an artwork which tells a story from knowledge we have gained, in a way that combines our artistic skills and way of thinking. The subject that was agreed on is the narrative found in a public space between the public inside a vehicle, the outside public and the barrier(s) found between them. This idea was evoked by the experience of driving through public spaces, being approached by people on the outside, and the ongoing silent conversation due to incapability to reach out, or reach within (Buys 2019).

We then began to discuss how encountering a beggar was common to us but somehow still an uncomfortable experience. We all continued to share[d] how we struggle to empathise with homeless people. We then came to the conclusion that the discomfort between a beggar and others can also be similar to how people also experience discomfort with anyone in a public space. We used the street situation as an analogy for this discomfort (Nabira 2019).

Through retrospective views, a car physically acts as a barrier between the two parties and is even a form of protection for the inside party. But looking through a social theoretical lens, the car is a representation of unseen communication barriers in public spaces, such as language, culture, religion and privilege (Buys 2019).

The installation consists of a car door hung at its normal height with seven, black, continuous wire-frame figures hung 'outside' the 'car', and a 'driver', hung 'inside' the car.

[T]he single-car door is effective enough to represent a whole vehicle as the barrier, just as a contoured outline of a face can represent a whole person, as it is generally the most public part of the body. The reason for creating contoured facial structures that do not portray any specific person is to draw attention to the narrative as a whole and to enforce the idea that it could be anyone in that position (Buys 2019).



**Figure 2: Buys, Cewu, Friedeman, Leo & Nabira, *Roadblock* 2019.
Car door, spray paint and wire (photo by Bruce Cadle)**

Inner(Connect) (Figure 3), based on the theme *performativity of identity*.

Inner(Connect) aims to explore the connections between performativity and identity. It intends to convey the theory that personal insecurities are the common thread that connects all human beings to one another regardless of race, gender, and sexuality, among others.

Individually, each member of the group identified their own personal insecurities, and we used this as the basis for our project. We used a combination of

photography, needlework and the use of installation space to create the piece. Each photograph intimately conveys each individual personal inner journey. The two portraits of each person provide a contrast between how we present ourselves to the world and how our deepest insecurities affect [us] on the inside.

On the dark photographs, we embroidered line drawings that serve as a metaphor for our own personal insecurities. Inspired by artists such as Mary Sibanda [and] Chihuru Shiota, we used red yarn to connect the photographs to one another. This is a representation of the universal unification of identity and insecurities across the world. The suspended length of thread that leads to the ground, from each image, symbolises the undoing of the mind. The messy space of the string is a metaphor for the messiness of human nature.

During the process, each of us was challenged to confront things about ourselves that we did not necessarily like. The truth is you cannot hide from yourself. We all have insecurities, but it's up to you to choose whether you will let it define your identity (Albia et al. 2019).



Figure 3: Albia, Du Plessis, Hift, Potgieter & Yehana, *Inner(Connect)* 2019. Photography and multimedia (photo by Bruce Cadle)

Conclusion

What then is one to take from the above examples without resorting to the buzzwords accorded educational innovation and new models of learning? Firstly, it locates the creative undertaking in a less rigid disciplinary silo through arguing for synergy between design and art practices. The link in with criticality and its many configurations, begins with critical design shifting from its high design, intellectual scenario-critique, through design as criticism, to a more speculative role, avoiding reading and understanding objects and their ontologies, and rather engaging in tactics of doing, invoking social awareness and agency. Here the speculation concomitant with this, positions collaboration and participation as a design-informed style of

critique that is a bridge between stakeholders (Kjærsgaard & Boer 2016, p. 220). Application of *How else?* questioning, especially in such a learning environment, suggests that the levels of critical thinking are enhanced and evidently result in some compelling creative outputs. Considering that two of the three examples (Fig. 2 & Fig. 3) were produced by second-year student groups, employing this kind of learning approach is rewarding to all. Significantly, acknowledging the impact of critical design methodology (albeit at the time few participants were aware of its similarity to Msezane's workshop style that encouraged the development of embodied criticality) blurred the design/art interface into a more hybrid space broadening students' social consciousness. Despite the 'expert' dissenting voices, we are of the conviction that this stance is what underscores the uniqueness of the Bachelor of Visual Arts programme and results in higher-order social awareness. In 2020 the Collab Project will once again be conducted, this time likely taking closer note of the methodology employed, and unpacked by this paper, but more importantly refining it as a platform for the acquisition of tacit knowledge and critical life skills

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Planet of Boiled Frogs: Factors influencing the future environment of design education

Piers Carey: Durban University of Technology

Abstract

This paper compares selected analyses of the likely sustainability of society and the factors affecting it, including social, environmental, economic, and political. It examines the likely effects of these factors on South Africa, including possible interactions between them, cumulative effects and feedback loops. The literature increasingly suggests that these effects are likely to be extreme for the South African environment, society and economy, to say nothing of the rest of the world, within the working lives of current or near-future students, i.e. the next forty to fifty years.

Likely consequences for design education are then discussed, and possible responses in terms of adaptation or mitigation, from tertiary education as a whole, and from design education in particular. Education for resilience, sustainability, mental health under stress, adaptability, and innovation is necessary.

In focusing on graphic design, the contention is that graphic designers and educators may be required to communicate the issues, the inevitability or necessity of changes they cause, and how best to adapt to them, to South African audiences. Numerous responses have already been suggested, including sustainable design, design for sustainability, zero waste, among others, but it seems probable that these concepts will be ignored until both the mighty and the masses can change their minds: i.e. until they leap out of the warming water. Designers' roles thus expand beyond existing responses, and may be termed 'design for survival'.

The paper concludes by proposing that design for survival enter the curriculum urgently, and briefly examines two recent graphic design BTech projects at a South African university of technology as examples of student engagement with these issues. Students are increasingly motivated to engage in design for these purposes. The paper contends that awareness of and response to these factors, in the changing context of design and design education, is crucial to the future of our disciplines.

Keywords: Climate change, design for survival, bidirectional coupling, content normalisation, climate change social stress, forest bathing

Introduction

This paper examines possible effects of climate change on South African society, and how these effects may influence design education and the role of graphic designers in the next forty to fifty years. Social, environmental, economic and political factors are discussed, and comparisons are made between examples from other parts of the world and South Africa. Literature suggests that these effects are likely to be significant for the South African environment, society and economy within the working lives of current or near-future students.

Possible responses from design education in terms of adaptation or mitigation are discussed. Education for resilience, sustainability, mental health under stress, adaptability and innovation is necessary. Graphic designers and educators may be required to communicate to South African audiences the issues and effects of climate change, the inevitability or necessity of changes caused, and how best to cope. Numerous responses have been suggested, including such concepts as sustainable design, design for sustainability, zero waste, cradle to cradle, among others, but it seems probable that these concepts will be substantially ignored until both the mighty and the masses change their minds, that is. Until they leap out of the warming water. Designers' roles may then expand beyond existing functions, and may be termed 'design for survival'.

The paper concludes by recommending that environmental content and design for survival enter the curriculum urgently, and briefly discusses two recent graphic design BTech projects at a South African University of Technology as examples of increasingly self-motivated student engagement with these issues. The paper contends that awareness of and response to these factors, in the changing context of design and design education, is crucial to the future of our disciplines.

Climate change issues and interactions

A myth exists that frogs dropped into boiling water will jump out immediately, but that if they are placed in cool water that is heated slowly, they will sit there placidly until the water boils and kills them. Of course, real frogs would leap out of the water as soon as it became uncomfortable, but the story can be an apt metaphor for humanity's current behaviour.

This paper contends that although numerous individual academics and designers are concerned about the deteriorating conditions of both 'natural' and human social environments, little change has so far taken place to alter the overall global mindset away from the short term, profit-hungry, exploitative relationship between humanity and the natural world, or between the rich and powerful and the rest of the population. These relationships have been 'normalised' in most people's minds. In other words, we are the frogs in the pot, ignoring the warming water, until it is too late.

Researchers have identified numerous factors that affect the current and future viability of the human species and its society, and of the planet as a life-support mechanism (e.g. United Nations Environmental Programme (UNEP) (2012); International Panel on Climate Change (IPCC 2014); Worldwide Fund for Nature (WWF) (2018); and others). The literature on climate change is far too voluminous to survey adequately here, but in terms of the possible future context of design education, certain approaches and issues can be highlighted.

Different organisations and researchers have different emphases, naturally. Some identify quite specifically focused factors affecting the planet's near term future: the UNEP (2012) provides 21, whereas Motasharrei, Rivas and Kalnay (2014) focus on just two that nevertheless seem to cover all the bases. Others have sectoral foci: the WWF focuses primarily on the risk to living species (Grooten & Almond 2018), whereas the IPCC (2014) examines risks of climate

change and possible responses to it worldwide. The literature generally acknowledges the extent to which different factors interact, compound, cancel out or feed back into each other. Likewise, the literature agrees that the earth's climate is changing beyond possible natural variation, that this change is primarily manufactured (IPCC 2014, pp. 3) and that it may no longer be prevented completely. Researchers now examine how much change will happen, how it will affect us, and what we can do about it. Their predictions are generally dismaying, given their basis on existing climate change.

For example, the upper target limit of temperature increase of 1.5° C agreed as the greatest sustainable without catastrophic damage (e.g. IPCC 2018) would see one-third of the glaciers in the Himalaya melt. At current rates of temperature increase, however, they will lose two-thirds of their volume by 2100 (International Centre for Integrated Mountain Development 2019). These glaciers are a primary source of water for much of the Indian sub-continent, South-East Asia, and China, home to nearly half the global population. Wars over water supply would be a probable consequence.

Such predictions have mostly emphasised climatic and environmental consequences, without fully integrating the socio-political, economic or cultural intersections with climate and environment. Motasharrei et al. (2016, p. 470) refer to the broad interaction between people and the environment as between the 'human system' and the 'natural system', claim that "current models do not incorporate these critical feed backs," and argue that,

[I]n order to understand the dynamics of either system, Earth System Models must be coupled with Human System Models through bidirectional couplings representing the positive, negative, and delayed feedbacks that exist in the real systems.

('Bidirectional coupling', in this context, refers to a binary relationship in which both components influence each other, either independently, as a result of the other's influence, and/or as part of a feedback loop.)

Motasharrei et al. (2016, p. 470) suggest that in most analyses, "key human system variables, such as demographics, inequality, economic growth, and migration, are not coupled with the Earth system" (Motasharrei et al. 2016, p. 470), which thus ignores the potential for humanity to exacerbate the situation even further by non-environment-related actions. Motasharrei, Rivas and Kalnay (2014) use the human relationship with the natural world as one of two factors in predicting sustainability or otherwise. The other is social inequality. Too high a level of either environmental exploitation or social inequality can cause civilisation collapse, and both together virtually guarantee it, according to their model. Inequality has been the result, if not the intention of recent economic policies, to the extent that as of 2017 three individuals "now own more wealth than the entire bottom half of the American population combined, a total of 160 million people" (Institute for Policy Studies 2017).

The Nobel Prize-winning economist, Joseph Stiglitz, critiques this situation as indicating that "something is fundamentally wrong with modern capitalism [...] the system as currently constructed is neither efficient nor stable" (Stiglitz 2019). Referring to modern capitalism, he states that "the promises made by its most reductive advocates – that deregulation, privatisation and globalisation will bring wellbeing to most citizens in all countries – have proven to be horribly wrong" (Stiglitz 2019).

Examples of the dangerous effects of interactions between the human system and the natural system are not hard to find. The case of Syria's current desperate situation (Kelley, Mohtadi, Cane, Seager & Kushnir 2015) demonstrates not just potential parallels with South Africa, but also the risk of crises in one part of the world spilling over into others, as the refugee crisis in Europe demonstrates. Kelley et al. discuss the role of catastrophic drought in leading to the

Syrian uprising and civil war, noting a wide range of factors exacerbating both drought and unrest: the Middle East, as the original location of agriculture in the Western world, has had longer than elsewhere (some 12,000 years) to exhaust its environment, and one of the consequences is increased vulnerability to drought. Overuse of groundwater, encouraged by government agricultural policies, combined with lower rainfall caused by anthropogenic climate change, led to agricultural collapse and mass migration to cities. Long-term food and fuel subsidies were removed. Approximately 7% of the Syrian population moved to the cities: the equivalent for South Africa of the entire populations of the Free State and Northern Cape, or of the whole of greater Cape Town (± 4 million) moving elsewhere within two or three years. These climate refugees gathered in the Syrian version of squatter camps on the outskirts of cities, with the usual consequences of "illegal settlements, overcrowding, poor infrastructure, unemployment and crime" (Kelley et al. 2015, p. 3242), along with pre-existing factors such as "corruption and rampant inequality" (Kelley et al. 2015, p. 3242). Kelley et al. (2015, p. 3245) further claim "a statistical link between climate and conflict". While the civil war in Syria may be an indirect result of climate change, O'Connell (2019) cites Wallace-Wells' claim of the effect of temperature increase alone "for every half-degree of warming societies see between a 10% and 20% increase in the likelihood of armed conflict".

Several factors or risks appear common to Syria and South Africa. Kendon, Stratton, Tucker, Marsham, Berthou, Rowell and Senior (2019) are confident that the African climate, in general, will become both more unstable and more extreme, with more extreme temperatures, drought and flood events becoming more common, as the average temperatures rise. Some of the factors relevant in the case of Syria, and which will sound familiar to South Africans, include:

Table 1: Factors affecting the lead-up to civil war in Syria (from Kelley et al. 2015).

	Primary category	Effect
1	Climate	Significant decrease in rainfall as a result of climate change
2	Climate	Extreme multi-year drought
3	Environment	Decline of groundwater, due to overexploitation
4	Agriculture	Unsustainable land-use practices
5	Agriculture	Farmers thus dependent strongly on year-to-year rainfall
6	Agriculture	Leading to greater vulnerability to drought
7	Political	Liberalisation of the economy
8	Political	Policies increasing agricultural production, including land redistribution and irrigation projects
9	Social	Rapid population growth
10	Social	Burgeoning urban peripheries, leading to illegal settlements, overcrowding, poor infrastructure, unemployment, and crime
11	Social (pre-existing)	Unemployment
12	Social (pre-existing)	Corruption
13	Social (pre-existing)	Rampant inequality

Population growth led to a disproportionately greater demand for available resources than in the 1950s. Population growth, its consequences and the need to curb it, do not appear to be given sufficient prominence in the literature covered for this paper (the IPCC report only mentions the increased effects of population growth once in forty-four pages, regarding coastal systems). Virtually all the measures used to indicate global risks show a turning point around 1950 (e.g. Grooten & Almond 2018, pp. 24-25), at which time the global population was about 2.5 billion (www.infoplease.com) and as the global population took a sharp turn upwards, so did all the other measures of risk.

Syria's population increased between 1950 and 2010 from 4,5 million to 21 million in 2010, an increase of approximately 460% (dates used because Syria has since lost \pm 3 million people) (www.infoplease.com). South Africa's population, by comparison, increased from about 13.5 million in 1950 to 51 million in 2010, a 375% increase (www.infoplease.com). The proportionately smaller population increase in South Africa means that resulting stresses have not been as extreme. Some areas of South Africa have gentler climates than Syria, so the whole country is less likely to be at risk at the same time. Inhabitants of Cape Town will nonetheless be familiar with the attendant risks of drought, as the city came within days of completely running out of water in 2017 (de Lille 2017).

Indirect and wider consequences of Syrian drought, agricultural collapse, uprising, and civil war include mass migration, primarily to Europe; and further indirect consequences, far from Syria itself, of an increase in xenophobia, nationalism, populism, Islamophobia, right-wing extremism, among others, in most of the countries of Europe (hate crime in the UK increased by over 200% in over the last five years [CNN, 2019]). South Africa still has a far more democratic system of government than Syria had, which is also more responsive to some of its population's concerns, but it is also susceptible to consequences of distant events. The xenophobic riots of May 2008 and xenophobic attacks both before and since show that South Africans can be as tempted as Europeans to take out their frustrations on rapidly increasing populations of immigrants (Powell 2019). As of 2017, South Africa hosted some 4 million immigrants (Tamir & Budiman 2019), approximately 7% of the population, an increase of nearly 400 % since 1990 and 200% since 2010. While xenophobic attacks are currently fewer than in 2008, a large and sudden further migrant influx could cause such attacks to recur. Were the current Ebola virus epidemic in the DRC (World Health Organization 2019) to spread internationally, or were there a multi-year drought across the Southern African region comparable to Syria's, it is not difficult to imagine the consequences.

These catastrophic consequences would be in line with Homer-Dixon's results, which emphasise the following interacting factors: 1) Environmental scarcities, 2) Resource scarcities, 3) Predatory behaviour by elites, and 4) Reduced state capacity/collapse (Homer-Dixon: 1997). Also, Motasharrei, Rivas and Kalnay's predict civilisation collapse when high inequality meets environmental strain (2014). The risk of civilisation collapse has been highlighted in other recent articles, mostly journalistic, but all based on research (e.g. Spratt & Dunlop 2019; Nuwer 2017; Kemp 2019; Cockburn 2019, O'Connell 2019).

Adaptation and mitigation: recommendations

This paper considers that it still possible for the worst consequences of climate change to be warded off. Current trends can be extrapolated, likely consequences foreseen, and corrective measures attempted. With higher temperatures, and lower and more spasmodic rainfall both in South Africa and across the region, South African society is likely to come under great stress. Table 1 lists factors likely to influence South African society and the design education sector within the lifetimes of current and future students. The more we engage with these factors in advance, the more resilience we can achieve when they occur.

In response to the overall climatic crisis, researchers and the media have made many recommendations for the mitigation and adaptation to climate change. The recommendations range from well-known to obscure, and from small-scale individual efforts to a national and global scale. The most significant, of course, would be to limit the extent of CO₂ emissions and thus the extent of global warming. Spratt and Dunlop (2019) go as far as recommending a massive global mobilisation of resources to build a 'zero-emissions industrial system' to restore a safe world climate. However, this change would also require a wholesale modification of the economic, industrial and social organisation of global society, so it is unlikely to be easily achieved. Randers (2102, pp. 13–14) recommends: 1) having fewer children, particularly the rich, because the rich consume much more than the poor: a middle-class western child consumes 10–30 times as much as an Indian child, and generates 10–30 times as much waste; 2) reducing the CO₂ footprint: smaller cars, shorter journeys, less flying, more house insulation (I'd add less long-distance food and other imports); 3) supporting strong government: not dictatorships, but effective government able to make things happen, 4) similarly to Spratt and Dunlop (2019), the rich should build and pay for "a completely clean energy infrastructure in the poor world". It is difficult to believe that this last recommendation will be taken up.

A more realistic approach for the design education sector might be to encourage students to focus on the achievable or at least comprehensible within their personal lives. Such an approach could extend as far as issues at the governmental level, where researchers' efforts might aim at communicating and influencing decision-making and execution. The IPCC report lists dozens of potential areas for vulnerability reduction, adaptation and transformation (2014, p. 31). Graphic design research projects could address many of these, including:

Table 2: Sample risks from climate change and related potential research/design areas

Risk	Response
CO ₂ from fossil fuel energy continues to increase	Raise awareness, promote renewable energy sources
Increased likelihood of drought, floods, extreme weather	Information campaigns, promotion of safety, improved disaster preparedness
Risk to water supplies	Promotion of water economy
Lack of absorption of CO ₂ due to deforestation	Promote and/or engage in tree planting ¹
Risk of species extinction	Promote conservation efforts
Risk to fish populations due to oceanic deterioration and increased temperatures	Promotion of improved sewage disposal, pressure for international co-operation on improvement of ocean conditions
Risks to food security, food prices, agricultural employment and income	Promotion of individual growth, vegetarianism, sustainable farming practices
Threats to urban life: heat stress, extreme weather, flooding	Campaign for improved infrastructure, housing (strength and insulation), promote civil engagement with sustainability processes
Health risks from expanded disease expanse, or extreme weather	Promote improved basic health care, clean water and sanitation, awareness of disease

¹: Bastin et al. (2019) suggest that as many as 1,2 trillion trees could be grown across the world on 1.7 billion hectares of treeless land, without loss of existing agricultural land. They claim that tree-planting at that scale could absorb up to 200 billion tonnes of carbon over 50–100 years.

These samples of risks and responses apply globally. Increases in food and water insecurity and disease are predicted to affect Africa particularly. The South African National Climate Change Adaptation Strategy (Draft 2019) indicates the government's aims and planning intentions in this area but appears to focus heavily on a top-down process. The draft strategy refers to civil society participation in adapting to climate change in only one nine-line paragraph (2019, p. 30), although it does later admit the necessity for research into "operational strategies and approaches to adaptation" (2019, p. 34). Adaptation and survival of climate change may be more successful if 'owned' by ordinary people acting at whatever level suits their capabilities. Trust in authority, government and politicians, in general, is at an all-time low internationally, as well as in South Africa (Tamir & Budiman 2019), and it might only take a few missteps by government to turn sections of society against what are likely to be far-reaching, fundamental and possibly wrenching changes.

Likely consequences for South African design education

What will it be like to train or work as a designer in these circumstances, or to teach a discipline like graphic design? Designers can contribute to communicating and/or promoting adaptation responses such as in Table 2, and it appears that in addition to the critical, strategic, technical and research skills that designers and design educators possess, a wide range of non-discipline-specific skills will be vital, such as critical thinking, research skills, flexibility, psychological resilience, problem-solving abilities, and broad general knowledge.

All of these skills and capabilities will be useful in promoting and facilitating the sort of low-level responses (individuals and small groups) that will enable popular ownership of the adaptation process. Such responses should acknowledge and incorporate local and indigenous knowledge, combined with improved scientific understanding. However, to achieve this latter aim, communication of scientific or climate issues with the public must also be improved: much scientific literature is impenetrable to ordinary people and must be translated into everyday language before useful communication can occur. In addition, awareness needs to be raised among design students and designers of the environmental effects of their work, materials and processes, and low-impact materials and recyclables encouraged. Designers would further need to improve their own scientific knowledge, which would be significant, as design students have, stereotypically, not favoured the science subjects. All of these emphases may be termed 'design for survival', and one way or another need urgently to enter our curriculum.

Contradictorily, it will be important that this sustainability emphasis is not forced on students. A top-down, authority-driven approach may be rejected and backfire, as happened at the height of the HIV/AIDS crisis. Students had already been heavily proselytised in secondary school on the subject by the time they reached the Durban University of Technology, and felt bored and demeaned by the repetition. Because this topic runs a similar risk, it will be necessary to engage students' interest rather than simply impose it on them. The topic is also more likely to be successful if backed by a change in what the students see around them every day: at present consumption is urged upon them virtually wherever they turn, and if that continues, they may well feel that lecturers are 'do-gooding' and pay no more than lip service to the issue. Likewise, it is important that the content is normalised within major modules, rather than being presented as 'add-on' or elective modules that imply distance from the core of a course and thus limited value and relevance.

However, these are recommendations for actions and initiatives that designers, educators and students can take themselves, or at least attempt to communicate and promote. What seemed less emphasised in the literature found is the stress on society resulting from climate change, and how societal reactions can be kept within peaceful limits. Nuwer, following both Randers and Homer-Dixon, envisages a failure of the sort of open, tolerant society most democratic nations aim for, and its replacement with:

[R]estrictions and even bans on immigration; multi-billion dollar walls and border-patrolling drones and troops; heightened security on who and what gets in; and more authoritarian, populist styles of governing (Nuwer 2019).

Anyone who follows the news will know that some of these unpleasant developments have begun. Therefore, an ultimate task for designers maybe how to promote and maintain open, equitable, tolerant and democratic values in both themselves and society in a world that feels turned upside down.

Design/design education: Examples

A future society engaged with adapting to and ameliorating the effects of climate change may no longer be able simultaneously to sustain the current obsession with growth and consumption. If so, the current focus of graphic design on commercial applications is likely to change. Already, when given a choice, a high proportion of BTech graphic design students at Durban University of Technology have developed non-commercial projects: of the 2019 students, only five of 28 chose primarily commercially oriented projects. The remaining projects (82%) relate to social, cultural or environmental issues, although several incorporate commercial elements were included to enhance financial viability. Historically, a far higher proportion developed commercial or purely personal projects. Of projects from 2018 and 2019, two examples demonstrate students' self-derived interests.

Project 1 promoted eco-therapy as a psychotherapeutic method through publication design. It showcased the benefits of experiencing the natural environment in treating psychological conditions such as stress, anxiety and depression, particularly for urban dwellers whose environment is rarely quiet or peaceful in South Africa. This project was an example of the indirect or less obvious benefits of the environment, and thus motivated for the preservation or restoration of the environment. The project aligned neatly with recent media reports of similar therapeutic approaches from elsewhere, including the UK, where time in the natural environment may soon be prescribed by doctors. In Japan, where the concept of 'forest bathing' (Shinrin-yoku), has become popular for the same purposes, and where evidence has demonstrated the benefits for mental well-being, along with improvements to immune system functioning, blood pressure, stress, mood, ability to focus, recovery from illness or surgery, energy levels, and sleep (www.shinrin-yoku.org).

Project 2 took a more direct and less conceptual tack, setting out to promote a long-lasting recycled plastic tote bag for shopping, using current marketing and design techniques. The intentions here are to 1) reduce the quantity of single-use plastic bags used and discarded in the research location, 2) promote recycling by the sale of a useful product made of recycled materials, and 3) in the process discourage, in a tiny way, the current damaging throwaway culture. The huge quantities of plastic now dumped in the environment constitute a major hazard to humans, as well as the natural environment. According to WWF South Africa (www.wwf.org.za/plastic.cfm), more plastic has been produced in the first 18 years of this century than in the whole of the last. By the end of 2017, an estimated total of 8300 million tonnes had been produced, at a 2015 rate of 384 million tonnes a year (Geyer, Jambeck & Law 2017), of which $\pm 60\%$ are discarded and are accumulating in the environment. Because of plastics' permanence in the environment, such quantities have an extremely harmful effect

worldwide, so any project that may reduce the amount used is beneficial. Likewise, the fact that some 42% of plastics are used for packaging (Geyer, Jambeck & Law 2017, p. 1) means that it is an area that graphic designers can potentially influence.

Projects such as these can have at best a minuscule effect. The projects are of short duration (the BTech course only lasts one year full-time, or two part-time) and so the research must necessarily be small-scale; the students are novice researchers; the projects are individual; and on graduation, the students must earn a living, which almost inevitably requires shelving these potentially useful projects. Nonetheless, these and other comparable projects demonstrate the scope for development of more extensive and thorough research and design projects in these areas, as well as indicating students' inherent interest in such issues.

Conclusion

This paper has indicated likely conditions in which design education in South Africa may have to function in future. The main climatic changes are predicted to be increased temperatures and probability of extreme weather events; the main societal ones increased food and water insecurity and disease incidence. Social instability is likely to increase, inciting populism and authoritarian politics. The parallels and differences between South Africa and the Syrian disaster were used for illustration. However, the literature confirms that these consequences are not inevitable and can still be avoided. The paper suggests that responses to the climate crisis will be most effective if owned by the population, rather than enforced from above. The examples of BTech graphic design projects at a South African university of technology demonstrate students' independent interest in engaging with these issues.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Transferring Experiences from a Photography Practice Research PhD Study into a Creative Practice-Teaching Context

Anneke de Klerk: Vaal University of Technology

Abstract

In this paper, I reflect on the transferability of the experience of completing a practice-based, as well as the findings of this PhD into my current teaching context in relation to recent developments and relevant literature. While my own study might have made several contributions to my field, and to my own personal development, I critically examine the scope and scale of my final PhD submission in relation to requirements stipulated by various South African institutions that are currently offering PhDs in visual arts and design, as well as recently awarded practice-based (or practice-led) studies in these fields. With this paper I develop a strategy for guiding and developing future practice-based doctoral, master's and even undergraduate studies in art and design based on Candy and Edmunds' (2011) notion of the practitioner framework that guides the making processes; provides a way to articulate the contribution made through practice and eventually also forms part of the contribution to the field in itself.

Keywords: Practice-based research, practice-led research, creative practice research, supervision, transferability

Introduction

The direction of PhD research I embarked on was primarily influenced by a desire to add value to my teaching within a Photography practice program (De Klerk 2019, p. 414). In the final PhD thesis I wrote that, "the practice-based methodology presented the best way to contribute to the field in which I teach and work, namely photography practice, because it offered an intermedial and more multidimensional approach to my engagement with theoretical knowledge, aesthetic sensitivity and technological mastery I subsequently looked for a research problem and research questions within my own experiences as practitioner" (De Klerk 2019, p. 414).

In this paper, I reflect on experiences of completing practice-based research (PbR) PhD in light of progress made in recent years regarding postgraduate qualifications and research that incorporates creative practice in South Africa. The purpose of this reflection is to trace the transferable aspects of my research process into teaching and supervised practice. I aim to develop such practice for future implementation in creative practice education with its growing importance and impact in the economies of developing countries such as South Africa, according to Peters (2012, p. vii–viii). Allpress, Barnacle, Duxbury and Grierson (2012, p. 1) maintain that creative practice research is gaining in importance and impact globally, and that “creative and applied knowledge is defining and leading cultural, scientific, technological and creative economies” in this global context. Developing strategies to guide students towards contributing to this development in South Africa, therefore, is becoming imperative, and should be worked towards from undergraduate level up to PhD research.

Towards the aims stated above, I first highlight some of the progress made towards validating ‘creative and applied knowledge’ as quoted above. I do this through a short review of relevant literature. By further providing a brief overview of PhD qualifications and some master’s-level qualifications in South Africa that make allowance for creative practice-based methodologies, as well as considering some completed creative PhD studies I situate the present discussion within the current context. In this discussion, I focus on the structures and requirements rather than specific content.

I then consider two related challenges that remain for creative research as recurring themes in recent literature on creative research. The first theme revolves around the inconsistencies in how especially ‘practice-based’ and ‘practice-led’ research are used. Here I support Schroeder’s proposal to use the over-arching term, ‘practice-research’ (PR) instead of in relation to a brief outline my own PhD study. The second theme relates to the challenge of articulating the knowledge contribution in the writing component. I develop Candy and Edmunds’ notion of the practitioner framework towards assisting with this articulation and further argue that the term PR would be better suited for most creative research studies that have been completed through South African universities within the past five years.

Background and survey of literature

Throughout this article, I use the first person ‘I’ to emphasise the situatedness of knowledge involved in PbR studies, even as this situatedness builds up towards intersubjective understanding or insights that are so valuable to creative practitioners. For the purposes of this study I use the definition of practice-based and practice-led research developed by Candy and Edmunds (2018, p. 64) as follows: “If a creative artifact is the basis of the contribution to knowledge, the research is practice-based; If the research leads primarily to new understandings about practise, it is practice-led”.

An important publication, titled *Supervising Practices for Postgraduate Research in Art, Architecture and Design* (Allpress & Barnacle, 2012), indicates the scope of creative research across all creative disciplines from performance to creative writing, sound, design and architecture. In this publication, the complexity of supervising in this context is highlighted. Within this remarkable diversity of projects, these forms of research seem especially daunting. Newer developments, exemplified by Candy and Edmunds’ pragmatic approach, however, are presenting a much more settled structure, even though innovation is still encouraged.

The recent South African publication on PhD supervision, *Strengthening Postgraduate Supervision* (Clarence-Fincham, Boughey, Mckenna, Wels & Van den Heuvel 2017), is notable here because it includes creative approaches and methodologies, which is an indication that research in creative practice is moving closer to the mainstream and enjoying greater validation across academic spheres.

A further encouraging development is the recent approval of the Policy on the Evaluation of Creative Outputs and Innovations Produced By Public Higher Education Institutions (2017) for subsidy, which provides motivation for further innovation through creative practices beyond master's and PhD studies and also provides a way for practitioners-academics to gain recognition for their work if they continue with their text-based after their qualifications are obtained.

In their 2018 article, Candy and Edmunds provide a clear overview of practice-based research towards PhD qualifications that they were involved with over more than 35 years. The structure and guidelines developed by Candy and Edmunds, especially through their involvement with the Creative Cognition Studio (CCS) seem to have influenced the majority of creative PhD offerings in South Africa which allow for the production of creative work to be a significant aspect of the doctoral submission, and would then also require a written supporting document or 'exegesis' of a minimum of 40 000 words. The University of Kwazulu Natal's (UKZN) PhD in Digital Arts is the exception in that they require a minimum of 70 000 words, even for PbR studies with substantial creative components.

In general, no specific differentiation is made in the various PhD guidelines between PhD projects in the creative arts based on specific methodologies. The trend seems to be for departments to offer options within the same qualification, such as either PhD by thesis or by a combination of shorter a thesis and creative work within a variety of disciplines. Based on information provided online, universities that follow this trend include the University of Stellenbosch, University of the Witwatersrand, Vaal University of Technology, UKZN School of Arts, Michaelis School of Art (UCT), as well as the Faculty of Arts, Design and Architecture (UJ) in no particular order. This example from Stellenbosch University (2019) serves as illustration:

Doctoral degrees in the arts are research degrees culminating in a dissertation. The study as a whole can consist of theoretical work, or it can be the results of an integrated study of the creative processes and theoretical work, which are reported in a dissertation. The unique nature of the integrated option is derived from the coherence and interdependency of the study of the creative process and theoretical dimensions of the research leading to an original contribution to knowledge and insight into the arts.

This seeming consensus among most universities as to what constitutes a PbR PhD in creative fields and the growing number of universities that regard PbR as an accepted methodology is a positive development that has had the result of shortening the study periods (three to five years) and instilling confidence in prospective candidates. The growing number of practitioner-researchers with PhD qualifications in a variety of creative fields (even if mostly under a fine arts or general visual arts qualification) has expanded the supervision capacity available in South Africa and in turn, encourages the development of PbR skills on undergraduate level.

Although this level of consensus has positive effects on creative practice education at the moment, Brook (2012, p. 1) cautions that academics should not become too complacent. Brook raises "a concern that the notion of practice-led research had achieved something like a 'practical consensus' within university creative arts programs, and that this consensus was increasingly counter-productive for the field". Brook thereby calls for a continual critique of practice-led approaches. The current level of consensus, however, would hopefully encourage a greater number of studies, which will also serve to strengthen the field.

Even in light of the progress outlined above, PbR remains a challenging methodology. In the following section, I focus on two specific challenges that are recurring themes in recent literature.

Remaining challenges: selected recurring themes

Although there are many challenging aspects of a PbR study, I focus here on two related themes that I experienced in my own research process, and with which students that I work with also have difficulty.

Terms and definitions

Although Candy and Edmonds differentiate very clearly between PbR and PIR as mentioned earlier, these terms are interchangeable in some countries, and many more terms exist to describe more or less the same things (Candy & Edmonds, 2018; Schroeder 2015; Skains, 2018; Stewart, 2016, p. xi, among others). For the sake of brevity, I will not repeat a discussion of all these terms but instead focus on the terms that are most prevalent in South Africa, namely PbR and PIR. I find the emphasis on the difference between these terms problematic because, in my research experience and in several PbR/PIR PhD studies that have been completed within the past five years, aspects of both occur.

My experience is that there is always an aspect of the contribution that comes from the textual part of the submission that can stand without the practice, as well as from the practice, which when articulated in the text-based submission, cannot stand without the practice. It has mostly been accepted that for practical purposes, the practice cannot stand without the text-based part. In my experience, the dichotomy between the two is starting to erode, and multimodality and even multi-mediality and inter-mediality are emerging as a typical characteristic of creative PhDs.

Schroeder proposes an over-arching term to include different ways in which practice can play a role in research, namely Practice research. Schroeder argues that practice and research need to be brought closer together without equating the one with the other. As she puts it, “rather than thinking of a delineated and bipolar way of practice on one side and research on the other, referring in unnecessary apologetic ways to Practice as ..., Performance as ..., Practice-based ..., Practice-led ..., Practice as Research in Performance [...] I want to suggest that we refer more resolutely to Practice Research [...] and in that way deny elevating research over practice, but indeed, that we put to practice before research” (Schroeder 2015, p. 245). The term ‘Practice research’ also has the advantage that it can easily be differentiated by specifying the field of practice in front of the term as is already being done by authors such as Skains (2018, p. 84) when she refers to “practice-based methodologies in creative practice research”. In this way, the terms PbR and PIR and possibly others become methodologies within the overarching context of practice-research. Candy and Edmonds agree that it is counterproductive to equate practice with research as is implied with the term ‘practice as research’. According to them, “the danger of conflating the two activities leads to misconceptions about both and gives rise to much misunderstanding about what practice-based research really is” (Candy & Edmonds 2018, pp. 63–64). Another advantage of this term is that it acknowledges that various methods and strategies are often combined in creative PhD studies, that result in knowledge contributions of different kinds, expressed in a variety of modes and media, including writing, or the textual component of the submission. The term ‘Practice research’ furthermore does not exclude the multiple disciplines such as healthcare, theology and education, into which this approach has made inroads since the 1970s (Schroeder 2015, p. 343).

One of the aspects of practice research that requires articulation in words is the ‘practitioner framework’ (PF), which is a term that was first used by Candy and Edmonds in 2010. Although this term, with its combination of ‘practitioner’ and ‘framework’, has the disadvantage of these words being associated with practitioner enquiry and specifically action research, which perhaps makes it too general, this same generality is also an advantage because it corresponds with the fact that both practice-based and practice-led research occurs within a diverse array

of fields outside of arts and design contexts. Indeed, action research as method is often incorporated into creative PbR and PIR projects.

Articulating the contribution

Another challenging theme is the articulation of the research or knowledge contribution made through creative practice. As formulated by Candy and Edmunds, the practitioner framework is useful throughout the research process, and particularly towards the stage where the practitioner framework itself can be articulated as an aspect of the contribution, as well as becoming an evaluation framework which then also assists the researcher in articulating what the research does, how it shifts concepts; processes; thinking (Bolt 2016, p. 141).

According to Bolt (2016, p. 136), knowledge that originates from arts practice is “a particular form of understanding that is realised through practice – our dealings with ideas, tools and materials of production (including our bodies) in practice”. Yet, she maintains, it remains difficult to articulate because it cannot be tested immediately. The full impact of new forms of expression can often only be realised after a while (Bolt 2016, p. 141). We need to ask what the research does rather than trying to explicate what the works mean. In the following section, I develop Candy and Edmunds’ idea of the practitioner framework a little further.

The practitioner framework

When practitioners carry out research in parallel with making works, they engage in a process of developing frameworks that guide their practice and the evaluation of the outcomes of that practice, i.e. artefacts that are submitted along with a written text (Candy & Edmunds 2011, p. 127).

Candy and Edmunds describe the practitioner framework as “a conceptual structure that is used to influence practice, inform theory and, in particular, shape validation or evaluation” (Candy & Edmunds 2011, p. 126). In my own experience, however, the practitioner framework should not only be a conceptual framework but also can include a set of practical guidelines. As such, the practitioner framework can guide every step of the research, but importantly also develops and evolves through every stage (Candy & Edmunds 2011, p. 130). Because it evolves in this way, it is an important result of the research process that is potentially the most easily transferable aspect of PR. Transferability as a criterion for good research is of particular importance in PR studies. According to Jensen (2008, p. 886), “in transferability, it is the researcher’s responsibility to paint a full picture of the context and then allow the reader to determine if the work is transferable to their context”. Within the context of developing a practitioner framework for PR, it would then be the researcher’s responsibility to map the development of the practitioner framework and ensure that each aspect is well motivated and justified. Therefore, it is imperative that such a framework is made explicit and shared as part of the textual component of the study (Candy & Edmunds 2011, p. 131).

The development of a practitioner framework Starts with identifying a problem (often from within the researcher’s prior experience as a practitioner) and the research question, but because the practitioner framework needs to evolve continuously, the research question also needs to be revisited. Skains proposes that it be revisited at least twice after it is first formulated. Once after the ‘literature review’ or ‘state of the art survey’, to make sure that it is still a relevant question, and again after the practice has been developed to an advanced stage to determine whether engaging with the practice changed the problems and questions. Skains also proposes that an important step in developing the research question is to introduce a difficulty or an unfamiliar element (Skains 2018, p. 88) that pushes the practitioner to operate outside of what they are already comfortable with. This ‘difficulty’ and how it is handled then also becomes an aspect of the practitioner framework.

In my own study, I was able to use such a framework developed by Bren Unwin (2008) (although she did not use this term) which I could then build on and develop in my own research practice into a new practitioner framework. When I started contemplating possible areas of research towards a PhD qualification, a key factor that influenced my decision making was to consider what kind of research would add value to my role as lecturer in a photography course that focuses on practice. The practice-based methodology presented the best way to contribute to the field in which I teach and work, namely photography practice, because it offered an intermedial and more multidimensional approach to my engagement with theoretical knowledge, aesthetic sensitivity and technological mastery. I subsequently looked for a research problem and research questions within my own experiences as practitioner. A good place to start with the development of a practitioner framework is to describe one's own prior practice, as proposed in an earlier article (Doman & Laurie 2010).

With my own PhD study, which explores landscape photography practice, I structured it as two phases that I then consolidated in a final concluding chapter. The first phase dealt with the act of photographing and the second phase dealt with the presentation and exhibition of the work. Although I worked with an overarching research question and aim, each phase required its own more specific question that required its own theoretical investigation, creative processes and form of literature review (even though there is no specific literature review chapter, which seems to be a trend in South African PhDs).

While writing the second phase of the study, I started realising that the first phase served to develop a framework for the curatorial process I engaged in the second phase. Through the interaction of the act of photographing, and reflecting on this act in relation to theory, I developed a framework for my curatorial process. The actual process of developing a statement of intent or practitioner's framework is non-linear and is revisited continuously as the creative outputs take shape.

Effective results within the performative research paradigm rely on the transformative power of art and its function as catalyst for 'movement in thought': doing something in the world, rather than just providing an exegesis of existing works (Bolt 2016, p. 142). As Bolt (2002, p. 141) confirmed, "these shifts or movements are not confined to, or unique to, artistic research, however, it is imperative that artistic research is able to argue its claim to new knowledge, or rather new ways of knowing". The methods and strategies of PbR, however, cannot guarantee sufficient conceptual shifts or change, which is often only realised over time. For this reason, the mapping of the research process and *potential* impact is essential, and the development of a practitioner framework plays a central role in this mapping process. It is also through the development of such a framework that values and criteria for evaluation of the project are identified and refined.



Figure 4: Installation view of *Telling Places* exhibition as installed at the Bodutu Art Gallery, Vaal University of Technology, from 4 to 10 May 2018. (The full exhibition documentation can be viewed at www.annekedeklerkphotography.co.za.)

The practitioner framework for *Telling Places* (Figure 1) eventually consisted of a premise that summarised a set of six guiding principles that informed the development of further selection strategies, spatial arrangement strategies, strategies for display technology selection and implementation and the development of written elements that contextualised the works within the exhibition (Figure 2). The premise mentioned above reads as follows:

Landscape photographs are telling and ‘tell’ places in that they are a chronicling of the photographer’s emplacement, which constitutes a crossing of body and world but also continue to come about through the particular co-constitutive relationships and tensions between human (photographer and by extension, exhibition visitor), technologies, and environment, thus highlighting the tensions and struggles involved in looking at, experiencing, and documenting land which also emplaces the viewer (De Klerk 2019, p. 332).

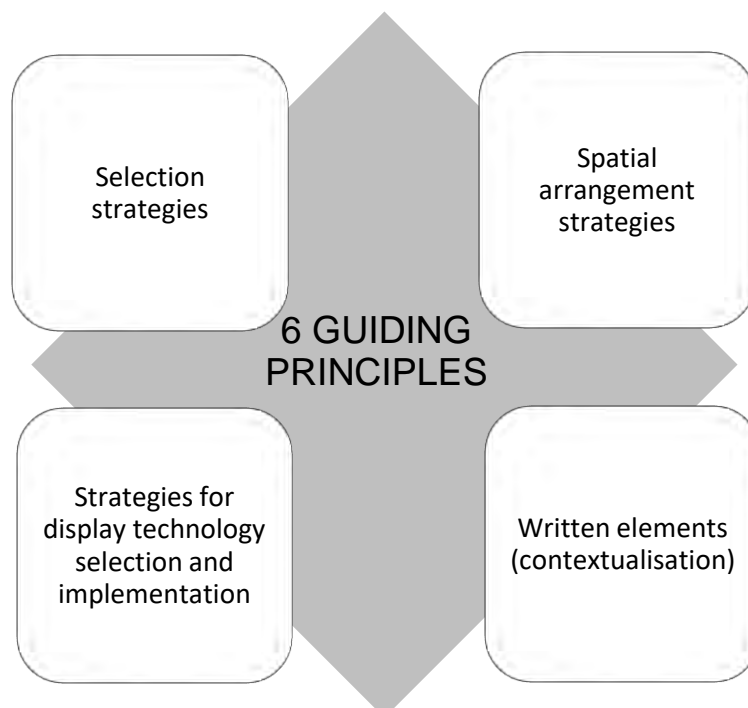


Figure 5: Structure of Practitioner Framework of *Telling Places*

From my own experience, I can confirm Candy and Edmonds' (2011) statement that the practitioner's framework and the practice develop together. In this sense, the making process functioned as method, data, and aspect of the result as it evolved through various stages of the study. By reviewing theoretical perspectives, photographing, and reviewing the photographing and theory in relation to each other, the development of a customised practitioner framework was the result of a discursive process between theory and practice. The framework for this study was developed with the purpose of applying it in the curation of the creative work developed in which in turn contributed to its development and eventually became the evaluative framework. This framework can also now be implemented in initiating future landscape-photography practice, and through further PR it can be modified and more refined.

The evaluative approach that Candy and Edmonds (2011) propose does not merely ask whether the artwork produced is good or bad art, but this does not mean that the categories of 'good' or 'bad' art are irrelevant. It merely means that the criteria used to evaluate art is more concerned with categories like open-endedness, inclusivity, multimodality, self-awareness than 'mere' form or content. Within PbR, art becomes part of a continuous discursive process. The research processes that are not normally part of the artist's processes now become part of the making process and therefore change the results.

Conclusions

In this article, I argued that the term PR is more suitable for the kinds of PhD studies that have been done in South Africa in the past five years. This term acknowledges that various methods form part of creative PhDs, and it also validates both the creative works that are produced and aspects of the textual submission as potential new knowledge contributions. I further then propose that the practitioner framework is an important and useful aspect of this new knowledge and emphasises the transferability of PR results.

However, if this notion of the practitioner framework is to be applied in the supervision of undergraduate research and higher levels of study, one would have to guide the development of such frameworks to ensure that it stimulates the appropriate level of thinking and making for each qualification. This scaffolding needs to be developed in future research, most likely making use of various forms of Practice Research.

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8th International DEFSA Conference 2019

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Assessment of Postgraduate Studies: Are we missing the mark?

Rudi W de Lange: Tshwane University of Technology

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Abstract

The first author had the privilege to examine master's dissertations, as well as doctoral theses on design and design-related topics presented at six universities in South Africa. He furthermore supervised postgraduate students at four universities and served on a variety of postgraduate and ethics committees. This exposure and access to various examination reports and postgraduate assessment criteria provide an informed perspective of the scope, depth and outcomes of, as well as the assessment practices surrounding postgraduate studies in South Africa. Examination reports from examiners outside South Africa are, in general, more favourable with mark allocation than the examination reports issued by South African examiners. The marked difference between local and foreign examination reports served as a catalyst for a small benchmark study. The resultant benchmarking study considered a sample of theses and dissertations from leading tertiary institutions that offer postgraduate programmes in design and art. The question that guided this benchmarking exercise was "Is the scope and content of South African postgraduate work appropriate when compared to our international peers?" This paper reflects on the scope, the content, and the direction of a selection of dissertations and theses submitted at leading institutions abroad. As such, a small sample of theses and dissertations from leading institutions in the United Kingdom, Australia, Hong Kong, and the United States provided the basis for the benchmarking exercise. An analysis of the scope and content of the dissertations and theses has shown that some of our peers may have a different focus than we do here in South Africa. Some postgraduate work is primarily practice-based, while the candidates' written component provides the context for their practice. Some dissertations and theses appear as a designed book, richly illustrated with practice-based artefacts. Not all the studies follow the IMRAD model (Introduction, Methods, Results, and Discussion). Also, some works are notably more concise and condensed than what is customary in South Africa and seem to deliberately avoid unnecessary wordiness. Should we move from the traditional dissertation and thesis towards a practice-based approach, and do we have the required supervisors and examiners with the necessary academic and practical expertise to do so? If so, then the next step for us would be to develop a framework and standards to adapt to the ever-changing, ever-evolving academic environment.

Keywords: Postgraduate studies, benchmarking, assessment

Introduction

The first author had the privilege to act as a postgraduate supervisor for students at four universities and furthermore examined postgraduate work from six universities. When compared to postgraduate examiners abroad, South African examiners differ widely in their assessment of a dissertation or thesis. Examiners outside South Africa, notably, seem to allocate higher marks when compared to South African examiners. South African dissertations and theses differ widely in length and the type of resources that postgraduate students cite. These vary from mostly journal articles, while others rely more heavily on books and accessing information on a variety of available websites. Postgraduate work ranges from practice-led, applied and qualitative research to quantitative hypothesis-testing studies. The variation in postgraduate work and the often-divergent opinions that arise during assessment raises questions about consistency in terms of the quality, content and scope of our postgraduate studies and research outputs. How, in addition, do our dissertations and theses and our assessment practices compare to our international peers? Is our IMRAD model appropriate for postgraduate studies in design and related creative fields?

Several scholars posed similar questions on the subject of assessment and the scope and content of postgraduate studies completed in arts and design. Paltridge, Starfield, Ravelli and Tuckwell (2012), for example, considered the macrostructures of doctoral studies in the visual and performing arts. Their sample consisted of 30 doctoral texts that ranged from 50 000 to 80 000 words. Paltridge et al. (2012, p. 339) found that the theses contained components that one would find in a traditional thesis, “but the components are typically much less discretely divided or specifically named”. In their conclusion, they remark that the creative doctoral thesis does not necessarily conform with the traditional thesis format and writing practices and that there are several options for students to present their work, and that there is no unalterable justification or absolute rationale why a thesis should fit in a preconceived format (2012, p. 342).

Kroll and Webb (2012, p. 171), in a related paper, debate the examination of doctoral theses, the capacity of examiners, standards, rigour and ethics. They highlight that examiners, apart from academic expertise, for example, must have proficiency in the practice. Concerning examiners, they remarked that there is a lack of knowledge when it comes to assessment, standards, outcomes and diverse assessment practices. One of their suggestions is that supervisors and examiners must develop “very precise and defensible standards for research in our disciplines, and for the evaluation of research: standards that are not simply about reproduction, but that accommodate and value the creative innovations one would hope to regularly emerge in creative doctoral research” (Kroll & Webb 2012, p. 172).

Mäkelä’s (2007) paper on the role of an artefact in practice-led research provides a constructive reflection on the role of an art or design artefact in the research process. She emphasises that an artefact is mute and cannot convey or transfer knowledge. It is simply a method for collecting and storing knowledge. A researcher is to break this muteness and so provide a voice to the artefact. The written component of a dissertation or thesis provides this voice.

This paper aims to raise questions regarding the content and scope of work produced by postgraduate students in design and related fields. We conducted a small benchmark study where we looked at the content and scope of dissertations and theses produced at overseas institutions. The insights gained from this benchmarking exercise allow us to reflect on work produced in South Africa, and so make some inferences about the scope and content in question.

We will first provide a brief reflection on the national outcomes of master’s and doctoral studies and the assessment of research and postgraduate studies, before reporting on the

benchmark study. This paper delimits itself to a discussion on the results and precludes an in-depth discussion and arguments for and against practice-led or practice-based research. For an extensive exposé on practice-led research, see the resources published by Edith Cowan University (2019), the ideas put forward by Laurie (2015) about subjectivity and individualism problems in practice-led research, and Faber's (2010) edited book about approaches to practice-led research in art and design. Speakers at the 2018 DEFSA workshop on practice-led research presented examples of practice-led research. Campbell (2018) presented a paper on student work that produced innovative industrial products, Bullock's (2018) presentation touched upon her MTech degree and medical devices and Pacheco (2018) presented a detailed and richly illustrated presentation about an off-grid food processing system.

Master's and doctoral requirements

The South African National Qualifications Framework (NQF) provides a framework for the classification and registration of national qualifications as per the NQF Act, 2008 (Act No. 67 of 2008). The Council on Higher Education (CHE) is responsible for the higher education sub-framework and pitched master's and doctoral degrees at levels 9 and 10, respectively. The aim of the NQF, among other things, is to ensure that South African qualifications are appropriate, of acceptable quality and that they meet acceptable standards (South Africa 2014 & CHE 2013). The CHE's (2013) publication provides the minimum number of credits required, as well as the purpose and characteristics of master's and doctoral degrees. All South African master's and doctoral degrees must conform to these requirements.

Master's degrees, for example, must train students to develop knowledge at an advanced level. Both types of master's degrees, consisting either of coursework coupled with a dissertation of limited scope or a master's degree that consists of writing a full dissertation, must contain a significant research component, i.e. a research project must be undertaken. Students at this level must master several skills such as: "be able to reflect critically on theory and its application [...], deal with complex issues [...], critically appraise research [...], make sound judgements using data and information [...] and communicate their conclusions" (CHE 2013, p. 36). A doctoral degree typically prepares candidates for an academic career. Research must be at an advanced level leading to a thesis. The difference between a master's and a doctoral degree is that a doctoral candidate must "demonstrate high-level research capability and [...] make a significant and original academic contribution at the frontiers of a discipline or field. The work must be of a quality to satisfy peer review and merit publication" (CHE 2013, p. 40). The CHE also allows for creative work, such as public performances and public exhibitions, as a component in the partial fulfilment of the requirements for a degree. From this, it follows that the purpose, outcomes and characteristics of South African postgraduate studies are similar.

Similarly, university examination requirements typically require an examiner to produce an examiner's report. The report must comment on and examine the work in terms of its orientation, the aim, the research methods, a review of the literature, the actual research, the results, the recommendations and the conclusion to the study. Postgraduate studies that include a creative component typically display this work in a public space and are examined by using criteria set by the supervising department. Students who complete postgraduate work in a fine art environment most often produce a body of work and an accompanying dissertation or thesis.

Universities in South Africa examine postgraduate studies dissimilarly. Some use external examiners exclusively, while others use a combination of internal and external examiners. The Department of Higher Education and Training (DHET), in addition, rewards universities by providing a monetary subsidy based on a weighted count of master's degrees, doctoral

degrees, articles published in scholarly journals, books, book chapters and conference presentations published in conference proceedings (South Africa 2003), and more recently on creative output (South Africa 2017). The caveat is that articles must appear in approved journals (South Africa 2003 & 2019) and that books, chapters in books, and conference proceedings are further subject to quality peer evaluation and scholarly criteria. One of the shortcomings is that this subsidy system does not differentiate between the impact and the quality of an article. An article in an obscure local journal receives the same subsidy as an article in high-impact journals such as *Nature* or *Science*. In this regard, and what South Africa should consider, is how the United Kingdom assesses the quality and impact of research produced at their universities. Review panels assess submissions based on the impact of their publications, exhibitions and performances and look at the impact the study has outside of academia. The United Kingdom's Research Excellence Framework (REF) provides guidance on the impact of research and how researchers can monitor and improve their impact after the completion of a study (REF 2019).

The process

We used the Quacquarelli Symonds (QS) World University Rankings database as a guide and then collected and analysed the scope and content of dissertations and theses from selected art and design university departments. The QS database highlights top-performing universities worldwide. This database collects, analyses and compares data on 48 different points of reference, such as the institution's strengths, location, and the age of institutions (QS 2018). The database allows a visitor to select a level of study (postgraduate) and the subject of interest. For our purposes, 'art and design' were selected, and the database then listed universities in ascending order that offered postgraduate studies in art and design. The next step was an attempt to access the universities' institutional repositories to search for, and download, art and design dissertations and theses. It was not possible to access and download dissertations and theses from all the university websites listed in the search results. The first five universities that allowed downloadable work was the Royal College of Art, RMIT University, the Hong Kong Polytechnic University, the University of Northumbria at Newcastle, and the Rhode Island School for Design. The convenience sample comprised of 20 theses and dissertations that were completed between 2010 and 2018 and covered fine art, film, digital art, photography, graphic design, performing art, textile design, music, painting, dance, and jewellery design.

We collected data regarding the number of supervisors and the length of the theses and dissertations based on word count, the number of pages excluding addendums and figures, the reference count, the article count reflected in the reference lists, the type of references, chapter division and the type of work that the students produced.

The results are presented in the tables below. Cells in the tables that are empty indicate that it was not possible to extract the relevant data due to password-protected PDF files. The list of students and their work is given in a list preceding the references. The number next to the student corresponds to the number in the tables below.

The results

The numerical values of the scope and content are presented in Table 1 and Table 2 on the next two pages.

Table 1. The scope of the 20 dissertations and theses

Student no.	Qualification	Year	Institution	Discipline	No. of supervisors	Page count, excluding addendums	Word count	No. of chapters
1	PhD	2018	RCA	Fine art	1	58	39 883	5
2	PhD	2011	RCA	Sculpture	2	96	40 616	4
3	PhD	2015	RCA	Film	2	239		4
4	PhD	2011	RCA	Film	3	128	43 531	3
5	PhD	2015	RCA	Digital art	3	102	49 565	4
6	PhD	2016	RCA	Photography	2	105	33 240	7
7	PhD	2017	RMIT	Photography	3	108	33 134	7
8	PhD	2016	RMIT	Performing arts	2	150	45 815	6
9	MFA	2009	RMIT	Textile design	2	34	9 651	4
10	MA	2007	RMIT	Music	2	38	11 332	5
11	PhD	2012	RMIT	Painting	2	137	32 940	4
12	PhD	2010	RMIT	Dance	2	296	81 217	9
13	PhD	2016	HKPU	Textile design	3	124		7
14	PhD	2018	HKPU	Design	2	150		6
15	PhD	2014	HKPU	Design	3	408		10
16	PhD	2016	UNN	Textile design	3	246	56 772	9
17	PhD	2018	UNN	Business & Design	2	48	18 158	7
18	MFA	2017	RISD	Printmaking	3	43	5 676	4
19	MFA	2016	RISD	Jewellery	2	80	5 030	5
20	MFA	2018	RISD	Graphic design	3	100	17 499	4
				Means for master's degrees		59	9838	
				Means for PhDs		160	43170	

Note: The acronyms in the applicable table are as follows: RCA = Royal College of Art; RMIT = Royal Melbourne Institute of Technology University; HKPU = Hong Kong Polytechnic University; UNN = the University of Northumbria at Newcastle; RISD = Rhode Island School of Design.

Table 2. The scope of the references and the type of work

Student no.	Types of references	Type of work	No. of references	No. of journal article count in the references
1	Books, anthologies, video, websites, theses, journals and exhibition catalogues	Practice-based	384	20
2	Books, publications, artworks and websites	Language-based artwork including a practical component	185	1
3	Books, journals, interviews, filmographies, moving image works and DVDs	Practice-based	224	10
4	Filmographies, interviews, television programmes, DVDs, websites, personal archives, books and newspapers	Practice-based	78	0
5	Websites, books and journals	Practice-based	133	13
6	Books, journals, films and television programmes, exhibition text, catalogues and databases, unpublished conference papers and websites	Practice-based	470	120
7	Books, journals and websites	Practice-based	156	8
8	Books, journals, websites, television programmes, conference papers, exhibitions and video art archives	Practice-based	420	15
9	Books and websites	Practice-based	32	0
10	Books, journals, CDs and DVDs	Practice-based	25	1
11	Books and journals	Practice-based	74	2
12	Books, filmographies, websites and videos	Practice-based	420	0
13	Books, journals, conference proceedings and websites	Experimental or Practical	72	17
14	Books, journals, conference proceedings and websites	Practice-based	158	30
15	Books, journals, websites and photographs	Practice-based	405	156
16	Books, journals and websites	Practice-based	301	32
17	Books, journals and websites	Design-led approach	140	28
18	Books and websites	Practice-based	7	0
19	Books, journals, websites and photographs	Practice-based	34	3
20	Books, magazine articles and websites	Practice-based	31	14
		Means for master's degrees	25.8	3.6
		Means for PhDs	241.33	30.13

Items that stood out are as follows:

- Only one student had one supervisor. Students are generally supervised by two or three supervisors.
- Master's degree dissertations ranged from 34 to 100 pages, with a mean of about 9 000 words. Doctoral degrees consisted of substantially more, and ranged from 48 to 408 pages, with a mean of about 43 000 words.
- The mean number of reference and scholarly journals for master's degrees were 25.8 and 3.6. For the doctoral degrees, these were 241.3 and 30.1.
- One thesis, the work by Palmer (2011), was a theory-based project that included a practical component. The others appeared to be dissertations or theses based on practical work.
- The students write in the first-person singular. They use a narrative and what appears to be a non-academic style of writing to explain and describe the stages of their creative processes.
- The structure and format of the theses and dissertations differ widely from one university to the next.
- One dissertation lists only seven references.
- Students use footnotes liberally.
- One student had only one word (Jockel 2016), while another had only three words (Buzzell 2018) in the titles of their work.
- One student appeared to have gained entry to a doctoral programme with only a BA(Hons) degree (Dagnall 2017).
- The dissertations and theses from the Royal College of Art and the Rhode Island School of Design represent work in graceful layouts and the texts are richly illustrated with images and include expressive words and quotations. These colourful dissertations are visually refreshing and present the antithesis of the customary black and white, double line spaced scripts that we have become accustomed to in South Africa (Figure 1).
- Work from RMIT and the Hong Kong Polytechnic University reflects an approach similar to what we see in our fine art-based postgraduate studies.
- Work from the Hong Kong Polytechnic University is applied and follows an IMRAD-style approach.
- Not all the works are illustrated with visual examples. The work by Wilczek (2007) on music composition in surround sound contains no images.
- The impression that we gained from this brief review is that some of our peers focus on applied and practice-based work, and the verbalisation of the thoughts, philosophies and processes underlying their practices. Even though the sampling employed a convenience process, we did not purposefully select practice-based dissertations and did not purposefully exclude IMRAD-type dissertations.
- We are not aware that the students relied on or even felt compelled to include lengthy definitions of terms, to undertake extensive literature reviews or to include long-winded discussions on a chosen methodology or on theoretical frameworks. What stood out is the in-depth and detailed description, discussion and illustration of their practical work and the outcome of their empirical work.



Figure 1: The front covers of Buzzell (Rhode Island School of Design, 2018) and Woolley (Royal College of Art, 2017)

Discussion of the results and concluding questions

This paper aims to question the typical scope and content produced by our master's and doctoral students in design and related fields. The benchmark study has shown that the international trend at some institutions is towards practice-based work. Dissertations and theses produced by our overseas peers are richly illustrated. However, there are some that follow a similar format to the IMRAD approach that we currently employ in South Africa. The numerical information in the two data tables allows us to assess and determine if the content and scope of our postgraduate work would pass the muster of our international peers. South African dissertations and theses compare favourably with research undertaken and work produced at some of our overseas peer universities that follow an IMRAD-type approach. Where the design disciplines can develop, however, is with practice-based work and applied research.

If the trend is indeed towards practice-based studies, is there still a need to direct our students towards IMRAD-type work and the writing of a traditional dissertation or thesis? The National Qualifications Act (South Africa 2014), the Policy on the Evaluation of Creative Outputs and Innovations produced by Public Higher Education Institutions (South Africa 2017) and The Higher Education Qualifications Sub-Framework (CHE 2013), with requirements, support practice-led research. Should we move towards practice-led design with an accompanying dissertation or thesis, and, in Mäkelä's words (2007), to de-mute the artefact and give it a voice to speak? Changing our direction from the traditional IMRAD-type dissertation and thesis towards a practice-based approach would require both supervising staff and examiners with academic and practical expertise and experience. This may present itself as a simplistic and easily achievable solution but may nonetheless be difficult to attain. We know that a full-time academic staff member who supervises postgraduate students has the added pressure to produce research papers. Will such a supervisor neglect their research activities and devote valuable time to work as a designer – parallel to the standard and typical academic and administrative duties? An alternative route would be to appoint staff members who function

solely as practitioners, as opposed to and in conjunction with those who are charged with a department's research processes.

We can also counter-argue that practice-led research and international trends are not necessarily appropriate and a good model for South Africa. If we argue and then accept that the production of a design artefact is appropriate for the awarding of a postgraduate research degree, should we then not consider awarding such degrees to all innovative design practitioners? All that is required is the additional production of an accompanying set of text that verbalises the process and text to clothe the artefact in an academic aura. We know that this is illogical reasoning, and we cannot entertain such a process. Master's and doctoral degrees in South Africa require research (CHE 2013). Research advances knowledge and uses scientific thinking and processes such as empiricism, rationalism and scepticism. The scientific method embraces observation; formulating a question, a hypothesis or objectives; collecting data; a research process; and reflecting on the results (elements which are achieved by IMRAD-type research outputs). Objectivity, reproducibility, testability and the elimination of personal and cultural bias are some key tenets of a scientific process. South African academics who supervise students are bound by the CHE's requirement for research for master's and doctoral degrees. By supervising research, we are constrained to 'obey' the prudence of science and the scientific process. If we, as argued above, 'de-mute' and provide a voice to an artefact, would this violate the principle of objectivity and the elimination of bias? Is it possible to separate oneself from one's creative process and report objectively considering rationality and scepticism?

Should we move from the traditional dissertation and thesis towards a practice-based approach, and do we have the required supervisors and examiners with academic and practical expertise to do so? We would need to develop 'precise and defensible standards' (Kroll & Webb 2012, p. 172) to supervise and examine dissertations and theses in a changing academic environment. We move to conclude that these otherwise defensible standards will nonetheless have to consider, and, ultimately, include the CHE's requirements (or possibly similar future requirements) for a doctoral degree, namely 'high-level research capability', and "a significant and original academic contribution at the frontiers of a discipline or field" (CHE 2013, p. 40).

List of student theses and dissertations

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- Buzzell, C, 2018, *Haunt: casual surrealism*, Rhode Island School of Design.
- Chun Ting, C 2017, *3D pattern for knitted objects*, The Hong Kong Polytechnic University.
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- Costello, C 2015, *The continuous view: practices of attraction in the moving image*, The Royal College of Art.
- Dagnall, R 2017, *Landscape photography and the imaginary of an Australian gothic*, Doctor of Philosophy (PhD), Art, RMIT University.
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8th International DEFSA Conference 2019

Hosted by Cape Peninsula University of Technology and IIE Vega School.

DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Nomads and Narratives: Navigating personal and professional literacies in design education

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Janet Purcell van Graan : Cape Peninsula University of Technology

Abstract

South African students in higher education face many challenges other than the requirements of the academic programme. This places additional demands on academic staff tasked with delivering specialised content in support of student success rates. In response, we have introduced a subject intended to support first-year design students in navigating studio and theory subjects in a trans-disciplinary way. This subject covers academic, personal and professional literacies. Personal and professional literacies are the subject of this investigation, in which we question how we can support students in preparation for fast-changing future environments? Designers are becoming “nomads, storytellers, peddlers, do-gooders and Swiss army knives” in response to the fast-paced context of the third millennium (Vrontikis 2013). In this paper, we reference these trends, as well as the well-documented skills and attributes required to navigate digitally mediated globalised contexts. Literature indicates that there are skills and cognitive processes that fall outside the boundaries of our academic curriculum. We, therefore, ask how these personal and professional literacies could be supported using a coaching approach, and how could these literacies be assessed? We present an autoethnographic account of learning interventions within the subject of academic and professional literacy, with a specific focus on a coaching approach to developing personal and professional literacies. This narrative method enables a critical reflection and interpretation of personal experience in which we interrogate notions of identity and value. Knowledge itself does not drive habits or change; what matters for students is not necessarily knowing the theory, but an ability to live it, to do it, and to do so consistently enough in a way that integrates with their existing selves. We propose the development of student agency assessed on the strength of engagement rather than outcomes.

Keywords: Academic literacies, twenty-first-century skills, coaching

Introduction

South African students in higher education face many challenges other than the requirements of the academic programme. This places additional demands on academic staff tasked with

delivering specialised content in support of student success rates. In response, we have introduced a subject that is taught across all our design programmes in the first year. The subject covers four broad literacies, personal, information, academic and professional, and is intended to support first-year students in navigating studio and theory subjects in a trans-disciplinary way. Information and academic literacy are currently outsourced to the library and the academic writing centre respectively, while personal and professional literacy is the subject of this paper.

Coaching has gained popularity in supporting individuals to navigate the complex demands of fast-paced private and professional contexts successfully. Digitally mediated work environments require skills and cognitive processes that fall outside the boundaries of our traditional design academic curricula, yet the field of coaching responds to some of these skills and processes. Therefore, we ask how these personal and professional literacies could be supported using a coaching approach, and how could these literacies be assessed?

Theoretical approach

Nomadic theory offers a lens with which to view the ever-changing context of the postdigital age. With its roots in the philosophy of Deleuze and Guattari, nomadic theory is underpinned by a monistic view, which opposes a dualistic understanding of nature-culture in favour of the self-organising force of all matter (Braidotti 2011). Nomadic theory provides a non-hierarchical and non-dialectic vision of difference or otherness, this is in opposition to the Eurocentric humanist vision of 'man' ('masculine, white, heterosexual, property-owning, urbanised') as the knowing subject at the exclusion of all 'others' ('women or sexual minorities, natives and non-Europeans and earth or animal others') (Braidotti 2010).

Nomadism acknowledges that identity takes place in the interstitial spaces between nature and technology, male and female, black and white, local and global, past and present, necessitating mobility of thought that is non-linear and driven by process rather than concept or outcomes. The cartographic method is central to nomadic thought and supports an affirmative ethical position that relies on accountability, situatedness and cartographic accuracy. Tracing back to Spinoza, this ethical position is not based on vulnerability or lack but rather on assets and empowerment gained through understanding. Nomadic thought considers the "effects of truth and power that actions are likely to have upon others, including external and non-human forces" (Braidotti 2011). The emphasis lies not with the individual (I) but with relations between individuals (we) and not in the dualistic mode of self and 'other' but as part of a mutual specification and co-dependence.

Literature

We have referenced academic literature in the field of design education, eLearning and integral coaching regarding twenty-first-century skills. In design education, Vrontikis (2013) identifies trends and skills for designers in response to the fast-paced context of the third millennium. She identifies that designers will need to be 'peddlers' with well-honed entrepreneurial skills and the ability to control all aspects of the design process from concept, to funding to prototyping and marketing; 'designers as do-gooders', gaining recognition through participation in community initiatives rather than accolades from design competitions; 'designers as Swiss army knives' able to toggle between digital platforms and various media; 'designers as storytellers' in a world where information is so easily accessible, stories and narratives gain importance; and 'designers as nomads' with agility to adapt to economic, and environmental shifts. Students often attend more than one school not necessarily finishing courses but taking the skills they need from different programmes.

Similarly, once in the workplace, designers embrace career mobility, taking what they need and then moving on, staff in creative industries rarely staying longer than three years.

In the field of eLearning, Cormier (2008) considers that students learn in technologically mediated networks that are open and constantly growing, this has been referred to as rhizomatic learning. In this example, 'the curriculum is the community' (Cormier 2008), and learning takes place in multiple ways, not only between people but also between people and their hyper-connected devices in a "limitless symbiotic relationship between human and machine" (Wheeler 2012). "In learning 3.0, anyone can learn from anybody anywhere" (Cronje 2016) and the lecturer's role changes to that of facilitator. This educational shift translates from a traditionally constructivist view to a digitally mediated one in which the boundaries between the natural and the cultural are blurred.

Hedberg and Stevenson (2014) advocate viewing technology as the mediator of learning, thereby keeping the curriculum flexible and constantly evolving. Lecturers and students can explore new ways of accessing and generating content and having to select suitable media to empower users to take ownership and engage meaningfully in the interactions (Quinton & Allen 2014). Skills such as organising, analysing, evaluating and applying information, communicating and collaborating with others in real-time, as well as generating and sharing content are learned while engaging with projects online (Anderson & Krathwohl 2001; Hedberg & Stevenson 2014; Quinton & Allen 2014).

Learners create and curate their own 'personal learning environments' as (hi)stories of their own learning. A personal learning environment will be different for each learner, will consist of their own amalgamation of software and hardware, and will "account for the countless variables which distinguish us from one another and make each of us truly unique and experience specific learning needs" (Lian & Pineda 2014). These tools can be classified into three pedagogical levels: "personal information management, social interaction and collaboration, and information aggregation and management" (Dabbagh & Kitsantas 2012).

In a world of information overload, students accessing limitless information online can feel overwhelmed, Bhaskar (2016) notes that students given a choice of six elective essay topics did better than students given a choice of thirty. Curation is indicated as a core digital competency for critical inquiry, aggregation and storytelling in digital culture based on principles of selection, arrangement, simplification, explanation and display of information (Bhaskar 2016).

The notion of the lecturer as facilitator and enabler of learning resonates with coaching methods. The field of integral coaching has rapidly grown over the past 30 years. Based on Wilber's (1997) Integral theory, coaching is now widely accepted and applied as an enabler of personal and professional life-long learning. There is a precedent for coaching approaches in educational contexts, and Griffiths (2005) presents a review of literature in the field, making a strong case for coaching methods to be used to support learning. Esbjörn-Hargens (2009) proposes a framework based on integral theory for transdisciplinary application in the complex context of the twenty-first century. Integral theory applies to the fields of psychotherapy and psychology, education, mixed methods research, ecology and sustainability, international development, future studies, business, and organisational management.

The role of the coach in a one on one integral coaching context, is to facilitate the client's long-term performance, the capacity for self-correction and the ability to self-generate. In other words, facilitating the ability to modify behaviour consistently at the moment and to be able to anticipate what might be needed next (Flaherty 2010). Against the background of Wilber's AQAL quadrants, the coach explores the client's current lived in narrative and how this narrative facilitates meaning in and of the world (Wilber 1997). The coach helps to identify new narratives to support relevant new ways of languaging, feeling and behaving (Sieler 2003).

The purpose is for the client to bring their ‘whole self’ into awareness, the ‘I’ as distinct from but also deeply connected to and shaped by the ‘we’ (Keagan 1982).

In the business context, the coaching relationship can be described as triangulated or axial, in that the needs, outcomes and behavioural shifts are identified and negotiated between the parties of client, HR/operational/strategic leadership/business needs and the coach (Kahn 2011). The coach creates a safe space, as listener and questioner, holding the mirror of self-awareness so that clients can achieve greater, more spacious sense of ‘what is’ true for themselves.

As a summary, the themes emerging from the literature were tabulated and mapped against the coaching approaches that could be suitable. This table was used as a conceptual framework to initiate the reflection and discussion in the following sections of this paper.

Table 1: Skills and requirements for designers

Author	Trend/keyword	Skill/attribute/cognitive process	Coaching approach
<ul style="list-style-type: none"> – Vrontikis 2013 – Hedberg and Stevenson 2014 	<ul style="list-style-type: none"> – Design peddlers – Concept – Crowdfund funding – Prototyping and Marketing – Real-time collaboration 	<ul style="list-style-type: none"> – Entrepreneurship – Numeracy – Multidisciplinary awareness – Ideation – Visual and verbal communication 	<ul style="list-style-type: none"> – Teamwork – Communication – Conflict management – Time management – Goal setting – Gaining support – Strategic thinking – Focusing – Agility – Design thinking
<ul style="list-style-type: none"> – Vrontikis 2013 – James et al 2002 	<ul style="list-style-type: none"> – Do-gooders – Peer recognition – Community work – Mentoring – Pro-bono work 	<ul style="list-style-type: none"> – Communication – Literacy – Negotiation – Collaborative skills – Conflict management and resolution – Acceptance of intellectual criticism – Capacity to compromise 	<ul style="list-style-type: none"> – Teamwork – Communication – Speech acts – Social intelligence – Difficult conversations – Conversational mastery
<ul style="list-style-type: none"> – Vrontikis 2013 – Hedberg and Stevenson 2014 – Quinton and Allen 2014 	<ul style="list-style-type: none"> – Swiss army knives – ‘Media ambidexterity’ integrate technology in a non-linear way – Organise online activities 	<ul style="list-style-type: none"> – Multimedia literacy – Digital literacy 	<ul style="list-style-type: none"> – Ease with systems and technology – Curiosity – Taking risks – Self-trust – Flexibility – Agility – Problem-solving
<ul style="list-style-type: none"> – Vrontikis 2013 – Quinton and Allen 2014 	<ul style="list-style-type: none"> – Storytellers – Engaging – Interactive – Narrative – Generate, publish and share content and resources 	<ul style="list-style-type: none"> – Storytelling – Visualising 	<ul style="list-style-type: none"> – Narrative thinking – Storytelling – Summarising

<ul style="list-style-type: none"> – Vrontikis 2013 	<ul style="list-style-type: none"> – Nomads – Adaptable to economic and environmental shifts – Students often attend three schools, not necessarily finishing courses but taking the skills they need from different programmes – Career mobility 	<ul style="list-style-type: none"> – Agility – Mobility of thought – Curating – Life – long learning – Professionalism 	<ul style="list-style-type: none"> – Motivation – Gaining support – Relationship building – Self- regulation – Self-awareness – Resilience – Ease with risk and failure – Giving and receiving feedback – Difficult conversations – Social intelligence
<ul style="list-style-type: none"> – Quinton and Allen 2014 – Cronje 2016 – James et al 2002 	<ul style="list-style-type: none"> – Curation – Organise information virtually 	<ul style="list-style-type: none"> – Remembering – Organising – Mapping – Analytical skill – Task analysis – Critical interpretation – Peer evaluation 	<ul style="list-style-type: none"> – Summarising – Précis – Effective questioning – Emotional intelligence – Giving and receiving feedback

Method

In writing this paper, we present a ‘mini autoethnography’, as a shortened version of autoethnography that sacrifices the breadth and depth of critical reflexive study for a clear and sustained focus on three salient experiences, episodes, moments, or events from one’s life. The researcher reflexively considers ways in which they have changed during the process. Reflexive or narrative ethnographies exist on a continuum ranging from biography to ethnographic memoirs to ‘confessional tales’ where the research ethnographer’s ‘backstage’ research endeavours become the focus of investigation (Ellis et al. 2011; Van Maanen 2011).

We also acknowledge that in applying autoethnography as critical social research, it is key for researchers to consider their own roles with critical reflexivity, whereby they come to view themselves as complicit in the problems they perceive. Discussing such complicity can place scholars in a vulnerable position. It is this consideration of unveiling the vulnerable self that can free the mind of self-deception without self-deprecation. In addition, it is imperative for the auto ethnographer to anticipate a complicit and vulnerable self with regards to sharing sensitive information with others as they grapple with the complications of their educational positions. The second author writes the three moments and the discussion presented in the next section of this paper.

First moment – communication

Students were tasked with writing an email to the head of department to appeal for readmission after academic exclusion. The brief was for students to propel themselves into the future and write the email that any student would hope never to have to send and to do so in a way that made clear what had happened, who was responsible, and what would change if the student were given a new opportunity to study. This was the first written task I gave them, resulting in some 180 emails to my Gmail account. The assessment criteria were as simple as sending the email, submission as a PDF file, the coherence of the argument, the tone of the mail, the ease of identification of the student for the reader and inclusion of salutations.

This project brought the students' personal stories into the room in a way that was vulnerable making for them as individuals. In terms of adult learning, this was an attempt at working with real problems rather than fictionalised ones. I had not initially thought about further opportunities to explore the students' issues more deeply, and I found myself overwhelmed with simply reading the number and content of the emails. I decided not to pathologise the content but to try to accord the issues raised with dignity: they were only being shared with me as part of a communication task, which was intended to develop the capacity to request and establish support, practice accountability and take responsibility and to do this as written reflection, telling your story if you will. In fact, I was not clear what was fiction or truth.

From a coaching perspective, it was an exercise in foregrounding current narrative, to encourage, through reflective written language, a self-awareness of past actions, present insights, and future commitments and the linkages of consequence between them. It served to invite the whole student in his or her whole world into the academic world, with the student at the centre of his or her own story. It also asked the student to pay attention to both the tone of request and giving key aspects of information so that the reader would be more likely to take action and respond accordingly. This process foregrounds the intersection of conversational skill in terms of making a clear request as a speech act and social intelligence. Through reflection, students could explore vulnerability and express emotion. This exercise also attempted to respond to the challenge that lecturing staff expressed about student reluctance to ask for help when they encounter academic or personal difficulties and to do so timeously.

Second moment – somatic games (group work)

This class served as an introduction to group work. We began each of these sessions with a series of non-verbal games, which might have served as icebreakers in other contexts. In a studio cleared of chairs, I asked the whole class to stand, and arrange and order themselves in various ways, such as tallest to shortest, by day and month of birth and by surname. The catch was that they could not speak. The groups could only speak to notify me when they had completed each time. This focus on non-verbal communication equalised the language differences in the room and disallowed comfortable friendships. I was able to quietly observe as the group figured out how to problem solve in an animated way. This was a complex task for the larger groups which were as many as 60 students, and much simpler for the small group. Names and birthdays as a ranking tool also highlighted how well students knew each other's personal information, and that some cultural groupings had many students with surnames starting with the same letter that was perplexing and not obvious to others. The value of the 'I' in each phase of the activity was changing all the time as new 'we's' with new structures emerged.

This somatic exercise required the students to enact the changing ranking with their bodies and use facial and hand gestures to communicate. This shifted the mood to a more open and energetic one in readiness for the second exercise that was verbal and seated. The students appeared to be relaxed with each other, already having looked closely at each other and pulled faces and made gestures.

In the second instance, I created random groups of similar sizes within each class using numbering. I asked each group through discussion to find ten things that they, as small groups, had in common. These could not be obviously anatomical, nor that were they all humans or design students. It was also intended to use playfulness to get the students to cross social boundaries with each other, in a low-risk way. The groups would be peer-assessed for generating the most interesting and unique list. The groups had fifteen minutes for discussion

and then had to self-select a spokesperson to present their lists. Without exception, the class groups were unanimous in which team they chose as most interesting.

The groups asked others to be quiet and listen as they presented. I did not police the room and maintain control. During the process, I circulated, asking the teams to widen their focus from only anatomical or design-related matters where needed or to try to make their ten things unique to their group. This was an example of student-generated content that emerged as they practised listening and questioning each other. During the communication module earlier in the year, I had given them the tool of asking questions prefaced with what, where, when, who and how (rather than asking why or leading or closed questions). These 'four whiskeys and a Heineken' are typical coaching style questions designed to help the answerer to stay calm and feel comfortable enough to open up and explore possibilities. This technique forms an important aspect of skilful listening, applicable in any kind of target or user group research in how it creates resonance and builds trust. In grouping the students randomly, their comfort zones were dislodged, resonant in a way with the 'compassionate dislodgement' that characterises coaching. I was learning that I had to take a more directive role in the physical organisation of the space and the group learning context.

Third moment – group work

At the start of this module, I tried a different approach to figuring out what content was relevant. I asked each of the student groups to name what they regarded as problematic or to reflect on breakdowns in their experience of group work, rather than me providing research-based examples or problematising examples of breakdowns myself. As they spoke, I captured their responses live on screen while facilitating. By the fourth time I did this, I asked a student to type and record while the class generated ideas so that I could pay more attention and listen better. In this way, each group generating their own content of what was problematic and what was not, and some of these points became the basis for their reflection on the group design and ideation process at the end of this group activity. In coaching terms, their structure of interpretation as a class was explored and made visible. What they regarded as problematic was affirmed as valid, because the ideas were shared with each other and combined into one list. In this way, there was an emergent 'we', constructed in the moment and different in each group.

Discussion

In a professional coaching relationship, purpose and outcomes would be negotiated between client and coach, or in a triangulated or axial relationship between human capital, organisational, operational or leadership requirements, the client and the coach. Based on needs identified by contracting parties in this relationship, there are potentially different outcomes and accountabilities. In this educational instance, the lecturer is trying to navigate the axial relationship between what might be anticipated professional behaviours within the context of a rapidly changing and uncertain world, academic behaviours and habits identified in the curriculum by academic staff, and the student's current goals, values, skills and habits. Much of the time the lecturer is working in short feedback loops of responsiveness. I found that each of the four classes over the week differed slightly as I reacted and adapted in response to what was engaging for the students.

Working as part of what felt like a fragmented group rather than as a team resulted in a continuous challenge to find and hold the narrative arc of the subject and in choosing what mattered to the students as content. The challenge from the professional context is to assess and update curriculum content in a continuous responsive way, while the pattern of the design

curriculum is more static and fixed. The students similarly would have expectations of what is expected of them based on their previous school experience.

An additional dynamic is that I was working with the group, rather than with separate individuals as one would in a coaching context. The students are in four discipline-specific groups: visual communication design, fashion, product design and jewellery design and manufacture. The size of these groups ranges from 10 to 65 students. The smallest group proved most challenging to engage with as a group. They were the only group in which I managed to learn all their names, and as a result, they may have felt more exposed as individuals rather than having the anonymity of disappearing into a group.

Consistent with one-on-one coaching, the physical studio environment plays a significant role in the participant's engagement, their sense of safety within the group, and willingness to trust the process. As a physical space, the studio has flexible seating arrangements, the room as it stands has hard finishes and is somewhat echoing. Initially, the lecturer allowed a student-centred approach to seating and students sat how and where they pleased. This resulted in repetitive groupings or pairings that allowed the students to stay within the comfort of known relationships rather than any dislodgement to new conversations. As the term progressed, I experimented more with seating arrangements to enable greater intimacy alternately within groups, better listening, and unexpected partnerships. I also found myself more often at the back of the room rather than at the front as this allowed me to feel more like a facilitator and less like a teacher.

Available technology and budget constraints played a role in delivery and brought about shifts that were not always wanted initially but relate strongly to Vrontikis' design trend list of peddler, Swiss army knife and nomad. All course content is uploaded to the online learner management system, but I found that when content is being co-created or if the activities were somatic if students were not present in a given class, they struggled to re-join the group and the experience could not be repeated. When I was unable to print paper documents, I began using mobile digital applications, and students own phone cameras to capture images of relevant tools for use in the group work, in so doing students had the opportunity to practice across media and devices.

Conclusion

Reflecting on the arc of the subject, no single person holds all the knowledge or competencies taught, and there is some duplication of content. This might serve students, as they are required to make sense of multiple stories or versions, for example, of communication. Stronger team relationships between staff and shorter reflective feedback loops with those who co-teach in this subject could alleviate this expensive duplication of time. The blended learning strategy of face to face and eLearning needs a human face to co-ordinate and administrate responses, to mark amendments, resubmissions, appeals for late assessment and program linkages. The currently somewhat flimsy narrative arc of the subject could be built around a more explicit student narrative, using a single online workbook or a reflective blog, which might strengthen student agency but pose new assessment questions.

Our sense is that the group studio context can become a better space of collaborative learning but that strategies are needed to shift student expectations of their roles as knowledge co-creators with agency and not just as learners. We are curious about exploring adult learning practices as opposed to pedagogy as it could support the development of student agency and greater dignity for individuals.

If coaching aims to create a sense of safety for the client, we have tried to create this in the classroom through modelling a coach-like way of being. Nomadic ethics of understanding is

part of this approach and can be motivating to young adults. More reflection is needed to develop better relational skills for staff. The narrative approach of coaching enables a critical reflection and interpretation of personal experience in which notions of identity and value can be explored. Knowledge itself does not drive habits or change, and what matters for students is not necessarily knowing the theory, but an ability to live it, to do it, and to do so consistently enough in a way that integrates with their existing selves.

It is tremendously difficult to see the lens through which one sees the world, and in doing so, one begins to see how one contributes to one's experience of the world. The 'I' is more able to see how others differ from me, as each of them explores their 'selves'. The more I am able to see my contribution, the more I am able to influence how I experience and interact in the world and contribute to changing that experience. My awareness of my own patterns enables me to see others as similar but differently constructed and can produce mutual tolerance in diverse student groups. A stronger sense of belonging for students can be supported using a coaching approach, and this might have significance in the exploration of decolonised education.

The current physical space doesn't support a facilitated approach. The lecture room needs acoustics suitable for small and large group work, softer furnishings, permanently installed erasable writing spaces on all the walls, rather than just one whiteboard at the front of the room. Lighting needs to be easily modified to enable shifts away from screen-based tasks and back again. An investment into the teaching space would be an asset". I continue to receive emails to my dummy Gmail account".

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Towards a Pragmatic Code of Ethics for Design Research

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Abstract

Research ethics committees (RECs) at universities evaluate applications for ethical clearance through ethical research lenses shaped by positivist and interpretivist paradigms and cultural constructivist thinking. Such lenses predominantly follow reasoning strategies that could include inductive or deductive reasoning. Research ethics committees further interrogate applicants' methodology and monitor their actions to determine whether they meet extant research ethics principles.

Design, on the other hand, posits by its very nature the possibility of change in the world. As such it assumes an abductive reasoning stance, projecting from the known into the 'what could be'. This creation of the new is essentially a creative act. Yet such a creative act needs to fall within the domains of research as an academic enterprise. Thus, because design is intrinsically conceptual, its consequences are difficult to hypothesise. Yet research ethics committees need to assess design research proposals, despite the slipperiness of forecasting outcomes.

The purpose of this paper is, therefore, to offer potential ethical principles that speak to the needs of design research. In our attempts to develop such principles, we draw on pragmatism to locate the research project within the particular (the context, the participants, the time, and the problem to be solved).

Within this paradigmatic lens, we suggest four related approaches. Firstly, we accede to the utilitarian imperative of design, accept research ethics prerequisites such as beneficence and non-maleficence, and at the same time acknowledge the risk/benefit ratios. Secondly, we explore the role of Aristotle's eudaimonia as a philosophical concept that contributes to the greater good of a community and an individual. Our third approach is one of ethics of care that promotes community, relationships, and connections and, finally, we provide a nod to ubuntu and the United Nations Universal Declaration of Human Rights (UDHR).

From this engagement, we offer a potential code of ethics for design research. This code may provide research ethics committees with an appropriate lens through which to view and assess an application for ethical clearance.

Keywords: Research ethics, ethical principles, design research

Research ethics committees and ethical principles

The 7th International Design Educators Forum of Southern Africa (DEFSA) centred on ethics and accountability in design. Scholars from several universities in South Africa commented on and made recommendations regarding ethics in teaching, design, and research. There was a call to foster ethics and accountability in tertiary education, both with lecturers and students alike (Staden-Garbett 2015, p. 273); the ethics of lecturer accountability and team-mentoring (Le Cornu & Linde 2015); the ethical dilemma with intersubjectivity when interviewing a research participant (Groenewaldt 2015); an appeal for an ethical code (Munro 2011), a code based on non-maleficence (De Lange 2015); and the ethics of becoming more anthropocentric and using co-design (Barnes & Du Preez 2015). Rolf Gaede's (2015) paper is of particular relevance to the debates in this paper. He argues that the ethical screening of proposals for 'validity' as derived from medical ethics principles, may not be suitable for design disciplines, and specifically not for visual communication design research.

Given the above, this paper adds to the debate in this field by proposing how we, as design educators, can move towards a working and pragmatic code of ethics for design research.

The function of research ethics committees (RECs) is to evaluate research proposals and to provide ethical clearance before a study may proceed. Ethics principles are to protect all participants who might contribute to the research, the environment in which the research takes place and the use of animals in research. These principles further consider the potential results of a study, the benefit to society, and the research community. An ethics committee has the task to identify potential harm, to assess the risk, and to adjudicate whether such risk is warranted. RECs have to envisage results and work backwards and determine whether these results have been pursued in an ethically controlled manner. As such, they have to scrutinise a potential end product and the process of attaining that end product. RECs contribute to a university's integrity and act as important quality control instruments. Constituted RECs are furthermore independent, report to a university senate and are registered with the National Health Research Ethics Council (NHREC), a statutory body. Recent articles on the intellectual ability of coloured women and the intelligence of slave exports from Africa are examples of projects that did not undergo an ethics review process, and that affected the integrity of the university concerned (Nieuwoudt, Dickie, Coetsee, Engelbrecht & Terblanche 2019; Asongu & Kodila-Tedika 2019). Both papers are rightly criticised for their scientific flaws and that they stereotype certain groups of people.

In undertaking their task, RECs rely on several ethical principles, standards, and norms. These are historically based on ethics for medical research and are derived from universally acceptable codes and reports.¹ These basic principles include beneficence and non-maleficence, distributive justice, and respect for persons. RECs must interrogate whether the research processes (and products) will cause harm; who benefits from the research (the participants in their broadest sense, and the world); the benefits need to outweigh the risks involved in the process substantially; and of course, the rights of those involved in the research. Other variables, for example, include the scientific integrity of the work (the scholarship principle), and the competence of the researcher/s. Research processes are to deliver generalisable or transferable results, and only researchers with appropriate expertise and training should be allowed to conduct studies of a certain nature. These principles,

¹ See the Geneva Declaration (1948), the Helsinki Declaration (1964), the Nuremberg Code (1947), and the Belmont Report (1978).

standards, and norms are aptly described in an National Health Research Ethics Council (NHREC) publication (Department of Health South Africa 2015).

Our question and the purpose of this paper

According to which philosophical positions are these ethical principles applied? In other words, in approaching, for example, the non-maleficence principle, according to what ontological stance are judgements made? This paper sets out to suggest several these positions but does this specifically by considering research that emanates from design disciplines. We turn to the design domain because of one crucial difference between design research and other research. 'Other research' – referring here to research that follows positivist or interpretive methodologies – presents several characteristics. These approaches state the intended outcomes, whether by hypotheses or by objectives; the research processes (sampling, data gathering, and analysis) follow standard procedures; the outcome (that is the 'new knowledge') does not necessarily have the potential to impact the world directly; and sets out to either describe or explain the variable under investigation. Therefore, such positivist or interpretive research, innovative as it may seem, may stop short of direct intervention in the world. Basic research provides descriptions of extant problems, explores and theorises the potential reasons for these problems, and offers solutions. Such solutions are seldom tested, using the discipline-authorized processes.²

Design's very *raison d'être* is to present the possibility of an intervention in the world. The purpose of design is to engage with the world in such a way that potential changes and improvements in the world can be creatively envisaged, planned and then offered as potential solutions to existing shortfalls or problems in the world. Whereas some professional designers adhere to a code of professional practice, such codes can at times be seen to conflict with accepted ethical principles. Professional codes of conduct³ usually emphasise a designer's relationship with its professional body, its clients and competitors and, for example, do not necessarily consider the privacy or the autonomy of a consumer.

All research at universities needs to go through a rigorous process to obtain ethical clearance. However, using existing ethical research considerations (that engage with the process and product assessment, where the assessment is only about 'new knowledge') runs the risk of applying limiting decision-making approaches that are rooted in 'other research'. The purpose of this paper, therefore, is to offer potential ethical principles that speak to the needs of design research.

When we speak of 'design research', we are not speaking of research done on the processes of design. To a large extent, this is covered by 'other research' protocols. Nor are we engaging with the history of design. The creative nature of the design process, as and at the proposal stage, is rather scattered and not delineated. This process asks 'How can I (X), the designer, design an artefact or product (Y) to meet and solve the requirements of various stakeholders

2 The reasons for this are manifold. Some suggest that the purpose of research at universities is to define and articulate problems so that others can attempt solutions. Some point to the historical trajectory of research to confirm that solving problems has not been the ambit of traditional universities – solving problems is the ambit of 'development' in the research and development domain. Perhaps the most prosaic reason is that to test the efficacy of a solution takes too long, thus running counter to the demands to publish research outputs as part of the university research game.

3 For a few examples, see the Canadian code of conduct (<https://gdc.design/ethics/code>); the North American code of conduct (<https://www.aiga.org/code-of-conduct>) and the International Council of Design's code of conduct (https://www.ico-d.org/database/files/library/icoD_BP_CodeofConduct.pdf).

(Z) including, for example, client, community, 'target market' and/or audience? Immediately, we see from a traditional scholarship point of view, a deficiency of the method, no clearly envisaged outcome (except 'a solution') and nothing that is innately generalisable or transferable. Within this context, our paper interrogates ethical questions around abductive design research aimed at producing creative products to be 'inserted' into a community (and consequently the world).

Ontological positions

Seeing as the research community at large accepts these, we stand by the ethical principles offered at the beginning of this paper. We further propose, as a way of developing our ethical code for design research, for a different approach to understanding the ontological positions that RECs may adopt to strategise ethics principles. To achieve this, we first need to engage with the notion that design research (as delineated) is 'emergent, potentially parochial, problem-specific, current and context-bound'. This we do by drawing on and acknowledging pragmatism as a philosophical approach. Within such a pragmatic approach, we then offer four ontological positions, namely utilitarianism, and with it *eudaimonia*, ethics of care, and finally a nod to ubuntu and human rights. We conclude with a possible ethical code for design research.

Before approaching pragmatism, we wish to mention two more points: the nature of creativity (as a mode of work in design), and the nature of 'creative destruction' (Schumpeter 1942). In the case of creativity, we offer the model that Sawyer (2012) presents, namely that, in the act of creative endeavour, three dynamics are at work. Firstly (and the one most recognised) is the presence and working methods of the designer, who operates seemingly on creative and idiosyncratic 'instinct' and 'talent'. Sawyer suggests, however, that this is guided, tempered and underpinned by the remaining two dynamics, namely the current nature, strategies and materials present in the practice of the discipline in which the creative actor is operating (known as the 'domain'), and the current and accepted practices of adjudication, gate-keeping and expectations (known as the 'field'). Thus, any design is a product of the three dynamics working together. The key here is that the designer's instinctual process is current, contextual and moulded to, given direction by and dictated by the discipline. The product that materialises from these interactions is then seen as 'innovative' and which subsequently leads the argument to the notion of 'creative destruction'. For any innovation to be accepted as such, it has to do one of two, interwoven, things. It has either to address a problem that has never been addressed (or has not been addressed in that way) before or, fundamentally, it has to replace something, thereby confining the replaced article to the scrapheap of history.

Pragmatism is a philosophical position that engages with the immediacy of a particular problem that needs solving or explaining. As such, it suggests that a problem needs to be described and delineated in and for its presence, merits, and shortfalls. Pragmatism acknowledges the inherent context and contemporaneity of the problem, the systems that brought about the problem and the systems brought to bear to attempt a solution to the problem. It also, therefore, inevitably acknowledges the context and contemporaneity of the solution. Pragmatism further resonates with the notion of creative destruction, in that it accepts that a more innovative solution may be found should context and time change. In this position, we can see the research demands of generalisability or transferability, as the process is very specific. One can also see the research ethics potential for beneficitation.

Thus, from a research ethics point of view, one would need to consider the context and contemporaneity of the problem, but one would also need to consider the distinctive role of the designer in the process. It is at this point that the ontological positions come to bear. We

start with utilitarianism, as it seems to us to offer a way into the research ethical and pragmatic concerns that have been raised.

Utilitarianism, developed originally in the writings of Jeremy Bentham (1748–1832) and David Hume (1711–1776), posits the notion of societal interaction that should focus on the development of human flourishing. Human flourishing has several synonyms attached to it: the pursuit of happiness, well-being, personal and societal growth, and the human good. However, if one person flourishes, can this be seen as lesser flourishing (or loss) for those who give to allow others to flourish? Should all flourish equally? And are we required to give up something to allow others to flourish? We posit that one misinterpretation of utilitarianism, from a research ethics principle, lies in the idea that society should operate from the ‘ethical’ principle of ‘the greatest good for the greatest number’.

From utilitarianism, the central imperative is for the pursuit of human flourishing, well-being and human happiness. Sam Harris, in his book *The Moral Landscape: How Science Can Determine Human Values* (2010) has much to say on the pursuit of happiness as a cardinal, scientifically proven and universal attribute worth pursuing by all. Aristotle offers that the purpose of life is to lead a *eudaimonic life* or ‘the good life’. Here ‘good’ refers to that which is both morally upright and pleasant. To achieve this ‘good life’ one requires two characteristics. Firstly, one needs to live virtuously, and secondly one needs *phronesis* or ‘practical wisdom’.

Furthermore, Aristotle’s sense of the virtues offers, for our argument, some insight into how the research designer should behave, as well as how the design artefact may contribute to the virtues of the receivers of the product. This suggests that part of the ethical evaluation of a design research project could be based on how the product targets such virtues with a view on enhancing them. However, noting that human flourishing relies on practical wisdom is useful, as it adds the ethical component to the pragmatic argument. Thus, the researcher designer’s project is based on practical wisdom (as both a researcher and designer) but the intervention planned should also be based on the practical understanding of the receivers of the intervention. Therefore, potentially, one of the REC sets of interrogations might centre on how the planned project is set up to enhance the receiver’s practical wisdom that can lead to ethical human flourishing. In this, we see the seeds of anthropocentric design approaches.

The argument thus far has identified and highlighted some principles that would assist a REC in making ethical value judgements on a proposed design project. These principles are encapsulated in the final two ontological positions that bring the strands together. These are the philosophical position of Ethics of Care and considering ubuntu in relation to Human rights.

Ethics of care (EoC) posits a context-bound, relationship-based approach to morality theory, emphasising care as a virtue, and reflexive understandings of human relationality, interdependence and interconnectedness as an adequate guide to resolving conflict. Within this context, ‘care’ can be considered (in opposition to traditional notions of justice, which favours fairness and equality to all parties) a form of unequal benevolent ‘labour’ between a caregiver and a potentially more vulnerable receiver of care, as a unique relationship, involving varying degrees of dependence and interdependence. Historically rooted in a feminist conception of moral theory, care ethics developed as distinct from traditional male-biased moral approaches in the work of feminist authors Gilligan, Noddings and Tronto, among others. Gilligan (1993, p. 100) contrasts ‘masculine’ justice-based abstract conceptions of morality tied to universal rights and rules (ethics of justice) with ‘feminine’ moral understandings, based on the particularities of contextually sensitive and narrative-based relationships and responsibilities (ethics of care). Though Gilligan’s work has been criticised (for gender-based essentialism), the value for this paper lies in her emphasis of reflexive interdependent care-based human relationships. Building on previous work with Bernice Fisher, Joan Tronto (1993, p. 127-136) provides four integrated elements for EoC –

attentiveness, responsibility, competence and responsiveness. *Attentiveness* refers to sensitivity of awareness that could lead to potential recognition of a need to be cared for; in opposition to ignorance (ignoring) or inattentiveness of human need. *Responsibility* as a sociological and anthropological term is rooted in a flexible notion of collective cultural practice and is differentiated from a legal or political notion of 'obligation' based on 'rules'. *Competence* aligns with moral consequentialism and refers to the practical ability of the caregiver to ensure that the obligation of care can, in fact, be practically and adequately carried out. It is not enough to intend to provide care or to accept a care-giving role, and competence can be considered as the extent to which the activity of care-giving meets the needs of the care-receiver. *Responsiveness* takes into account the vulnerability and inequality inherent within care contexts, requiring alertness to imbalances of power dynamic, for instance, where caring potentially disintegrates into condescension. Instead, responsiveness requires respectful attentiveness of another's particularity of position and situation, limiting reflexive interpretations and 'projection', avoiding generalisations and challenging the notion that people and situations are interchangeable.

Traditionally, RECs as gatekeepers to the research domain, assume dominant power positions, while researchers need to find ways to gain approval to conduct research. Conversely, considering RECs and research designers as being on the same side (not as 'us versus them') and taking into account Tronto's 'responsiveness', RECs could be conceived of as operating from an overarching position of 'giving' care. This position is more generalised and abstract rather than active and personal, drawing on Noddings's (2002, pp. 21-24) differentiation between two stages of caring in care ethics – 'caring-for' and 'caring-about'. Noddings's notion of 'caring for' is particular – a practical and active instance of physically providing a caring service, within the context of a unique personal relationship, while 'caring-about' is a more generalised subjective position – a 'way of being', involving caring thoughts and intents. Practically, 'caring-about' may motivate a charity donation without necessarily engaging in the personal act of providing care and assistance in a relationship context. In this way, care starts with the particular and then becomes generalised – "learning first what it means to be cared for, then to care for intimate others, and finally to care about those we cannot care for directly" (Noddings 2002, p. 31). Although both caring positions are valid, we suggest that the mode of 'caring for' – as an active and dynamic participatory mode of human relationship – be considered as an essential ethics measure within the context of design research. Crucial within these types of relationship dynamics are issues of power. The power dynamics between the designer and stakeholders, e.g. the community, are more nuanced and complex. Traditional positivistic research paradigms construct the researcher as an expert subject and the community as passive objects. EoC-focused design research potentially shifts relational dynamics between the designer and community towards cooperative engagement where 'we and us' are interdependently invested in the conception, production and implementation of a meaningful, relevant and useful design artefact as outcome.

For EoC, particularity and reciprocity are key features in care-based relationships. Likewise, in design research, every research problem brings a unique set of circumstances and relational dynamics. From this, the idea that design research ideally builds on local knowledge and practice (i.e. parochial and specific) is not only pragmatic, but we suggest, is ethical. The ethical evaluation of a design research project then potentially involves questions regarding how a creative product can be cooperatively designed and 'implemented' (rather than be 'inserted') within a community – thus be conceived of as an outcome of interdependent reflexive care-based relationships within a community of practice. Linking with an idea earlier, we also see the divisions between designer and community (and stakeholders) – between 'I', 'us' and 'them' – purposely dissolved and replaced with the deliberate conceptualisation of design research practice as a care-based communal activity. We suggest that EoC, firmly grounded in

Tronto's four elements of care, provides important codes for framing the ethical issues around design research.

Intertwined with utilitarianism, ethics of care, and Aristotle's eudemonia, we find the ubuntu philosophy (Chmela-Jones 2015) that emphasises community relationships, and the United Nations Universal Declaration of Human Rights which favours individual freedoms. Traditionally, the protection of human rights has been cast in the mould of protecting the individual (and, following this, the communal, but in that order). Such 'protection' has been theorised from the position of basic freedoms that have the potential to impede the individual from full human flourishing. Thus individual freedoms have been couched in terms of 'freedom from' something that obstructs the flourishing – freedom from oppression, freedom from hunger, thirst, suffering, freedom from restrictions on living, education, and the like. We suggest, however, that an ethics of care might encourage a different construction, namely the 'freedom to do' (something). Thus, the notion of the individual's freedom to pursue happiness, to pursue wealth, prosperity, security, self-actualisation, and so on. Viewed in this manner, human rights are conceived of less through an obstructionist lens, and more through an empowerment lens. If this holds, then the design research project should engage with removing obstacles/obstructions, but also engage with empowerment. Evidence of the pursuit of this objective should be present in the research proposal.

However, and following the argument we have made here, individual (and connected community) rights and the pursuit of flourishing should not, ethically, be at the expense of others. In this, a turn to ubuntu opens the argument both to the parochial and communal, but also to the individual, because, as Chmela-Jones (2015) argues, drawing on a wide range of sources, ubuntu embeds dynamics of reciprocity, perhaps best concretised in the notions of kinship. These two notions point to the dynamics that suggest that each individual's flourishing is both dependent on, and empowered by, the reciprocal flourishing of kin. Thus, the individual flourishes because of the village (for example) flourishes, and the village flourishes because of the individual flourishes. Therefore, the rights of the individual are closely knit with the rights of all individuals, and, following the empowerment argument, co-dependent on all having access to the same freedoms and rights.

If this argument holds, then the design research proposal, from an ethical research point of view, needs to provide evidence that the research has identified the potential breakdown in individual freedoms, has posited a strategy of designerly care to engage with the removing of those obstacle to (a particular) freedom, has sought to empower the care receiver (in the spirit of Ubuntu), has embedded the project in the pursuit of human flourishing (now potentially seen as developing 'freedom to do something in the pursuit of communal human flourishing'), and has put systems in place to fully explore the care-giver (designer) and care-receiver (community of potentially empowerable individuals) domains relevant to this particular project.

The pragmatic triad of utilitarianism, ethics of care, and eudemonia – moderated by community relationships and individual freedoms – provides a framework for a code of ethics for design research.

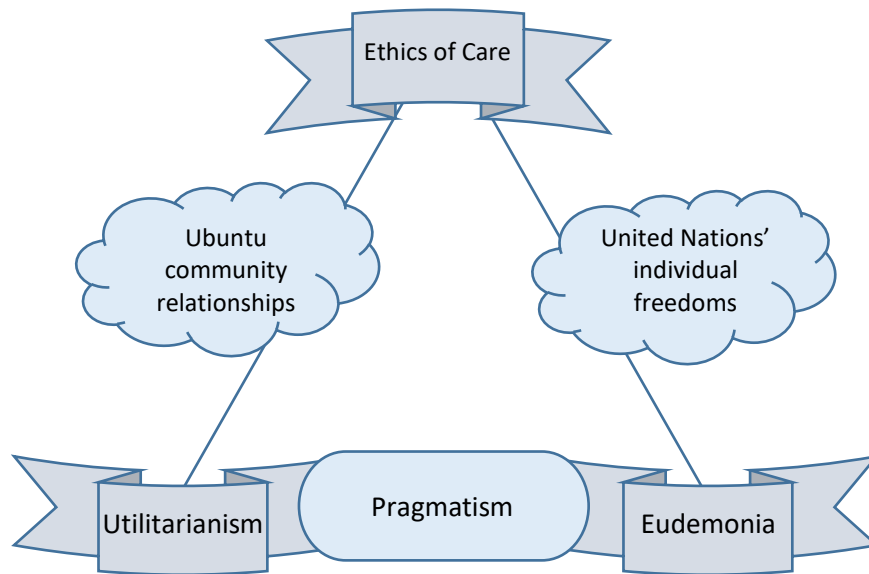


Figure 1: A graphic representation of a proposed framework for a code of ethics for design research

Concluding comments

The three principles that we propose focus on a pragmatic outcome. These principles add to existing research ethics principles and emphasise beneficence,⁴ the doing of good,⁵ and the improvement of the human condition. These principles may appear to be similar to medical research ethics, but the angle of incidence is different. Medical ethics, in general, protects the participant and the source of the data, while design ethics provides an artefact to improve the condition of the participant.

The approach of ethics for design research concerns the improvement of the human condition. The outcome presents a tangible and ideally an immediate benefit to the participants. Participants are no longer just the source of data for research, but become the beneficiaries of the research outcomes. The focus is on the participant as the recipient of the study. It is here where the abductive reasoning process plays a role. Design research considers several related and non-related variables (participant-derived data is but one) to conclude, and the final artefact. There is thus always the uncertainty, the converse error in design research. As an example, an appropriate health care communication leaflet could contribute to minimising the spread of tuberculosis (the outcomes of a design research project), but if and when the spread is minimised, it may not be entirely due to the leaflet, or may not even be due to the leaflet at all. The error in design research of inferring that the intervention will or has improved the actual human condition, the uncertainty, will always remain.

If and when human flourishing and a caring approach guide our ethics in design research, should we move away from basic research and emphasise applied research? The recent

4 There are areas of research in design and related fields where the focus may not be on direct beneficence of (un)willing participants, such as design activism, social documentary photography and investigative journalism. Here the utilitarian principle plays a dominant role.

5 In terms of doing good, see the 2017 Montréal Design Declaration "Recognition of Design: by leaders, decision-makers and influencers across all sectors of society, of the value of design, and need to foster and implement design for the greater common good".

decision of the Department of Education to provide subsidy for practice-based research makes this an attractive opportunity.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Writing-up Research Through Design: An approach to research report writing in early level postgraduate education

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Abstract

In Christopher's Frayling's seminal account of design-orientated research, he lists research for design, research through design and research about design as the primary modes of research in the field of design. At least since Frayling termed these concepts in 1993, design educators globally have grappled with supervising research through design. While there are many accounts of research through design, few provide clear theory as to how the approach may be applied, least of all in design education. In the field of human-computer interaction, Zimmerman et al. provide multiple methodological suggestions for practising research through design, however, with a focus on HCI practitioners and the core concepts dispersed over a range of publications, their method can be difficult to grasp.

In response to this concern, this paper provides an outline of a novel adaption of Zimmerman et al.'s research through design method. In support of this amended method, fundamental principles of research through design are introduced and discussed, as well as an in-depth description of the research through design. Through these activities, this paper addresses the lack of a clear method for research through design practice in general and particularly, how to apply research through design in early level postgraduate education.

Keywords: Design research, research through design, research methodology and methods, design education

Introduction

This paper is concerned with providing design students at a fourth-year, honours level of study and their academic supervisors, guidance for conceptually planning and conducting a research report applying a *research-through-design* (RtD) approach.⁶ The principal reason for writing this paper is that, in my own experience of supervising students at this level, they typically

⁶ The term 'research report' is used in a general manner that could include dissertations or thesis' written at this level.

struggle to conceive of academic research practice outside of the boundaries of textual analysis. Concurrently, these same students often present mature analytical and generative research abilities in their own design practice. Students, thus, typically struggle to bridge the gap between their practice-orientated research practices and the requirements of a summative largely written research report. While there are numerous reasons for this occurrence, the problem that this paper addresses is the scarcity of methodological structure to guide RtD practice.⁷

To address this concern, this paper concludes with an outline of a model for RtD practice at honours level (Figure 7). This model emerges in response to a range of concepts articulated in the three preliminary sections of the paper which, in turn, discuss: fundamental concepts of design research with an emphasis on RtD; Zimmerman, Forlizzi and Everson's *Research through Design Method* (RtDM); and a novel adaptation of the RtDM to procedurally and conceptually guide an integration of research and practice at honours level in design. More broadly, the proposed method has been informed, iterated and refined over five years of supervising RtDM projects at honours and master's level.

This method integrates RtDM in relation to the expectations typical of an honours level research report or dissertation. As requirements of honours level research reports can differ across disciplines, institutions and individuals, I provide a detailed narrative of my suggestions, less to present a definitive method, but more so that other design educators may understand the rationale to, adapt if required for their individual research approaches.

Furthermore, due to the breadth of the topic of design research and the limits of this paper, several assumptions and constraints that need to be noted. Foremost, this paper is directed at honours students and their supervisors, and although many of the concepts discussed may be of use for master's and PhD studies, these qualifications have other requirements particularly in terms of rigour and contribution. Secondly, while the disciplinary orientation of this discussion is agnostic, to a certain extent, it is more relevant to those concerned with the design of innovative products, services and environments. Thirdly, while the various approaches to RtD are briefly introduced, much of the discussion in terms of application or design process describes methods or conditions that are characteristic of human-centric approaches to design. This is a limitation inherited from the design work I have typically supervised over the past several years.

Nonetheless, the fundamentals of the method should comfortably apply across other methodologies such as critical design or design science. Lastly, this is not a step-by-step guide to writing a research report. This paper suggests how to integrate RtD methodologically conceptually into general research report structure. The expectation is that this paper adds to basic research knowledge. Hence, not every requirement of a research report is detailed.⁸

The theoretical concerns of RtD

This section is primarily concerned with describing the fundamental characteristics of RtD, however, before doing so the concepts of wicked problems and design thinking (DT), which inform much of the subsequent sections, are introduced. While it is assumed that the reader will have some familiarity with both these terms, these brief overviews are important for two reasons. Firstly, RtDs ability to resolve complex design problems is recognised as one of its

⁷ Other reasons could include that design has an immature disciplinary approach to theory generation (Cross 2006), as well as that undergraduates in South African design institutes are frequently taught by theorist with little understanding of design research.

⁸ To better understand other technical requirements of a research report such as 'abstracts', 'problem statement' or 'conclusions', I would suggest other sources such as Muratovski (2016).

strengths (Zimmerman 2007). Thus, the discussion of wicked problems speaks to this notion of complexity. Secondly, design thinking can be interpreted and is applied in multiple ways in design. This introduction concisely unpacks a range of these variations and describes how the concept is applied in this paper.

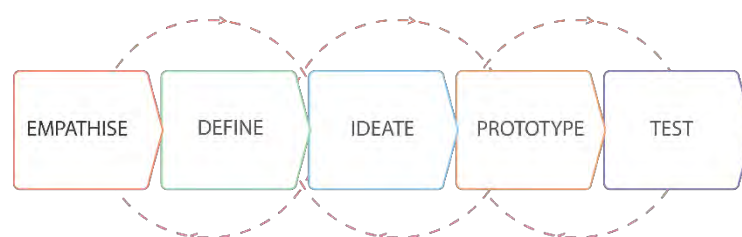
Wicked problems

'Wicked problems' are problems that are difficult to resolve because the relational context of the problem is both difficult to comprehend and yet requires understanding before any approach to resolving the problem can even be considered (Glaver 2012, p. 940). The situated problem is often ill-defined and illusive, muddled in the complexity of social reality and subjective opinion (Buchanan 1992). The wicked problem, thus, first requires being 'framed' by the designer (Dorst 2015). This framing is an interpretive act during which the designer firstly, selects what they believe to be the most important aspects of the situated problem that may be resolved, in terms of impact, and secondly, in terms of their design abilities. The situated complexity of wicked problems typically requires unique framings where the resultant design solution/s are correspondingly indeterminate. Thus, there is seldom an obvious pre-existing category of 'correct' solution to any given wicked problem. As the wicked problem is framed subjectively by the designer, there is opportunity for it to be framed and resolved in numerous different but appropriate ways, by others.

Design thinking

Design thinking (DT) refers to two interrelated concepts. Firstly, design thinking can refer to cognitive aspects, often aligned with abductive reasoning that guide and explain creativity (Wendt 2015, p. 62). This design cognition can be compared with what Schön (1983, p. 92) refers to as 'knowing-in-action', a practice in which the designer reflectively acts in a continuous dialogue with the technology, materials and larger worldly contexts.

Design cognition is often optimised in the form of process models such as Stanford University d.school's design thinking process (Figure 1). In these design-thinking models, the design process is represented as a range of iterative phases that suggest particular concerns. To exemplify this concisely the 'empathise' phase of Figure 1, would imply understanding the design problem, by researching it from the perspective of the people affected. 'Define' would imply defining a design opportunity or strategy based on the 'empathise' research, 'ideate' refers to responding creatively and imaginatively to the defined opportunity, 'prototype' envisions exploring strong ideation concepts further through making, and lastly, 'test' describes ongoing and summative evaluation of prototypes to determine advancements or required amendments. While the design thinking models suggest phases that build towards a completed design product, description of design thinking models typically suggest that design is an iterative, reflective process that often requires rethinking prior decisions and actions. Rather than the cognitions they model, these process models are arguably the mainstream understanding of what design thinking is.



**Figure 1: The Stanford d:school's design thinking process
(adapted from Doorley et al. n.d., p. 2)**

Sheppard et al. (2018) articulate the commercial value of design thinking to business, in terms of strategic alignment, organisation management, and communication across multi-disciplinary teams and stakeholders, where the value for applying an explicit framework for practice, particularly when resolving wicked problems. However, in design education beyond the management and structure required to resolve complexity, I would suggest, that design thinking process models can enable students to be more aware and reflective of their design cognition and capable of communicating these reflective moments to others.

Research through design

While there have been numerous attempts to classify design research that relate to and are informed by what designers do (Wright & McCarthy 2010, p. 87), Frayling's (1993) framework of design research remains relevant for its insights and their importance (Zimmerman & Forlizzi 2014, p. 169). In this framework, design research is organised into three categories, namely, research for design, research through design, research into design (Frayling 1993, p. 5).

Research for design is concerned with improving the practice of design (Zimmerman & Forlizzi 2014, p. 169) and is comprised of two primary concerns. First, research for design includes all the various modes of research that designers undertake before or during a design process such as desktop research, user-interviews, competitor analysis, among others (Wright & McCarthy 2010, p. 88). These research activities predominantly inspire or suggest to the designers the requirements for and amendments in design action. The second concern relates to research that advances the practice of design (Zimmerman & Forlizzi 2014, p. 169). This type of research is concerned with "new methods, tools, or approaches; or any work that uses exemplars, design implications, or problem-framings to discuss improving the practice of design".

Research into design has as its core focus on the human activity of design (Zimmerman & Forlizzi 2014, p. 169). As such, it considers aspects of research as diverse as aesthetics, perception, experience, design critique, design history and artistic practice, as well as theoretical concerns, including, but not limited to, cultural, social, economic, ethical, political research and technical aspects (Wright & McCarthy 2010, p. 93). Research into design typically interprets or critiques designerly artefacts, such as products, texts and artifacts.

Research through design refers to research that is carried out through the medium of design activity (Wright & McCarthy 2010, p. 91). The emphasis of RtD is on 'novel integrations' of research in "an attempt to make the right thing, a product that disrupts, complicates or transforms the world from its current state to a preferred state" (Zimmerman & Forlizzi 2014, p. 169) (Zimmerman 2007, p. 493).

In RtD, all research outcomes result from design practice-orientated towards product generation. However, research outcomes are not always directly focused on the product and can include novel contributions generated during the design process such as methods, framings, practices or theory application. While RtD can appear to resemble design practice, RtD is concerned with how design actions produce novel and useful **knowledge** rather than focussing on a commercially successful solution (Zimmerman & Forlizzi 2014, p. 168). In this sense, RtD aims to explore, through reflecting on processes and outcomes, designer's decision-making, actions and intentions through the creation and deployment of design solutions, be they products, systems, spaces, or media (Wright & McCarthy 2010, p. 92). Product 'solutions' generated during RtD are what Zimmerman et al. (2007, p. 493) refer to as 'design exemplars' capable of embodying, communicating and transferring research findings to the research and

practice communities and can refer to artefacts, prototypes, scenarios, or even detailed concepts (Koskinen 2011, pp. 5–6). Lastly, RtD projects can de-emphasise or alternatively highlight aspects of the design problem (Zimmerman 2007, p. 493). For example, in research concerned with user-experience, aspects such as economic viability, and may be given little attention.

Lastly, it is worth noting that with regards to all three modes of research design, that they are not always distinct from one and other (Zimmerman & Forlizzi 2014, p. 169). For example, research for design may be practised as part of research through design. Additionally, reflections on practice may lead to more general contributions to research. In this case, the RtD study shifts into research into design (Wright & McCarthy 2010, p. 93).

The research through design method

One of the fundamental criticisms of accounts of RtD is that they tend to be theoretically vague, with very little direction on implementation (Koskinen 2011, p. 5). Across *Research through Design in HCI* (2014), *Research Through Design as a Method for Interaction Design Research in HCI* (2007) and *Crafting a Place for Interaction Design Research in HCI* (2008), Zimmerman, Forlizzi and Evenson present detailed theoretical descriptions of their approach to conducting RtD, which I refer to as ‘the research-through-design method’ (RtDM).

Across these three publications, the authors provide several concepts and methods that inform the application of RtD.⁹

While the RtDM publications suggest numerous useful approaches for RtD work, it faces various challenges in these literary contexts. Firstly, the various publications can be conceptually confusing as the methodological suggestions are scattered across the publications. Secondly, the publications are primarily aimed at an HCI audience of professional researchers. Thus, much of the content of RtDM is devoted to arguing for the value of design and design thinking in HCI. Additionally, the emphasis on research professionals also provides scant detail as to the communicative form the research should take outside of ‘design exemplars’ and ‘documentation’.

In terms of the methodological value of RtDM and in response to the limitations of the existing literature, the remainder of this paper will provide a conceptual overview of RtDM synthesising many of the concepts into a more coherent structure. This overview will then be followed by an amended version of RtDM, providing specific clarification and procedural suggestion for honours level application.

An outline of RtDM

To contextualise subsequent discussion, a methodological overview of RtDM will now be presented.

As described in Figure 2, the RtDM authors see the role of (interaction) designers, conducting RtD, as synthesising knowledge problems and methods from the relevant component disciplinary practices of HCI (engineering, anthropology and behavioural science). The purpose of the synthesis is to generate research insights that are of use to researchers operating in these related disciplines and HCI practitioners in general (Zimmerman 2007, p. 493).

In this scenario, ‘engineers’ represent a consideration of technology, ‘behavioural scientists’ represent the theoretical aspects of HCI, while ‘anthropologists’ are concerned with

⁹ I refer ‘the authors’ for practical reasons even though Zimmermann is the only constant author across all three publications.

articulating a human experience of the world and technology. ‘Interaction designers’ represent the pragmatic design approach of HCI that seeks to create the ‘right thing’.

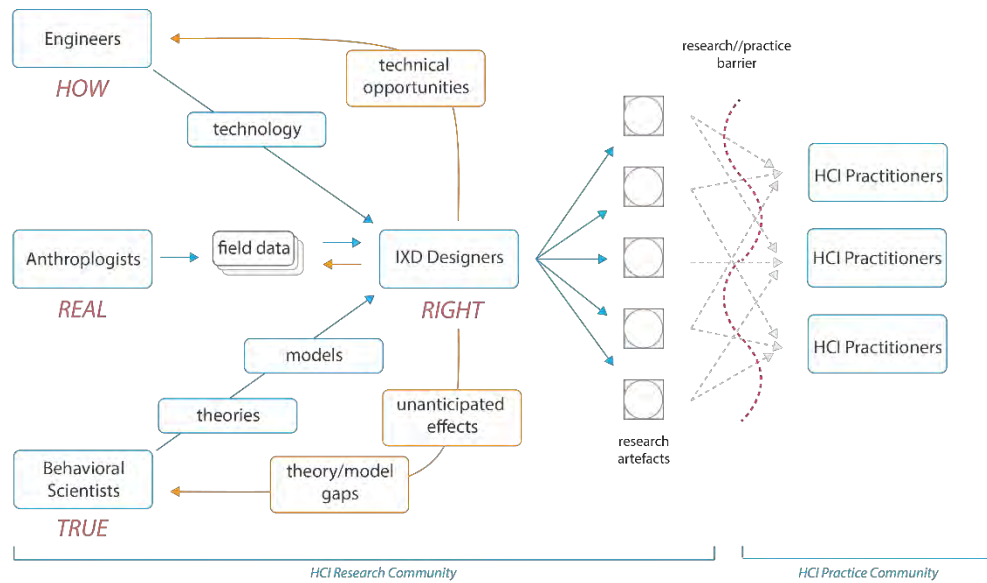


Figure 2: A model of RtD in the HCI community (Zimmerman 2007, p. 493)

Beyond accounting for the disciplinary foci of HCI, the primary value of the RtDM approach is the emphasis on engaging wicked problems (Zimmerman 2007, p. 497). Furthermore, RtD synthesis of technology, theory and human experience allows design researchers to:

[I]deate many possible visions of a preferred future state by imagining new products, services, systems, and environments that address challenges and opportunities and that advance the current state of the world to a preferred state (Zimmerman & Forlizzi 2014, p. 176).

In this manner, the RtDM invokes a pragmatic intent (Koskinen 2011, p. 27) allowing designers to do what they do best: engage with the world and subsequently *make things* intended to affect positive change.

The RtDM process

This section describes the integration of key concepts articulated in the RtDM evaluation criteria (Zimmerman et al. 2007, p. 499) with the relevant procedural descriptions of RtDM (Zimmerman & Forlizzi 2014, pp. 184-87).

RtDM Phase 1: Select

The first step in the RtDM process is to identify the problem space that the project will address. Typically, the problem would be a wicked-problem problem and include “multiple agendas driven by different stakeholders and entrenched interests” (Zimmerman & Forlizzi 2014, p. 185).¹⁰ Key aspects of the wicked problem that would need to be identified include, among others, the situated context, user communities/stakeholders and both macro and micro social factors and forces. Along with this initial problem-framing, other aspects such as disciplinary

¹⁰ The RtDM publications highlight the ability of design thinking to engage with wicked problem is the key contribution of RtD to HCI practice

concerns, theoretical frames, and technological, as well as personal or team goals, should be identified.

The fundamental objective at this initial stage is to ensure that the identified wicked problem is capable of being resolved firstly, by design generally, and secondly, within the capabilities and competencies of the designer in question (Zimmerman & Forlizzi 2014, p. 185). The problem-framing at this point should be regarded a starting point, likely to be reframed during the design process.

The last aspect of the *Select Phase* is the selection of the particular RtD method to be applied in the study. It is at this juncture that a pragmatist concern for making ‘the right thing’ rather than following a prescriptive theoretical viewpoint (McCarthy & Wright 2004) becomes apparent. In this sense, RtD can follow a variety of RtD methodologies such as critical design (Koskinen et al. 2011), design fiction (Dunne & Raby 2013), participatory design (Koskinen et al. 2011) or design science (Hevner et al. 2004) or even combine different aspects of methods (Zimmerman & Forlizzi 2014, p. 185). Once the particular RtD method has been selected or configured, Zimmermann and Forlizzi suggest undertaking a short literature review describing examples of the selected RtD method to guide the implementation of the method (Zimmerman & Forlizzi 2014, p. 185).

RtDM Phase 2: Design

This phase consists of two steps.

The first step is to conduct a literature review to assess current approaches, concerns and questions evident in the work of other researchers working in similar contexts as the initial problem framed in the select phase (Zimmerman & Forlizzi 2014, p. 185).

The second step of the phase is to conduct the ‘practical’ design project. Zimmerman and Forlizzi provide a very high-level description of the range of activities typical of the design process (2014, p. 185). They do also recommend the value of applying design thinking and suggest a design process, as depicted in Figure 3:

Our model provides a new channel for the power of design thinking, desired by many disciplines, to be unleashed as in a research context. Design researchers can contribute from a position of strength, instead of applying the methods of other disciplines as a means of justifying their research contribution (Zimmerman et al. 2007, p. 499)



Figure 3: Adaption of Zimmerman and Forlizzi’s design process (2014, p. 176)

The value of selecting an explicit and appropriate design thinking process model is useful firstly, in terms of practice method, and, secondly, to assist in the process of structuring, documenting and reflecting on the design process, as will be articulated in later steps.¹¹

RtDM Phase 3: Evaluation

‘Evaluation’ is the continual challenging of the problem-framing through critique and reflection to ensure that the *right thing* is made (Zimmerman & Forlizzi 2014, p. 185). In RtDM,

¹¹ At masterss level, we have also applied other design process methods such Rogers et al. (2014) model of interaction design and Visser et al.’s (2005) contexmapping method.

the evaluation provided by the design researcher takes the form of detailed documentation and a rationale of their methods (Forlizzi et al. 2008, p. 27).

To avoid the rationale taking on a subjective, self-indulgent form, the authors provide four criteria for guiding the evaluation of RtD practice (Figure 4), namely *process*, *relevance*, *invention* and *extensibility* (Zimmerman et al. 2007, p. 499).

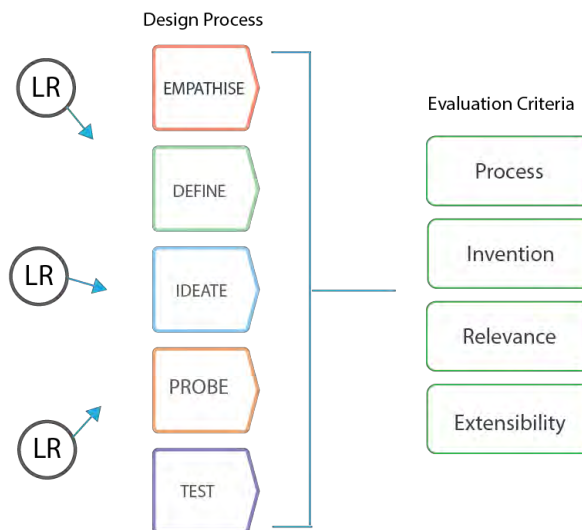


Figure 4: The conceptual flow of RtDM method

Fundamentally, the method suggests an array of secondary research reviews, a design thinking process-orientated towards a summative solution, and, that the process is evaluated in terms of the provided criteria. Note the term ‘probe’ is a specifically RtD term that at this level can be equated with ‘prototype’.

Evaluation Criterion 1: Process

The purpose of the *process* criterion is to provide clarity on the selection of design methods, theories, practices and decision-making, and the subsequent effect of these activities in practice. In RtDM, there is no expectation that reproducing a design process will produce the same results. However, the design researcher must provide in their documentation and explanation enough detail so that the processes employed can be reproduced (Zimmerman et al. 2007, p. 499). The rationale should not be purely procedural but also seek to provide reasons for decisions and explanations through a reflection of the approaches that worked or did not work (Zimmerman & Forlizzi 2014, p. 185). The value of a thorough explanation of the design process is centred on attesting to the rigour of the applied methods and the subsequent rationale for the selection of the methods (Zimmerman et al. 2007, p. 499).

Evaluation Criteria 2: Relevance

Relevance refers to the extent to which the design solution is considered to be of value in the broader societal world (Zimmerman et al. 2007, p. 499). The requirement of the *relevance* criterion is threefold (ibid). Firstly, the design process must be framed within the *real* world. Fundamentally, this would require an in-depth explanation and analysis of the wicked problem. Secondly, the strategy for resolving the wicked problem should be articulated. In this sense, the “preferred state their design attempts to achieve” should be described and argued for (ibid). Lastly, the final obligation of the *relevance* criterion lies in providing the reasons for why the envisioned state can be regarded as to be preferred.

Evaluation Criteria 3: Invention

Invention refers to the novelty of the research contribution, as evident in the embodied design product. The contribution should be ‘significant’ demonstrating a “novel integration of various subject matters” that address the particular framing of the problem (Zimmerman et al. 2007, p. 499). To demonstrate the novelty of the invention an extensive literature review should be carried out that firstly, situates the work in relation to other relevant examples, and, secondly, identifies and describes the aspects that demonstrate how their contribution “advances the current state of the art in the research community” (ibid).

Evaluation Criteria 4: Extensibility

The authors define ‘extensibility’ as the ability to build on the resulting outcomes of the design research. As such, the *extensibility* criterion identifies research insights gained from the previous three criteria that are scalable to other problem situations and/or product designs.

RtDM Phase 4: Reflect and disseminate

In the fourth phase of RtDM (ibid), the emphasis is placed on reflecting on what has been learned and the dissemination of the research. Dissemination can take the form of ‘product exemplars’ that embody research concepts in the design ‘product’, as well as research publications, research posters, videos, presentation and demonstrations (ibid). In terms of reflection, the authors do not make any prescriptive suggestions. However, Muratovski (2016, p. 197) does suggest the value of the research report format to achieve credibility and external validation when undertaking applied research such as RtD.

The research-through-design-thinking method

To reconcile a research report with RtDM, this section provides an amended model referred to as the research-through-design-thinking method (RtDTM). This model is also oriented around four phases, namely: select, literature review, design process and the reflective evaluation.

Table 1: An overview of the shared and differing phases of the two methods

Research-through-design method '		Research-through-design-thinking method (RtDM)
Phase 1: Select (shared)		
		Phase 2: Literature
Phase 2: Design		Phase 3: The design process
Phase 3: Evaluation		Phase 4: Evaluation

RtDTM Phase 1: Select

This phase remains fundamentally the same as described for the *RtDM Phase 1: Select*. The priority in this phase is to frame the design opportunity through a range of the following:

- Initial descriptions of the wicked problem;
- The design discipline (IXD, industrial design, architecture, etc.) and/or design approach (HCD, speculative design or critical design, etc.);
- Theoretical frames;

- The technological or channel focus (product design, mobile, smart technology, brand campaign, etc.); and
- The relevant research interests.

At an honours level, all design solutions are regarded as RtD design exemplars as they are seldom completed commercial products.

Additionally, research objectives are typically directly related to how the design process results in a creative or innovative solution. For example, in a broadly HCD study, the primary research objective could be along the lines of 'how can [x design] improve [the current experience] of [y user] performing [z activity]'. Alternatively, 'How can issues of [gender inequality] be exposed through a critical design approach' or 'what is the future of [garbage collection]' would frame respective critical design or design fiction approaches to RtD.

Depending on the level of experience of the design-researcher, the disciplinary concerns can be more or less open. For example, at a fourth-year level, it can be helpful (and sometimes a curriculum requirement) to constrain the disciplinary focus, theoretical frameworks and technological focus. Alternatively, defining a type of technology as part of the enquiry is also a viable option, for example, exploring the opportunities that smart technology could bring to the future of urban parks.

RtDTM Phase 2: Literature

In the RtDTM, the various literature requirements suggested in the RtDM are consolidated in a single phase. In a research report, this would account for the 'background of/introduction to the research', 'theoretical framework' and 'literature review' sections, as well as aspects of the 'research method'. This phase adds to the RtDM literature requirements but also addresses several conceptual and structural gaps.

The first consideration requires a brief procedural jump. As will be described in the following phase, *evaluation*, there are three criteria (the process, relevance, invention) against which the RtDM project can be evaluated to determine knowledge advancement. To identify any 'new' knowledge, the existing knowledge in the field must be articulated. In reference to this concept, RtDMs three evaluation criteria provide a guide as to what existing content, relevant to the scope of the study, should be included in the various reviews that address the current 'state of the art'.¹²

Applying this strategy, the following content would be the minimum required:

- **Process:** Include examples of RtD methods or other relevant design methods.
- **Relevance:** Provide an account of existing research or other sources that assist in framing the wicked problem.
- **Invention:** Include related current research or artefactual exemplars. These would, for example, focus on similar types of wicked problems, resolve the same problem in a different disciplinary or situated context or involve similar types of technology concerns.

These three themes can be complemented by literature that describes the disciplinary approach and method of RtD used in the study as developed in the *select* phase. Lastly, any theoretical approaches would require substantiation.

¹² See Figure 8 for a visualisation of this iteration between literature and evaluation criteria

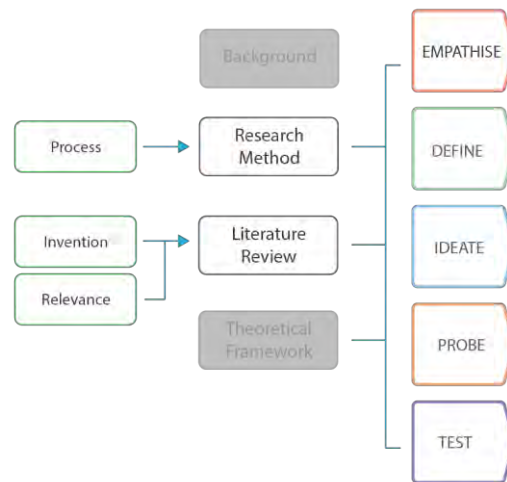


Figure 5: The structure of proposed literature sections in RtDTD research

As described in Figure 5, the structure of the literature themes *can* take the following form in an RtDTD research report.

The background of the study

In the background of the study, the design ‘paradigm’ of the study is discussed. This discussion frames the conceptualisation of the research project and as such, would refer to aspects such as the design discipline, the thematic focus and the particular RtD approach (HCD, critical design, etc.). Conceptual aspects of the RtD approach can be introduced here to suggest how the design process articulated in the ‘research method’ engages with the ‘wicked problem’. The identification of the discipline and themes focus the subsequent selection of content in the literature review and theoretical framework.

The literature review

Literature related to relevance and invention themes form the bulk of the literature review. Typically, the ‘relevance’ focus would frame the (wicked) design problem while ‘invention’ would refer to related solutions from design or other relevant fields. Ideally, the ‘relevance’ discussion would identify, what is generally known about the wicked problem but should also identify knowledge gaps that would typically be explored in the *research for design* activities of the upcoming *design thinking process*. The ‘invention’ discussion should clearly articulate why none of the described exemplars adequately resolve the framed problem. If this gap cannot be articulated, there is no logical reason for the research project!

Theoretical framework

Relevant theoretical concepts are accounted for in the theoretical framework.

Research method

The research method section should include brief descriptions of the RtD approach, as well as the selected RtD method (for example, RtMTD) and design thinking process. These descriptions should also refer to examples of other researcher’s application of RtD methods similar in nature to the one expected to be applied in the student’s study.

The student’s own methodological ‘design’ of these aspects should then be described, preferably making use of annotated diagrams. As illustrated in Figure 7, these diagrams should reflect the *meta*-RtMD research organisational structure, as well as the details of the design thinking process.

RtDTM Phase 3: The design process

The design process consists of two core activities, namely the practical design project and the documentation of the process.

When engaging in RtD research, the practical design process and the research report should be undertaken concurrently as they co-define each other. In this sense, the *select* and *literature review* phases provide an initial problem-framing, conceptual approaches, solution benchmarks and methodology recipes that inform the design process, which in turn is likely to reframe the problem and suggest appropriate practice.¹³

With regards to the documentary account of the practical design process, and while RtDM provides scant details as to how an evaluation should occur in practice, Glaver (2012, p. 944) suggests that RtD could take the form of an annotated portfolio – a detailed visual documentation of the design process accompanied by a narrative description. This narrative, which I suggest should be a first-person account, pragmatically reflects on the design process in a manner that describes and rationalises problem-framing, applied methods, design decision, and the impact of these activities during the design process.¹⁴

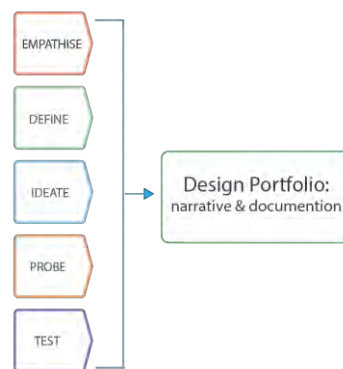


Figure 6: The design portfolio provides a rich visual description of the design thinking process and product solution

Due to the level of detail in situated practise, it is unreasonable to expect the portfolio to describe all aspects of the design thinking phases. Rather the narrative should limit the discussion in terms of the scope of the research focus. For example, an HCD project concerned with the design of an innovative product in response to user needs may only briefly describe the technical aspects of the final product spending considerably more time on design research, strategy and product concept.

RtDTM Phase 4: The reflective evaluation

In senior levels of study, the reflective evaluation is a summative evaluation that addresses the aspect of novelty. While ‘novelty’ is not typically a requirement of honours research, there is an expectation of creative originality in the design process at least in terms of the framing of the wicked problem, the framing of the design opportunity and the strength of the embodied design solution. However, rather than overvaluing novelty, which is typically evaluated in practical modules, I would suggest the value of RtD lies in encouraging honours

13 The practical project would typically have its own evaluative criteria and objectives separate to that of the research report.

14 This could be a stand-alone document or could be included as a chapter in the research report.

students to engage with their work critically within a broader disciplinary context. As such, the evaluative criteria can take the following forms:

Evaluation Criterion 1: Process

At senior levels of study, the *process* criterion would describe any novel contribution to, or amendment of, design method, practice, theory application or theory generation. At an honours level, it is sufficient to describe the design practice emphasising disciplinary appropriateness, creative making and thinking and general methodological coherence. Additionally, I would suggest that at honours level, the *process* criterion is the portfolio narrative as opposed to being delivered as a part of the summative criteria that evaluates the portfolio.

Once more, at senior levels of RtD practice, evaluation criteria 2 and 3 follow the RtDM description, as described earlier, however, at honours level, the summative criteria could be simplified as described below.

Evaluation Criteria 2: Relevance

Relevance refers to the degree to which the design solution is considered to be of value in the broader social world. In this regard, the criterion is concerned with how the needs of people/organisations affected by the wicked problem are met through the design thinking process and as such provides the 'reasons for why the envisioned state can be regarded as preferred'. *Relevance* argues for the value of the design opportunity and solution in reference to the current understanding of the wicked problem as detailed in the literature review, as well as presenting insights gained from the *research for design* methods enacted during the design thinking process.¹⁵

Evaluation Criterion 3: Innovation and creativity

The *innovation and creativity* criterion – being conceptually similar to *invention*, but more appropriately labelled – refers to the novel aspects of the designed solutions. These aspects should be argued for in terms of how they address the gap identified in the *invention* section of the literature review.

Evaluation Criteria 4: Extensibility

At an honours level of study, it is appropriate to think of *extensibility* as the new knowledge gained by the student during the RtD project that they could apply to future design work. The type of discussion expected would take the form of personal reflection.

To provide a final overview of the RtDTM, Figure 7 identifies key processes, conceptual feedback loops and a general suggestion of the design of a research report.

¹⁵ Such as interviews, observations, user-testing, among others.

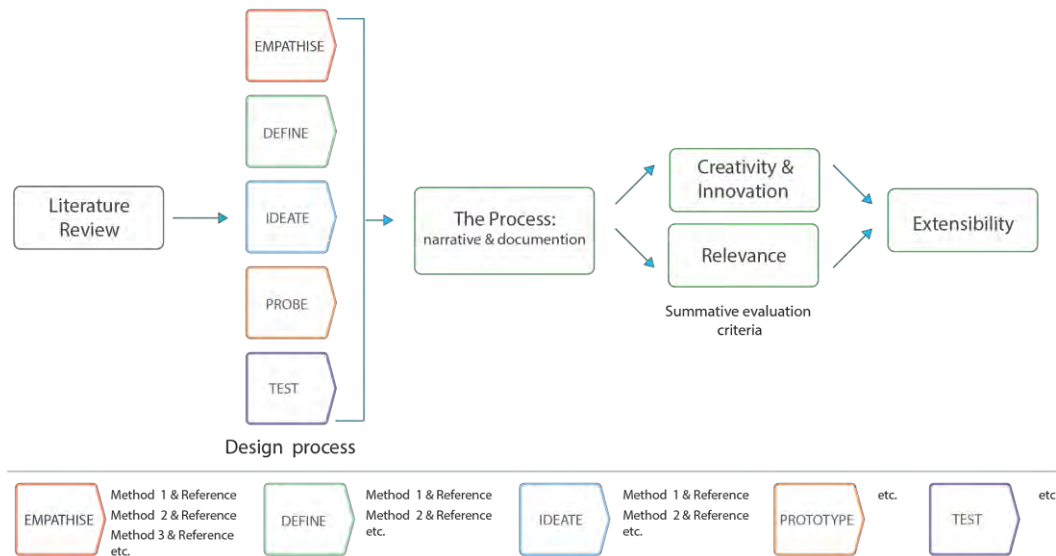


Figure 7: A model for research method diagrams describing RtDTM

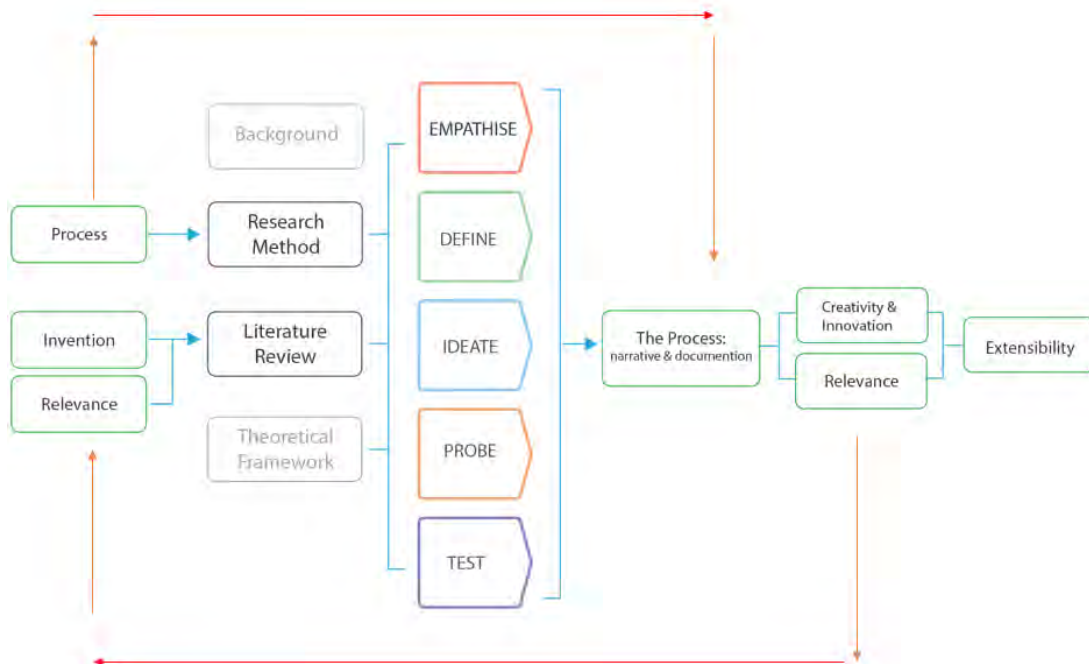


Figure 8: Describes the iterative relationship between the literature review, research method and the evaluation criteria

This specific aspect relates to the earlier discussion on RtDTM Phase 2: Literature. In this sense, the *evaluation* criteria of RtDTM encourage the student to engage with the discipline and other research through the medium of practice critically. For an alternative representation of this model within a generic honours research essay format, see Figure 9.

Conclusion

This paper describes a novel approach to conceptualising and practising RtD that aims to assist honours level students and supervisors, wishing to engage with practice-orientated research. In support of this method, fundamental principles of RtD are introduced and discussed, as well

as an in-depth description of the RtDM, of which this novel method, the RtDTM, may be considered to be an adaptation. In this sense, the paper addresses the lack of clear methodology describing RtD practice in general and how to apply RtD at early level postgraduate education in particular.

Confidence and competency in RtD are worthwhile endeavours for honours design students regardless of whether they continue with their academic studies or opt for the workplace. For those who wish to continue with further studies, this paper introduces a range of design research competencies that can be further developed in RtD master's projects. Equally, for those beginning a career in design, writing up an RtDTM study is good practice for articulating a research-led, end-to-end design process. For supervisors tasked with the ever-increasing volumes of early-stage, postgraduate students, the clarity of method and conceptual direction presented in this paper is hopefully of use.

Lastly, this paper is *an* approach to undertaking RtD. As the growing recognition of RtD in tertiary design research education grows, it is anticipated that other complementary and contrasting frameworks will appear. In this sense, there is space for future work of this type, not only in terms of specific and emerging disciplinary practices but also in terms of developing approaches for both master's and doctoral studies.

0. FRONT MATTER (as required in standard practice)

1. INTRODUCTION TO THE RESEARCH

1.1 Purpose / problem statement (as required in standard practice)

1.2 Aims and objectives of the Research (as required in standard practice)

1.3 Background to the Research/ Context of the Research

Description of:

- Design discipline: eg. Interaction Design, Industrial Design, Urbanism etc.
- The thematic focus: eg. experience design, place-making, activity etc.
- The particular RtD methodology: eg. HCD, Critical Design, Design Fiction etc.
- Briefly, explain how the RtD methodology relates to the selected design process

2. THEORETICAL FRAMEWORK

3. RESEARCH METHODS

Description of:

- RTD
- Procedural outline of selected RTD methodology
- RTD method (RtMTD)
- Recipe of DT process and relevant design methods. (e.g. Empathise, Define Ideate, Prototype, Test)
- Refer to examples of RTD research

4. RESEARCH ETHICS (as required in standard practice)

5. LITERATURE REVIEW

5.1 Relevance (can be referred to as 'The Design Problem')

- Detailed framing of the (wicked) design problem

5.2 Invention (can be referred to as 'Related Work')

- Describe existing design solutions relevant to the design problem or user community
- These design solutions are not necessarily all related to the design field selected in the study.
- The discussion should clearly articulate why none of the described exemplars adequately resolve the framed problem

5.3 Conclude with an outline of key considerations for design practice

6. THE DESIGN PROCESS (Evaluation Criterion 1: Process)

6.1 Documentation and narrative of the practical work

- Use the DT process to structure the portfolio

7. THE EVALUATION CRITERIA

7.1 Evaluation Criteria 2: Relevance.

- Reflects on the the Design Process but substantiates claims by referring back to the literature review

7.2 Evaluation Criteria 3: Innovation and Creativity

- Reflects on the the Design Process but substantiates claims by referring back to the literature review

7.3 Evaluation Criteria 3: Extensability (can be written as

7. THE CONCLUSION)

- Personal reflection on new knowledge during the RtD project that they could apply to future design work.

8. REFERENCES

Figure 9: An outline of RtDTM for honours level projects

This outline specifies the key methodological concerns of the method. The structure of the research report is meant only as a general example and could be amended as per requirements.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Towards a Design Thinking Mindset in Academic Staff Development: Cross-continental design principles for blended learning course design

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Abstract

As a contemporary and boundary spanning approach, design thinking is entering higher education yet is unestablished in academic staff development. This study aims to reflect on two staff development interventions, one offered in the United States and one in South Africa, on blended learning course design, aimed at promoting a 'design thinking mindset' among university lecturers. By analysing the design process and features of both programmes, we discuss the implications and potential of design thinking for academic staff development. Across these two contexts, there exists an increased awareness of and empathy for a diverse student body, the value of interdisciplinary collaboration, peer mentoring, and reflective thinking. We found that adopting design thinking is not without challenges, which include the need for continued practice, securing departmental buy-in and upscaling initiatives. Five themes emerged from the data, namely engaging in human-centred design, creating a safe space for experimentation and play, fostering a sense of community, sharing and generosity beyond disciplinary borders, promoting intensive, ongoing/sustainable engagement beyond course participation and applying evidence base while recognising the need for discipline-specific/contextual solutions.

Based on the findings, and related to the five themes, we formulated ten cross-continental design principles to employ design thinking in academic staff development, towards nurturing creative confidence and learner empathy. These principles include aiming for human-centred design and promoting intensive and inclusive engagement with the design thinking process. Successful staff development programmes will rely on striking a balance between developing design thinking skills, a design thinking mindset, and creative confidence.

Keywords: Design thinking, design thinking mindset, design principles, academic staff development, faculty development, blended learning, higher education, South Africa, USA

Introduction

The environmental crisis and economic and political instability (Granados 2018) is straining Higher Education (HE) worldwide, amplifying social and economic inequality. Goodyear (2015) reports widening access, graduate under-preparedness for rapidly changing workplaces, and dwindling public funding as global challenges to HE. Recently, South Africa faced widespread disruption as a result of national protests against untenable university fees, Westernised curricula, and student exclusions. These student-led protests have highlighted the inequality that persists in the country's tertiary system and pointed to the need for fresh approaches to addressing systemic problems in HE. While not a panacea to structural inequality, 'design thinking' is a contemporary and boundary spanning approach to 'wicked problems', i.e. problems of sufficient complexity and interdependence to defy resolution, in both academia and civil society (Buchanan 1992; Goodyear 2015). More recently, design thinking has witnessed an uptake in universities around the world – beyond the design disciplines – as a learning paradigm that nurtures creative problem solving and multi-perspective collaboration (Von Thienen, Royalty & Meinel 2017). Berger (2009, p. 3) defines design as a 'way of looking at the world with an eye towards changing it'. Design thinking then becomes a process of solving problems differently, allowing for diverging and converging thinking, but also as a set of tools and activities to promote creativity and to challenge some of the assumptions and habits in academia, and finally as a mindset, characterised by a problem orientation, collaboration, generosity, learner empathy, resilience, etc. (Gachago et al. 2017; Goodyear 2015).

Yet, despite its purported benefits, design thinking is under-researched in academic staff development¹⁶ (a practice called educational development in the United States) (Gachago et al. 2017; Goodyear 2015). The aim of this study, therefore, is to reflect on two cases/staff development interventions, one in the United States, another in South Africa, aimed at developing a 'design thinking mindset' among university faculty. Both staff development interventions focus on supporting academics in the design of blended/online learning interventions using design thinking principles such as the importance of interdisciplinary collaboration while recognising disciplinary context, experimentation and risk-taking and user-centred design. In this paper, the authors describe these two cases and discuss them using the literature on integrating design thinking into higher education.

Literature review

Staff development in higher education

Increased use of technology for teaching, learning, and assessment in higher education (Dahlstrom 2015) may not translate into a visible change of practice as lecturers continue to replicate behaviourist/teacher-centred teaching and learning methods (Ivala 2016; Ng'ambi et al. 2016). Moreover, most conventional training and support on the use of technology in teaching and learning focuses on the effective use of technology, with little emphasis on course design and preparation of lecturers to integrate technology in their practice effectively (Dysart & Weckerle 2015; Ivala 2016; Sharples 2019). Often academic staff development is offered via once-off seminars that raise awareness around opportunities of using technology in teaching and learning and showcase innovative approaches at the institution. What is missing, however, are longer-term sustainable (inter- or intra-) institutional strategies, which allow for follow-up and collaboration between academics and academic staff developers both in terms of technical and pedagogical support, such as short courses or the setup of peer-to-

¹⁶ We are using the terms faculty and academic staff interchangeably in this paper.

peer support/networks on departmental, institutional or inter-institutional basis (Ivala 2016; Mackh 2018).

Design thinking in academic staff development

Despite the establishment of the Hasso-Plattner-Institute of Design Thinking (HPI d.schools) at the Universities of Potsdam, Stanford, and most recently Cape Town, the growing need for design thinking across diverse curricula is not generally associated with the domain of innovation in learning and teaching in higher education or employed for academic staff development (Goodyear 2015). Human-centred design offers what most instructional design models lack, namely a focus on the person we design for (Brown 2009; Walling 2014), resulting ideally in a co-design/co-creation process (Retegi et al. 2019). In traditional instructional design models, there is also a limited focus on creativity (Clinton & Hokanson 2011). Finally, the emphasis that design thinking puts on ethics is of particular importance in the context of student protests in South Africa, which highlights unequal access to resources.

Human-centred design starts with deep empathy for the often-implicit ways of doing on the part of the client. In the case of faculty development, this is the faculty member. Overall, the literature on general faculty motivation remains relatively sparse; though there does seem to be consensus on categories of motivators, including autonomy, recognition, community, and efficacy (Wergin 2001). Faculty de-motivation (or resistance) is a mitigating factor in the development of online and hybrid courses (Mitchell & Geva-May 2009; Mitchell, Palarmis & Claiborne 2015; McQuiggan 2007); and faculty reluctance held up as a barrier to institutional efforts to transform teaching (Brownell & Tanner 2012; Lane 2007; Tagg 2012). A renewed emphasis on understanding both the explicit and implicit factors that drive faculty has the potential both to inform, not only how we design and deliver educational development experiences and also how we think about influencing changes in institutional culture.

Methodology

In this paper, we draw from two separate cases, one set at the Cape Peninsula University of Technology (CPUT) and the other from the University of North Carolina (UNC) System. Both cases' studies were written up independently (see Gachago et al. 2018 for the Cape Peninsula University of Technology research and Cruz & Parker 2019 and Parker et al. 2018 for the UNC System research). The Cape Peninsula University of Technology research design was qualitative, drawing from written reflections, open-ended questionnaires, and focus group discussions, while the University of North Carolina System case employed a mixed-methods research design, combining quantitative and qualitative survey data. The details of these two studies are shared elsewhere. This paper focuses on comparing the design principles emerging from the two case studies to explore and define cross-continental design principles.

Case studies

First, we briefly introduce the South African case study, the short course, designing blended learning (DBL), at the Cape Peninsula University of Technology (CPUT). This is followed by the American case, i.e. the University of North Carolina's instructional innovation incubator (i3) model.

Case 1: Designing blended learning at Cape Peninsula University of Technology

In 2016, the Centre for Innovative Education Technology (CIET) servicing the six faculties at the institution embarked on the design of a 10-week short course on blended-learning course

design in collaboration with design experts at the institution (this was later condensed into a five-week course). Design thinking was the course focus, drawing on a study about shared characteristics of eLearning champions at the institution (Gachago et al. 2017). The seven themes that emerged from interviewing these 'champions' were collaboration and generosity; learner empathy; problem orientation; exploration and play; reflection and resilience; focus on practice and becoming change agents. We found that these characteristics overlapped with a design thinking mindset (d.school 2011; Schweitzer and Groeger 2016).

Researchers show that design thinking is not necessarily an inborn talent of designers, but a skill that can be developed (Rauth et al. 2010; Lawson 2005), or a muscle that can be trained, as the founders of the d.school, Tom and David Kelley (2014, pp. 2–3) state: 'Creative confidence is like a muscle – it can be strengthened and nurtured through effort and experience'. This happens both through unconscious adoption as much as through formal training (Porcini 2009). Following design thinkers such as Rauth et al. (2010) who argue that design thinking education (i.e. the process of teaching design thinking) can develop creative competence that 'assures the students [in this case, the faculty] of their ability of acting and thinking creative' (2010, p. 7), we designed a short course that would incorporate design thinking strategies, processes and promote a design thinking mindset.

We used Mishra and Koehler's (2003) suggestion to work with design principles and model design thinking in the design of the short course. While face-to-face workshops were used to engage with mentors and colleagues through design activities, we discussed readings on more theoretical topics of blended learning in online seminars. Following others (i.e. Ulibarri et al. 2014), this strategy was employed to challenge lecturers to exchange analytical, deliberate modes of being for a more experimental, creative, and playful approach. The course design was iterative, responding to participants' feedback (through, for example, weekly reflections and other forms of interaction). The following table describes examples of the learning design strategies that we employed to promote a champion mindset.

Table 1: Example of strategies employed to develop an eLearning champion mindset in designing blended learning at the Cape Peninsula University of Technology

Characteristics	Examples of strategies employed to promote this principle
Collaboration and generosity	Participants sign up as departmental course design teams and engage in interdisciplinary group work. Involvement of mentors (often previous cohorts of participants) who volunteer time to share their experiences.
Learner empathy	Introduction of persona development activity (Seitzinger 2016), which asks participants to graphically represent their 'typical students', user archetypes that help define the intended design activity (Van Zyl & De la Harpe 2014). The persona is an informed and experienced description of hypothetical learners, their contexts, challenges and goals. Design decisions are taken in relation to these personas.
Problem orientation	Focus on problem finding: the use of world cafe methodology (Soeder 2016) which facilitates large group conversations, encouraging everyone's contribution, connecting diverse perspectives and promoting shared collective discoveries. Problems are seen as opportunities to innovate rather than limitations.
Exploration and play	Creation of a playful atmosphere through design activities, such as learning metaphors, prompting and guiding the development of a learning activity or a course by imagining all elements within a learning

	experience (Morkel 2015). Creativity, competition and playfulness are promoted through the introduction of diverse tools and technologies.
<i>Reflection and resilience</i>	Weekly reflections, challenging tasks (such as the facilitation of webinars by participants), online and face-to-face engagements, which Lawson calls 'reflective design conversations' (2005). The use of mobile apps, such as flipgrid, support weekly reflections on tools implemented/experiences with course technologies. Lecturers/faculty are positioned as experts navigating difficult and diverse contexts, and modelling of 'Plan B' approaches.
<i>Focus on practice</i>	The use of mentors (slightly more experienced designers/eLearning champions) to share their practice with participants. Linking of theory and practice, and the immediate application of content and tools. Recognition that there is no 'one-size-fits-all' approach.
<i>Change agents</i>	Mentors model change and offer encouragement, to transfer learning into departments. Development of creative confidence through prototyping innovative interventions. Involvement of participants in subsequent workshops/seminars, by sharing their experiences. Continued relationships with participants through longer-term academic writing or research projects.

Source: Gachago et al. 2017

Written reflections, course evaluation forms and focus group discussions were used to assess the impact of the course implementation in 2017 and 2018. Participants' feedback was positive, and there was evidence of a shift in how they understand and engage in course design. Course participants also displayed a growing awareness of the complexities of designing learning for a diverse student population. The course encouraged playfulness and experimentation through the selected design activities, the informal atmosphere and the mentors (i.e. slightly more experienced eLearning champions), who shared their practice and experience – all of which has helped develop creative confidence in participants. 'Designing-on-the-go' also added to the atmosphere of experimentation, openness, and modelled risk-taking. Similar to other studies (Ulibarri et al. 2014), participants appreciated the course as a safe space to think, talk about design and 'play at design'. 'Designerly ways of knowing' (Cross 2007) were modelled and evident in participants' responses. Among vital feedback was the need to (co)-design with and for all participants. Participants' responses reminded us to be sensitive to designing for a diverse group of people – those digital literate and less literate, those more or less risk-averse, those in teaching positions and other roles, those drawn to academic readings and those looking for more accessible information.

Taheri et al. (2016) suggest that interventions that promote design thinking must both focus on creating a safe space for participants to develop a belief in their creative ability while nurturing skills that allow creative agency. This is salient in professional contexts, where individuals need to apply their learning within their working contexts. Compared to other design spaces, design in and for educational settings is challenged by existing practices, limited resources, and risk-averse cultures (Goodyear 2015). Engaging in an enabling space and with like-minded colleagues such as found in this course, therefore, might result in unrealistic expectations of what could happen beyond the training. However, as Irwin (2015, p. 93) notes, when introducing design thinking into new contexts, at the beginning the value of design thinking processes may not be 'the ideas and solutions we developed but rather the cultural transformation that resulted... [the] collaborative, consensual group process that became the

basis for profound change'. The community of practice emerging in and beyond the course was an important result of the sustainable impact of the staff development intervention.

Case 2: Instructional innovation incubator (i3) at University of North Carolina

The genesis of the instructional innovation incubator, or i3, model was an after-hours conversation between a senior administrator, an educational developer, and a venture capitalist. Outside of regular work hours and space, each felt emboldened to voice authentic concerns about the current state of support for online teaching and learning in the United States higher education and found their concerns resonating with their colleagues. That led to more systematic efforts to address persistent challenges using a design-thinking framework. The pioneers worked together to identify stakeholders; brainstorm creative solutions; and develop the i3 prototype, the pilot of which ran in the summer of 2013. The initial iteration of i3 included faculty from 15 of the 17 campuses of the University of North Carolina system; the full i3 sessions ran for three more years, and the model adopted by other institutions continues in a variety of contexts.

The foundation of i3 is a week-long residential academy (approximately 60 contact hours), participation in which is determined through a highly selective process across multiple campuses and disciplines. The academy experience is designed to be grounded in evidence (through the inclusion of a roster of expert facilitators); the application of design thinking models that take into account an intensive understanding of local learning contexts; and mixed and flexible delivery based on participant level and interest. The latter would be especially evident to a casual observer. On a typical day of i3, participants (called fellows) have up to twenty activities to choose from; and each participant navigates their pathway through the offerings (Cruz & Parker 2019). For a list of the design principles and strategies used throughout i3 (Table 2).

Table 2: i3 design principles and strategies

i3 design principles	Strategies
Transferability	<ul style="list-style-type: none"> – i3 makes use of technology-agnostic platforms. – The emphasis is on the integration of design principles rather than prescriptive practices.
Intensive Engagement	<ul style="list-style-type: none"> – The initial i3 session takes place over a full week (60+ contact hours); with the aim not just of informing, but transforming practice. – Participants can map out their i3 experience, selecting from multiple activities to suit their own professional development needs.
Evidence Base	<ul style="list-style-type: none"> – The institute promotes an alternative to best practices in the form of the critical application of evidence to specific disciplinary ways-of-knowing. – i3 fellows frequently form inter-disciplinary tiger teams that focus on mastery of a shared pedagogical challenge. – There are design, pedagogical, and technological mentors available each day.
Innovation	<ul style="list-style-type: none"> – The i3 experience is framed around a series of open intellectual problems that require creative and critical thinking both within and across disciplines to resolve.

	<ul style="list-style-type: none"> – Each day of i3 includes i3 talks, short sessions led by role models from multiple industries and disciplines. – The structured work time includes consultations with the imagination station, a place to consider creative ways to blend disciplinary content with pedagogy.
Human-centred design	<ul style="list-style-type: none"> – The design of i3 is based on deep empathy with the challenges faced by faculty in designing online courses. There is particular emphasis on autonomy and efficacy. – On the first day, participants literally and figuratively start with a blank slate, a huge sheet of paper, and no computers are allowed on the first day. – The course design process begins with the creation of student-centred empathy maps.
Sustained/sustainable	<ul style="list-style-type: none"> – i3 alumni participate in ongoing multi-institutional learning communities. – i3 fellows serve as liaisons or ambassadors for online teaching and learning at their respective campuses.

Source: Parker, Cruz & Baffour 2018

i3 faculty were free to explore, to take risks, to experiment in ways that they may have been uncomfortable doing in front of colleagues who might serve on future review committees. Also, they could design courses apart from previously applied norms, models, or structures generated by departments and colleges. Nor were they limited by the reach of their IT units. i3 fellows regularly experimented with technologies or techniques that were not available or not supported on their campuses. Perhaps most importantly, the i3 experience, by being disconnected from the campus environment, provided the space, both literally and figuratively, for faculty members to think outside of the box, and to challenge themselves to have not just confidence, but the courage to try new things.

To assess our results, we conducted a survey-based study with three cohorts of i3 fellows, 84 in total, ranging from 2014 to 2016. In our analysis of the open-ended survey responses, we noticed that faculty talked about shifts in their attitudes towards online education; a significant obstacle that had informed our design; but several responses also demonstrated greater agency and advocacy even beyond the online context. One respondent gushed, "nothing is impossible in this unique opportunity to collaborate, be inspired, access excellent expertise, and open your mind to new perspectives and ideas that can propel your confidence and success in online teaching". Another respondent indicated a more subtle change to understand that "a class is more about the students than the teacher [...] at i3@UNC, that was underscored for online environments" (Cruz & Parker 2019). It would appear that the i3 experience changed our faculty into designers, i.e. those with the vision to see what can be improved and the tools and attitude to make teaching and learning happen.

Towards cross-continental design principles

The two cases originated on different continents, within different contexts, responding to different challenges and differed significantly in terms of scope, size, and delivery. The one is a small-scale five-week intervention at one institution and the other a much larger, multi-institutional, intensive six-day process, yet the design principles that they employed overlap in many ways (Table 3). The results from the evaluation are similar, and with some outcomes reinforced through the multi-institutional structure in the University of North Carolina case.

Table 3: Combined themes/design principles

Emerging themes	Designing blended learning at Cape Peninsula University of Technology	i3 at University of North Carolina
– Engage in a human (faculty/student)-centred design	– Learner empathy – Problem orientation	– Human-centred design
– Create a safe space for experimentation and play	– Exploration and play	– Innovation and experimentation
– Foster a sense of community, sharing, and generosity beyond disciplinary borders	– Collaboration and generosity	– Inter/transdisciplinary evidence base
– Promote intensive, ongoing/sustainable engagement beyond course participation	– Change agents – Reflection and resilience	– Intense engagement – Sustained/sustainable
– Evidence base while recognising the need for discipline-specific/contextual solutions for problems	– Focus on practice – Reflection and resilience – Problem orientation	– Transferability – Evidence base

Five themes emerged from the data, namely engaging in human-centred design; creating a safe space for experimentation and play; fostering a sense of community, sharing and generosity beyond disciplinary borders; promoting intensive, ongoing/sustainable engagement beyond course duration and applying evidence base while recognising the need for discipline-specific/contextual solutions. Based on these five themes, we suggest, therefore, the following ten cross-continental principles for academic staff development for blended learning course design:

1. Aim for **human-centred design** by shifting the focus to the user (learner or faculty), through **empathy**, by imagining her context (life world), resources, challenges and goals (ideally co-designing with all involved stakeholders)
2. Promote **intensive and inclusive engagement with the design thinking process** made explicit, towards transforming mindsets and practices
3. Create a **'safe' creative space to experiment, take risks and fail, to challenge attitudes of perfectionism** prevalent in academia, maintaining the balance between playfulness and perfection with the help of role models from multiple industries and disciplines
4. Implement an **iterative and incremental approach to creative and critical thinking**, focusing on small steps/changes while working on larger projects (course designs); model a responsive 'design on the go' approach
5. Stimulate opportunities for **immediate application of content and skills and ongoing reflection** to position faculty as 'experts'; grow creative and technological confidence and resilience
6. Provide **scaffolding through design activities and prototyping to help participants build their own creative confidence**, to apply design principles rather than implement prescriptive practices; facilitate opportunities for **practice-sharing of participants and**

mentors based on evidence but also recognising that one-size does not fit all and there is a need for discipline-specific solutions

7. Focus on **learning** and **teaching** rather than tools and technology
8. Involve **mentors, liaisons and ambassadors**, to provide on-the-go support and model the becoming of change agents
9. Grow an **interdisciplinary community of practice** to collaborate and help transfer design thinking into departments, promoting continued engagement beyond workshops, to ensure the sustainability of the staff development intervention
10. Create opportunities for **follow-up design challenges**, such as presentations, sharing of experiences and involvement in research projects, allowing participants to become 'mentors' themselves

Our reflection on these two cross-continental cases emphasises striking a balance between process and product, playfulness and structure, challenging tasks and a feeling of safety and trust, lightness and depth, providing a safe space for experimentation while promoting risk-taking, combining established elements of academic staff development (e.g. peer-reviewed readings) to build trust, with activities that push participants' thinking about teaching and learning. Most importantly, it shows how relationship-building, through follow-up and continued work, including constructive feedback on lecturers' practice, is crucial to strengthen cognitive, affective, and skill-based outcomes of academic staff development interventions. Design is a slow process (Goodyear 2015; Irwin 2015; Ulibarri et al. 2014) – not a quick fix.

To sustainably transfer design thinking into one's practice and to expand it into departmental practice requires drawing from a rich and diverse community of practice. Towards this end, course participants should be encouraged to share their experiences and blended course design approaches and strategies at various departmental, faculty, or institutional meetings. In our experience, the impact of such transfer of ideas, thoughts, and attitudes into the daily practice of academic staff/faculty, however tricky to measure, may be one of the most significant outcomes of these interventions.

This transfer of knowledge speaks to the potential of design thinking to influence not just practice, but broader cultural values within higher education. The academic staff/faculty who participated in both of these interventions indicated that they felt not only more knowledgeable about the course design process; but they felt more profound (and somewhat immeasurable) changes in their own motivations, perceptions, and well-being. Perhaps it is possible that the wicked problems faced in higher education could be addressed if we considered (re-)designing higher education, both by and for all of the students, faculty, and staff who do the work of academia.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Design-Based Research: Bridging the gap between fashion design education and research on design

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Abstract

Traditionally, design-based research (DBR) unifies research, design and evaluation of interventions aimed at improving educational practice. Shifts elucidate DBR as a novelty to bridge the gap between knowledge generated from research with that of design practice. DBR, therefore, locates itself in both educational and design practice contexts. This paper considers DBR in the educational context hence aimed at the affordance for improving fashion design educational practice. The DBR phases in educational disciplines may well act as guidelines to develop scholarship around research on and through design.

Locally and internationally, fashion design education is an underdeveloped research area but what is more prevalent is the evident lack of DBR to improve educational practice. Drawing from a doctoral study in South African tertiary fashion design education, this meta-research paper focuses on the research design and methodology with a two-fold aim. Firstly, from an educational perspective, the paper theoretically contextualises and maps out a framework for DBR. The second aim describes how DBR was deployed as a research design to improve fashion design pedagogical practice. The aim was engineered to align with the following research questions: 1) what are the theoretical constructs of DBR, and 2) what are the affordances of DBR, as a research design, to improve fashion design pedagogical practice?

Embedded in DBR, multiple methods of data collection from various participant sub-sets included desktop research, semi-structured interviews, participant observations and semi-structured questionnaires as primary methods and artefacts as a secondary method. These data collection methods were based on DBR phases to align with the doctoral research phases.

This paper contributes principally to discourse around research designs for postgraduate studies in design education. As a secondary contribution, mapping DBR from an educational perspective holds affordances to offer insights for research on and through design.

Keywords: Design-based research, fashion design education, research design

Introduction

Design-based research (DRB) is the widespread term, but it is also recognised as design research, development research and design experiments (Amiel & Reeves 2008; Anderson & Shattuck 2012; Wang & Hannafin 2005). DRB emerged as a new research methodology to steer educational research (Amiel & Reeves 2008; Anderson & Shattuck 2012; The Design-Based Research Collective 2003). As such, traditionally DRB unified research, design and evaluation of interventions aimed at improving educational practice (Joseph 2004; Plomp 2010). Design in educational DRB yields principles for teaching and learning interventions (Anderson & Shattuck 2012; Collins, Joseph & Bielaczyc 2004; Plomp 2010; Reeves 2006).

However, shifts elucidate DRB as a novelty to bridge the gap between knowledge generated from research with that of design practice. From the lens of design practice, DRB is an emerging field under the banner of design research. Zimmerman, Forlizzi and Evenson (2007, p. 494) argue that human-computer interaction and design practice communities refer to design research as what “research practitioners do to ground, inform, and inspire their product development process” but from the angle of the design research community, design research implies an “inquiry focused on producing a contribution of knowledge”. Similarly, Margolin (2010) argues that due to multimodal perspectives, meanings and interpretations, design research lacks clear definition. Nevertheless, contemplating the activities of design researchers, Faste and Faste (2012) put forward a taxonomy for design research under four categories of 1) design through research, 2) design of research, 3) research on design and 4) research through design.

Faste and Faste (2012) consider ‘design through research’ as studious, whereby researchers generate knowledge through planning and execution of conventional research activities, but they are unaware that such activities are actually designed. Similarly, ‘design of research’ is formative with scientific roots, hence research is designed and planned via quantitative, qualitative or mixed-method approaches to generate knowledge (Faste & Faste 2012). Therefore, ‘design through research’ and ‘design of research’ are sub-sets of conventional scientific research. In contrast, Faste and Faste (2012) argue that ‘research on design’ is diagnostic aimed at critically studying and analysing the design process to improve design practice. Although ‘research on design’ is a category of the broader scope of design research, Christensen and West (2017) refer to ‘research on design’ as DRB with roots in the field of inquiry known as design methodology. Design methodology “is the study of the principles, practices and procedures of design” in relation to design process structures, how designers think and their actions (Ankiewicz, De Swardt & De Vries 2006; Cross 2018, pp. 696–697). Hence, knowledge about design lends way to design practice which in turn contributes research knowledge on design. ‘Research through design’, which is considered as embedded design research, is a combination of process, activity, cognition and research that manifest in artefacts to reflect embodied design research knowledge (Faste & Faste 2012; Gaver 2012). In essence, ‘research through design’ is practice-based research to produce transferrable knowledge (Durrant, Vines, Wallace & Yee 2017, p. 3). Perhaps this is the reason why Zimmerman, Stolterman and Forlizzi (2010, p. 310) view ‘research through design’ as a “research approach that employs methods and processes from design practice” to generate, document and deeper understand knowledge. From discussions thus far, it is evident that design research, also known as DRB, positions itself in both design and educational practice. However, ‘design’ in educational DRB differs from ‘design’ in design practice. The first yields principles for teaching and learning interventions, while the latter yields artefacts. This paper considers the educational context hence aimed at the affordance of DRB for improving fashion design education (FDE) practice that has not yet been sufficiently explored.

Locally and internationally, fashion design education is an underdeveloped research area (Harvey, Ankiewicz & Van As 2019, p. 204) but what is more prevalent is the evident lack of DBR to improve educational practice. Borrowing from Harvey's (2018) doctoral study in South African (SA) tertiary fashion design education, this meta-research paper focuses on the research design and methodology with a two-fold aim. Firstly, from an educational perspective, the paper theoretically contextualises and maps out a framework for DBR. The second aim describes how DBR was deployed as a research design to improve fashion design pedagogical practice. The aim was engineered to align with the following research questions: 1) what are the theoretical constructs of DBR, and 2) what are the affordances of DBR, as a research design, to improve fashion design pedagogical practice? Responding to the first aim and research question, discussion shifts to firstly theoretically contextualise DBR and subsequently maps out a DBR framework to align with the doctoral study.

Theoretical contextualisation of design-based research

DBR is systematic and context-specific aimed at linking educational research and real-world problems through research, iterative design, development and evaluation of educational interventions with the intention of improving pedagogical practice (Amiel & Reeves 2008; Barab & Squire 2004; Joseph 2004; Plomp 2010; The Design-Based Research Collective 2003; Wang & Hannafin 2005). However, DBR requires that the design of learning environments are guided by theory with research and development unfolding through multiple cycles of design, testing and evaluation of teaching and learning interventions thus giving way to general design principles (Anderson & Shattuck 2012; Barab & Squire 2004; The Design-Based Research Collective 2003). Therefore, scholars concur that DBR commences with some confirmatory design principles emerging from theory which act as guidelines to design teaching and learning interventions but these design principles are subsequently refined so that new design principles materialise to guide future research (Amiel & Reeves 2008; Collins et al. 2004; Plomp 2010; Reeves 2006). Additionally, Plomp (2010, pp. 13, 18) postulates that educational interventions are evaluated through reflection and analysis. Although it may be argued that DBR is the same as action research, Anderson and Shattuck (2012, p. 17) note clear differentiations claiming that DBR evolves from and lead to design principles whereby action research does not. As such, DBR is not and should not be considered the same as action research. From an educational perspective, the following section maps a framework for DBR to align with Harvey's (2018) doctoral study.

Mapping design-based research to improve fashion design pedagogical practice

Seen through the lens of DBR, the doctoral study unfolded in five research phases which aimed at exploring and establishing the underlying design principles of human-centred design (HCD) approach and its effects to fashion design education within an urban South African tertiary context (Harvey 2018). It must be noted that effects did not refer to cause and effect relations but to participant views and experiences. The aim located itself in the overarching doctoral research question: what are the pedagogical strategies and underlying design principles of a HCD approach and its effects to fashion design education at a tertiary level? However, since the scope of this paper is on meta-research, the focus is on the research design and methodology and not on the findings (results) nor the design principles of HCD that emerged from the doctoral study. Rather, employing DBR as the research design, Figure 1 visualises the doctoral research phases and objectives which were mapped to align with Amiel and Reeves's (2008, p. 34) framework for DBR rooted in analysis, development, iteration and reflection.

As seen in Figure 1, Amiel and Reeves (2008, p. 34) claim that DBR commences with the analysis of practical problems by researchers and practitioners in collaboration. Aligning this with the doctoral study, analysis of the problem unfolded through two strategies. Firstly, via a literature review regarding 1) shifts in general design practice and design education, and 2) current pedagogical strategies applied in fashion design education. Secondly, being a fashion design educator, the researcher (main author) collaborated with colleagues from various South African tertiary institutions to engage in conversation regarding the need for transformation in fashion design education. This first stage set the course of theoretical and empirical action to guide the subsequent doctoral research phases to achieve the objectives visualised in Figure 1.

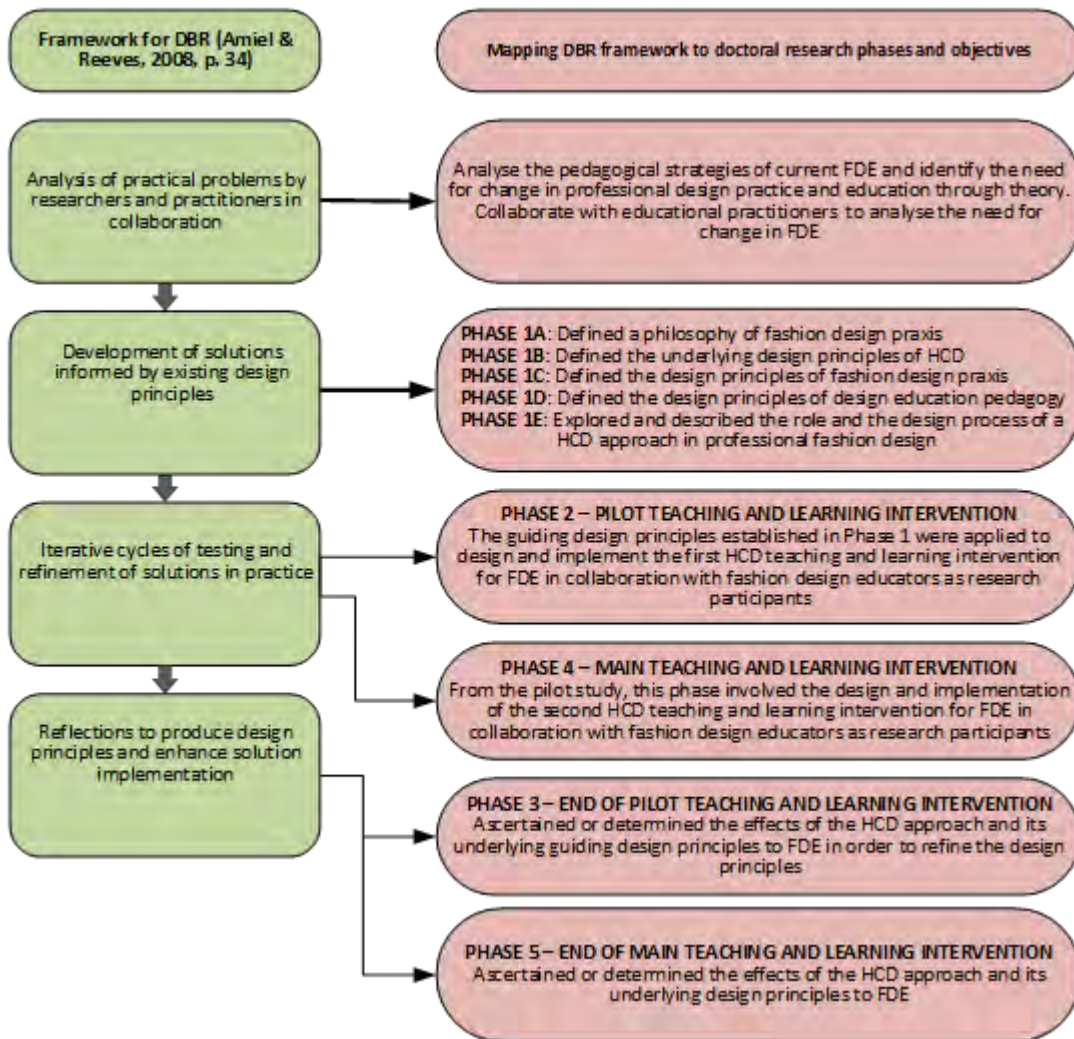


Figure 1: Doctoral research phases and objectives (Harvey 2018, p. 40). Aligned with Amiel and Reeves's (2008, p. 34) framework for DBR

The design-based research units of analysis

Rooted in DBR, the doctoral study employed an interpretive paradigm drawing on social constructivist methods, as well as a qualitative research approach to explore the multiple realities and capture “what people say and do as a product of how they interpret the complexity of their world, to understand events from the viewpoints of the participants” (Burns 2000, p. 11).

In light of the above, the primary unit of analysis was the fashion design education teaching and learning interventions (simply referred to as interventions) designed for implementation at a fashion design department at an urban South African tertiary institution. However, the secondary unit of analysis, namely exploration of HCD within professional fashion design practice was required as input to address the primary unit of analysis. Hence, the secondary unit of analysis was carried out in participants' fashion design studios within the Johannesburg area.

Design-based research as methodology

The methodology employed to execute DBR in the doctoral study included: 1) sampling methods used to select participants, 2) data collection methods to achieve the DBR phases and objectives (Figure 1), 3) the methods used to analyse empirical data, 4) trustworthiness methods, and 5) ethical implications. As such, the narrative shifts to sampling method.

Sampling method

A purposive sampling method was utilised to generate information-rich data. Purposive sampling warrants that participants are selected based on their applicable data and knowledge and because they have certain characteristics that parallel with pre-determined criteria (Babbie 2008; Silverman 2014; Yin 2011). Five participant sub-set groups were purposively sampled based on specific criteria.

Phases 1A, 1B, 1C and 1D (Figure 1) were theoretical in nature and therefore did not involve any participants. For Phase 1E (visualised in Figure 1), two Johannesburg-based professional fashion designers were selected based on criteria reflected in Table 1. As data collection proceeded, it became evident that one of the participating fashion designers was using an HCD approach by including actual users in the design process. Although the inclusion of actual users was not the intention of the doctoral study, the opportunity arose to include a user as a participant. Moving to the educational context, Phases 2, 3, 4 and 5 seen in Figure 1, involved three participant sub-sets namely, 1) fashion design students, 2) fashion design educators and 3) the researcher. Table 1 highlights the pre-determined selection criteria used to select these participants.

Table 1: Criteria to select participants

Participant	Criteria
Professional fashion designers	Expert fashion designers with five or more years of professional practice
	Needed to have experience and expertise in showcasing fashion design collections at South African fashion events such as the South African Fashion week
Fashion design students	First-year students registered for the BA Fashion Design programme
	Registered for the first-semester module entitled Fashion Design and Technology 1A
	Registered for the second-semester module entitled Fashion Design and Technology 1B
Fashion design	Academic cohort at the Fashion Design Department

educators	Responsible for teaching in the modules Fashion Design and Technology 1A and 1B
	Collaborate in the design of interventions and facilitate implementation with participating fashion design students
Researcher	Experience as a fashion design educator
	Knowledge in HCD and design-related activities
	Experience as a professional fashion designer

Of the 25 students registered for the first-semester module, 24 participated in the pilot intervention due to continued absenteeism of one student. For the main intervention, 23 students registered for the second-semester module and thus participated. In addition, two fashion design educators were involved as participants, but they were also collaborative and consultative partners. These educators contributed to the design of both the pilot and main interventions and facilitated the implementation of procedural knowledge activities.

In addition, the researcher assumed a dual role of observer and participant. The observer role acted as the data collection instrument during the implementation of both the pilot and main interventions. As participant, the role was to design the interventions in collaboration with participating educators but also to facilitate the theoretical knowledge required to support implementation of procedural knowledge in both interventions. Hence, the primary role was that of observer and data collection instrument.

Data collection methods

Philosophy of fashion design praxis and design principles

As seen in Figure 1, Phase 1 of the doctoral study was sub-phased. Phases 1A, 1B, 1C and 1D employed desktop research as a method of data collection, which aimed at reviewing theoretical perspectives to guide the design of the interventions. Desktop research is a qualitative meta-synthesis of existing literature (Blaxter, Hughes & Tight 2006; Given 2008; Hallström & Ankiewicz 2019).

Phase 1A aimed at defining a philosophy of fashion design praxis. This was achieved by reviewing Love's (2000) meta-theoretical taxonomy of design theory for the philosophy of design, as well as Mitcham's (1994) philosophical framework for the four modes of manifestation of technology. From these, visualised in Figure 2, theoretical elements were selected for a philosophy of fashion design praxis comprising of the four modes of 1) volition, 2) design knowledge, 3) design methodology, and 4) product.

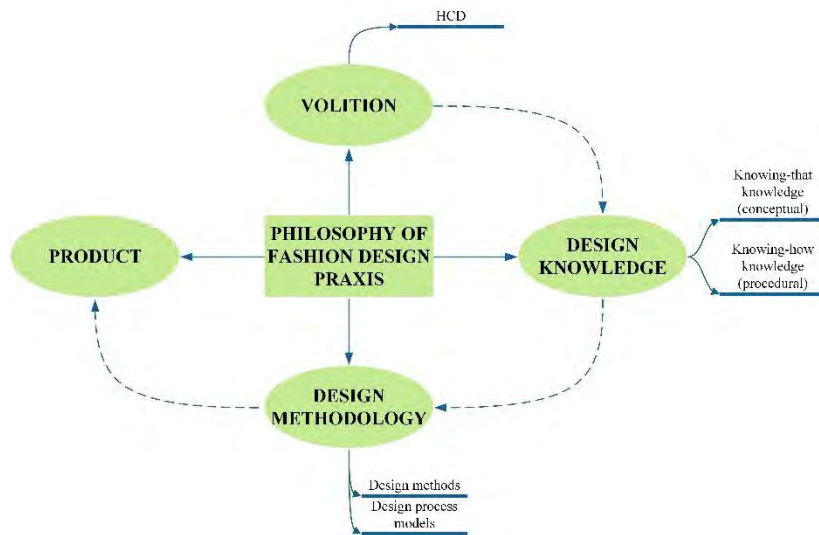


Figure 2: Personal framework for a philosophy of fashion design praxis (Harvey 2018, p. 86)

HCD was positioned as the underlying volition for fashion design education hence a sub-mode in Figure 2. Intrinsically, for Phase 1B, desktop research entailed the review of HCD scholarship to define the underlying design principles of HCD. Through extensive literature review, 24 tentative design principles of HCD were established. Subsequently, Phase 1C involved the review of scholarship around the four modes that formed part of the philosophy of fashion design praxis (Figure 2). This review funnelled from general design to professional fashion design praxis culminating in 34 tentative design principles for fashion design praxis. Finally, Phase 1D reviewed scholarship around design education culminating in 32 tentative design principles for design education pedagogy (DEP).

Professional fashion design

The tentative design principles defined in Phases 1B, 1C and 1D were used as input to design the pilot intervention thus aligning with Anderson and Shattuck's (2012, p. 17) argument that DBR requires interventions to be designed based on design principles. However, DBR also necessitates input from practitioners in real-world settings (Reeves 2006, p. 58). As seen in Figure 1, Phase 1E set out to explore and describe the role and the design process of an HCD approach in professional fashion design. To achieve this, individual and dyadic face-to-face, semi-structured, interviews were employed as a primary method of data collection.

Semi-structured interviews were conducted with the two professional fashion designers with the aim of gaining an in-depth understanding of their design processes and design methods, as well as the role of user and extent of user participation. Interviews were selected to explore and understand the situation through interpretation and socially constructed meanings that represent individuals' realities. In the same light, semi-structured interviews were selected because it allowed for identification of some guiding, open-ended questions, but also to probe for clarification in the attempt to obtain in-depth data. These interviews lasted approximately 25 minutes until data saturation occurred. Additionally, one face-to-face, semi-structured dyadic interview was conducted with one of the participating professional fashion designers and an actual user. Dyadic interviews bring two participants together in one interview session (Morgan, Ataie, Carder & Hoffman 2013, pp. 1276–1277). Likewise, dyadic interviews allow for more in-depth data collection as participants recall and reconstruct information (Morgan et

al. 2013; Flick 2014). The dyadic interview was chosen so that the professional fashion designer and actual user could steer the conversation and prompt each other for more in-depth data that the professional fashion designer may have otherwise overlooked in the individual interview. The dyadic interview ensured that both the professional fashion designer and user had equal opportunity to express their views resulting in a 25-minute conversation. All interviews were digitally recorded and transcribed verbatim. In addition, artefacts, in the form of photographs, were collected as a secondary method of data collection. Following the recommendation of Banks (2018, p. 7) and Prosser (2011, p. 479) artefacts were selected to serve a three-fold empirical purpose of 1) documenting the social reality, 2) as evidence for trustworthiness and 3) for contextualisation. Approximately 45 photographs were self-captured to document the conceptualisation stage activities of the design process executed by these professional fashion designers. From the empirical data collected for Phase 1E, no new design principles of HCD and fashion design praxis emerged. As such, the tentative 24 design principles for HCD, 34 for fashion design praxis and 32 for design education pedagogy were applied to design the pilot intervention for fashion design education.

Pilot intervention

Responding to Phase 2 in Figure 1, the pilot intervention aligned with project-based learning and role-playing in a simulated situation so that students could learn about HCD, learn to design from an HCD perspective and become future HCD designers. Surely, students cannot be expected to become future HCD designers if their education does not foster and create opportunities to acquire knowledge, skills and tools to do so. The researcher acknowledges that HCD involves real-world users. Table 2 outlines the rationale for selecting role-play as a pedagogical strategy.

Table 2: Reasons for implementing role-playing

Reason	Consideration
HCD as an approach	HCD can be used as a research strategy or approach. In this situation, HCD was viewed as a mind-set (philosophy or way of thinking) and an approach to engaging with design and generation of products. As such, an HCD approach could be contained within an education setting.
Implemented with first-year students	Participants were first-year fashion design students who were still adjusting to an academic environment. Exposing them to a learning space outside the academic environment, with real-world users, may have presented them with discomfort due to their unfamiliarity with such settings.
Access to real-world users	Use of real-world users from outside the educational environment may have posed challenges for students regarding continuous accessibility of users throughout all the design process stages. In addition, such accessibility issues may have presented challenges regarding systematic control and collection of comprehensive evidence for the doctoral study.
Ethics in research	Several ethical issues were considered. Firstly, the involvement of real-world users in the design process would necessitate their consent to participate in the doctoral study. Secondly, to maintain the safety and security of students in an attempt to prevent any harm or possible risks.

Participating students role-played in design teams of two where one student assumed the role of designer and the other that of user. The project aimed to integrate and apply conceptual

knowledge regarding the design principles for HCD as an underlying design approach to design and prototype a solution. The project extended over four weeks serving as the assessment method using the four assessment instruments of 1) a design journal to document and justify all design process activities, 2) a two-dimensional fashion illustration and technical drawings of the final design solution, 3) a flow diagram that holistically visualised the design process and respective designer and user involvement, tasks and functions, and 4) and a three-dimensional prototype.

Reacting to Phase 3 (Figure 1), data collection methods for the pilot intervention employed primary participant observation and self-administered, open-ended questionnaires and secondary artefacts. Participant observation implied observer as primary role and participation as secondary. Participant observation was selected because the researcher designed the intervention in collaboration with participating fashion design educators. Similarly, the participatory role also allowed immersion into the participants' social and natural setting allowing the researcher to walk around the teaching and learning studios and occasionally, but unobtrusively, pose questions to educators and students while observing and understanding how the activities of an HCD process unfold. The observations served the purpose of exploring and documenting the design-related activity tasks and prototype evaluation stages of the design process as executed by participating students and how these actions unfolded in a way that incorporated the design principles of HCD. However, observation also aimed at documenting unforeseen, emergent issues such as student attendance, punctuality or non-engagement with an HCD approach. These observations were captured through a pre-drafted observation scheduled with field notes. To support observation, artefacts entailed self-created photographs to capture the social reality of participating students regarding the execution of the design principles of HCD and how these actions unfolded in the design process. These photographs were used as evidence to support interpretations and ensure trustworthiness. Approximately 150 photographs were taken during participant observation sessions.

In addition, to obtain the views and feelings of participating students and educators, self-administered, open-ended questionnaires were employed. This data collection method was selected so that participants could express their feelings and views in a way that they deemed fit. At the end of the pilot intervention, 24 hard-copy questionnaires were collected from participating students and electronic questionnaires from the two educators. The questionnaires served a three-fold purpose. Firstly, the student questionnaire aimed at ascertaining the main effects of the HCD approach and the underlying tentative 24 design principles of HCD. Secondly, educator questionnaires aimed at determining the holistic effects of the implementation of an HCD approach to fashion design education. Thirdly, following Babbie and Mouton's (2001, pp. 239, 244) suggestion, the questionnaires served as pre-testing to check if questions were worded correctly and if they would yield accurate data.

To conclude Phase 3, the emerging findings and retrospective analysis paved the way for refinement of pedagogical strategies. More importantly, the tentative design principles of HCD, fashion design praxis and design education pedagogy were refined culminating in 12 for HCD, 19 for fashion design praxis and 19 for design education pedagogy. As noted earlier, this is a meta-research paper focusing on the research design and methodology and not on the findings (results), rationale for refining pedagogical strategies and design principles. Nonetheless, the refined design principles were then used to design the main intervention.

Main intervention

The main intervention addressed Phase 4 (Figure 1) and continued with project-based learning and role-playing where participating students role-played in design teams of two with one

student assuming the role of designer and the other that of user. However, due to an uneven student number, one design team comprised of one designer and two users with autonomy to select their roles. The project aimed at integrating and applying conceptual knowledge regarding the refined design principles of HCD as an underlying design approach and volition within praxis to design, prototype and manufacture a wearable product. The project extended over seven weeks serving as the assessment method using the four assessment instruments of 1) a design journal to document and justify all design process activities, 2) a two-dimensional fashion illustration and technical drawings of the final design solution, 3) a three-dimensional prototype, and 4) and a three-dimensional wearable product.

Addressing Phase 5 (Figure 1), data collection methods for the main intervention included participant observation identically and serving the same purpose as in the case of the pilot intervention. Likewise, artefacts were collected in the form of self-created photographs for the same purpose and in an identical manner as in the pilot intervention with the exception that approximately 276 photographs were taken. Furthermore, open-ended, questionnaires were self-administered by the 23 participating students at the end of the intervention. The questionnaire was refined to serve a two-fold purpose. Firstly, it aimed at ascertaining the main effects of the HCD approach and the underlying, refined 12 design principles of HCD. Secondly, it aimed to explore students' holistic personal experiences regarding implementation of an HCD approach to fashion design education. It was important to obtain information on overall experiences hence student instruments were refined such that they included an overarching question pertaining to participants' holistic experience of an HCD approach to fashion design education.

Regarding the educators, the data collection method changed to individual, face-to-face, semi-structured interviews because the educator questionnaire employed in the pilot intervention did not allow the opportunity to probe for clarification. Moreover, responses were wide-ranging and did not elicit data pertaining to the main effects of each of the design principles implemented as part of an HCD approach. Educator interviews served the same purpose as student questionnaires but from the educators' perspective. A line of inquiry, in the form of an interview guide, with open-ended, semi-structured questions was developed. The first interview lasted approximately 32 minutes and the second approximately 60 minutes until reaching data saturation. These interviews were recorded and transcribed verbatim prior to data analysis.

Data analysis

A constant comparative method of data analysis was employed to analyse all collected empirical data with the application of Atlas.ti. A constant comparative method of data analysis emerged for grounded theory, but Merriam (2009, p. 175) argues that such a method is used in qualitative research even though the research scope might not necessarily involve theory building. Systematic data analysis followed Creswell's (2012; 2014) step-by-step, bottom-up model, as well as Saldaña's (2016, p. 14) 'streamlined codes-to-theory' model. Data collection and coding transpired concurrently because the findings from each phase of the doctoral study informed the next.

Following the guidelines of Saldaña's (2016, pp. 68, 234) coding manual, data analysis unfolded in first and second coding cycles. First coding cycle employed *in vivo*, open coding and simultaneous coding methods to code all data sets. Each data set was read line-by-line simultaneously highlighting fragments of raw data quotations and assigning a code using either *in vivo*, open or simultaneous coding methods. On completion of the first cycle of coding, all codes and quotations were read in context to verify accuracy prior to commencing with the second coding cycle.

Second coding cycle employed axial and selective coding methods that aimed at higher conceptual levels by integrating, linking, synthesising and conceiving categories for thematic interpretation. Axial coding links the dimensions and properties of a category together (Boeije 2010; Charmaz 2014). Selective coding involves looking for connections and integrating categories (Boeije 2010, p. 114). Axial coding involved two techniques. Firstly, to reduce and unclutter code lists, coded quotations were compared and merged based on Friese's (2014, p. 95) recommendation of fusing two or more codes that hold the same meaning. Secondly, codes were compared and linked where attributes and concepts related to the same category and where contradictions were evident. Coding saturation was reached before moving onto selective coding, which manifested in two ways and with a two-fold purpose. With the first purpose, codes were compared and clustered together into categories and sub-categories where applicable.

Similarly, tentative categories were finalised and re-named where necessary. The second purpose grouped categories into main research themes. The following section deliberates on the methods for trustworthiness employed in the doctoral study.

Methods of trustworthiness

Following the guidelines of several scholars (Babbie & Mouton 2001; Creswell 2014; Merriam 2009; Mouton 2001; Van Niekerk, Ankiewicz & De Swardt 2010), Table 3 illustrates the trustworthiness methods and the manner in which they were applied.

Table 3: Methods and application of trustworthiness

Method	Application
Triangulation	Achieved through multiple methods of data collection
	Triangulation of multiple sources of data was achieved by cross-checking participant observation in the pilot and main interventions hence at different times
	Data collected from multiple participant sub-sets allowing for different perspectives
	Through member-checking by granting participants the opportunity to validate the emerging findings and validate accurate interpretation through follow-ups
Peer investigator	Raw data, analysis codes, categories, research themes and emerging findings were externally peer validated by an experienced researcher and design educator
Report on negative responses	The doctoral study included contradictory views derived from raw data
Audit trail	A methodological audit trail was maintained electronically and through self-generated, hand-written journal entries

Table 3 shows that trustworthiness was achieved in a systematic and methodical manner to ensure and maintain quality and academic rigour. Moreover, any research necessitates that a study is conducted in an ethical manner.

Ethical considerations

All participants were invited to participate in the study via a written information disclosure. Given the inclusion of fashion design students, extra care was taken to highlight that their participation was voluntary and would not present any risks nor affect their assessment outcomes or results. Although HCD is traditionally carried out with non-designers as users, participating students were not exposed to any harm or potential risks by simulating practice through a role-playing pedagogical strategy. All participants granted permission by completing a pre-drafted informed consent sheet. Consent was also granted to audio record interviews (where necessary), to observe student activities during the interventions and to capture photographs. All participants were assigned pseudonyms to protect their identity, culture and gender. Although the name of the fashion design department is mentioned, measures were taken to conceal identity by not revealing the urban South African tertiary institution nor its geographical location. In the event of including photographs in the doctoral report, participants' faces were edited to prevent identification.

Conclusion

Shifts elucidate the attempt to bridge knowledge generated from research with that of design practice, hence, DBR under the banner of design research in and for design practice. However, DBR conventionally unified research, design and evaluation of interventions aimed at ameliorating educational practice. Borrowing from Harvey's (2018) doctoral study in a South African tertiary fashion design department, this meta-research paper focused on the research design and methodology to fulfil a two-fold aim. From an educational perspective, the first aim was achieved through theoretical contextualisation of DBR, subsequently mapping out a framework for DBR to align with the doctoral research phases. Thereafter, achieving the second aim of this paper, deliberations shifted to DBR as the research design and methodology executed in the doctoral study to improve fashion design pedagogical practice. Aligning with the characteristics of DBR, Phases 1A, 1B, 1C and 1D reviewed scholarship culminating in a tentative set of design principles comprising of 24 HCD, 34 fashion design praxis, structured around the four modes of volition, design knowledge, design methodology and product, as well as 32 design education pedagogy design principles. In addition, for Phase 1E, empirical data were collected from two Johannesburg-based fashion designers and one actual user, but no additional design principles emerged.

The tentative design principles were then used to design a pilot intervention for implementation with first-year fashion design students at an urban South African tertiary institution. Data collected from participant observation, student, as well as educator semi-structured, self-administered questionnaires, were analysed. From the findings and researcher retrospective analysis, pedagogical strategies, as well as the tentative design principles were refined to culminate in 12 for HCD, 19 for fashion design praxis and 19 for design education pedagogy. These refined design principles and pedagogical strategies set the backdrop to design the main intervention.

The main intervention was designed for the same group of students. Data collected through participant observation, student self-administered, semi-structured questionnaires and individual, face-to-face, semi-structured interviews with educators were analysed. From the findings, the design principles were further refined to include nine HCD, 16 fashion design praxis, organised around the four modes of volition, design knowledge, design methodology and product, and 16 design education pedagogy principles as a theoretical contribution of the doctoral study. However, given the aim and scope of this meta-research paper, which focused on the research design and methodology, the limitation is that the design principles of HCD, fashion design praxis and design education pedagogy are not presented nor are the findings

(results) that emerged from the doctoral study deliberated on. Nevertheless, it is evident that from the doctoral study, DBR holds affordances to contribute principally to discourse around research designs for postgraduate studies in design education thus aligning with the conference sub-themes of 1) design-based research, and 2) postgraduate design education. These affordances include opportunity to: 1) design interventions that are guided by design principles derived from theory and practice, 2) refine design principles, 3) design and implement multiple cycles of interventions to improve pedagogical practice, 4) integrate both theory and pedagogical practice, and 5) put forward design principles as a theoretical contribution to guide further research. However, the affordances of DBR are not exclusive to fashion design education but to design education in general. As a secondary contribution, mapping DBR from an educational perspective holds affordances to offer insights for design research in terms of 'research on design', as well as 'research through design'.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Theory in Design Research: A supervisor reflection on research design

Philippa Kethro: Durban University of Technology

Abstract

This paper is a supervisor reflection on theory selection for research design in design-orientated research. Selection and deployment of theory in a research design can powerfully affect what design research achieves. The research design of a graphic design master's dissertation targeting 'research for design' illustrates this. The view of research design discussed in the paper is not typological or logistical, but instead one where relations between research components are interactive and emergent during the course of the study.

The challenge of the 'research for design' study concerns the graphic design need to track visual rhetoric effects on audience identity in social media. This study used fashion theory to bring visibility to Giddens's social reflexivity and Butler's social performativity. The resulting theoretical integration was then applied to the functional affordances of the social media platform under study.

The paper concludes that the exemplar study illustrates the key role of theory in optimally valid research design co-ordination of research aims, questions, significance and methodological implementation. This conclusion is then briefly extended to the potential for similarly innovative and coherent practice-based research designs in the design field.

Keywords: Design research, theory, interactive research design

Introduction: Supervising postgraduate research in design

In this paper, the research design of a graphic design master's dissertation serves to illustrate the use of theory in a dissertation research design. As a supervisor, I reflect on theory as the galvanising interactive component of the illustrative research design. I conclude that theory enables a praxis conception of research design, and speculate briefly on the role of theory in design practice-based research designs.

I am often confronted with postgraduate scholars' feelings of timidity and inadequacy in the face of their (mostly qualitative) postgraduate research undertakings. This is a matter of great concern for me since the qualitative researcher is held to be the chief instrument of a

qualitative study (Henwood 1996). For the researcher to orchestrate research design elements in a qualitative study has long been a qualitative research tradition. A nascent post-qualitative movement now, however, challenges qualitative research traditions (see for example St Pierre 2011). Theory is prioritised in most post-qualitative viewpoints. My aim is rather to show how theory can engage with empirical material, in unexpected ways.

Resistance to theory is thought to be a ubiquitous feature of postgraduate supervision (Adams & Buetow 2014). This is not helped by typical 'research methodology' courses, which prioritise a slew of impenetrable terms that do little to enhance scholars' confidence in *doing* their research. The variety of interpretations of terms like 'paradigm', 'research orientation', 'research approach', 'research methodology' and 'theoretical framework' in qualitative research literature only makes matters worse. With the proviso that there are other ways of understanding these terms, and that one must always provide the source for a particular interpretation, I attempt to draw distinctions between the research terms used in this paper.

Theory, theoretical and conceptual frameworks, and research design

A theory is "any explanation offered for why/how something exists or works" (Pratt 2016a, p 1). Theoretical frameworks, to borrow some of Pratt's terms, are explanations offered for why/how conditions, situations and events exist or work. These theoretical frameworks may be on the level of the grand theories of, for example, Newton, Einstein, Freud, Piaget, Hume, Kant, Wittgenstein, Marx, Durkheim, and Weber. Though these theories endure, they are not readily applied to the *local* problems of qualitative research. There are though middle-range or 'translational' (Adams & Buetow 2014, p. 99) theories with widely applicable tenets, which have been derived from grand theories. These theories embrace broad concepts like activity theory, gender theory and symbolic interactionism. Middle range theories then have wide applicability.

The purpose of this brief pass over theoretical frameworks is, however, just to show what sort of role they may play in master's or doctoral research. Theoretical frameworks do not signal or oblige allegiance to research paradigms, as Pratt (2016a, p. 1) points out.

Trying to define the term 'theoretical framework' can diminish its meaning, and anyway, this meaning is differently described across authoritative sources. One can at least say though, that the grand and midrange theories referred to above are not limited to any field, but all qualify as theoretical frameworks (Anfara & Mertz 2014).

Theoretical frameworks have been differentiated from conceptual frameworks. Usually, a theoretical framework is *selected* by the researcher at the start of the research project. Conceptual frameworks are *constructed* by the researcher over the course of a study and are thought to be a 'less developed' form of fully-fledged theoretical frameworks (Grant & Osanloo 2014).

The difference between theoretical frameworks and conceptual frameworks might then appear to be *when* and *how* they influence a research design. This differentiation cannot, however, be sustained. Grant and Osanloo (2014) admit that theoretical frameworks may only fully emerge in the data analysis phase of a study. This makes for an unwieldy distinction between theoretical and conceptual frameworks. In this paper, the focus is on research design emergence through interaction of research elements, including theoretical/conceptual elements. Possible distinctions between theoretical/conceptual frameworks are not central to the present paper, however, so will not be discussed.

'Research design' can be minimally defined as the strategic integration of all study components (including methodology, and theory) that both drives and sustains the thesis argument (De Vaus 2006). Maxwell (2013, p. 12) cites Hammersley and Atkinson (1995, p. 24) state that

“research design should be a reflexive process operating through every stage of a project”. This echoes Maykut and Morehouse’s (1994, p. 123) counsel that “an open-minded approach to relationships between theory and data and the concomitant action on the part of the researcher allows the research design to emerge over time”.

However, these views do oppose the typological understanding of research design, for instance empirical, non-empirical, textual or non-textual types of research (Babbie et al. 2003).

They also oppose the logistical approach to research design, because, usually, the planning of sequential steps recommended in respect of a particular typological design (Grant & Osanloo 2014). I have seen logistical research design steps presented under the banner of ‘research methodology’ in university course guides, as a reassuring ‘one way’ practical guide to success in postgraduate studies.

That a research design is *guided* by a research orientation, research goals and questions, theory, data collection and analysis methods (Robinson 1998) is a better but still an *a priori* proposition. It is for these reasons that this paper adopts Maxwell’s (2013) view of optimal research design as interactive and emergent over the course of the study. This is illustrated in Figure 1.



Figure 1: Maxwell’s Interactive research design framework (Maxwell 2013, p. 15)

The economy of Maxwell’s (2013, pp. 13–14) research design schema is possible because he assigns broad and flexible meanings to each component. A shortened explanation of Maxwell’s research design elements in Figure 1 is provided, as follows:

Goals embrace the study issues and aim, as well as their significance. Goals are tightly linked to research questions and the conceptual framework and may also influence methods or be influenced by methodological constraints.

Conceptual frameworks ask about what the researcher thinks is ‘going on’ in the research context, and what that context is. Maxwell (2013, p. 13) recommends that the researcher simply asks what theories, research and attitudes are linked to what is going on, and what further theories/studies/personal experiences could help to understand what is going on. Again, these issues increasingly interact with research questions.

Research questions are the malleable nexus of what in particular needs to be found out, what is already known in connection to the inquiry, and what is not known.

Methods ask what the researcher intends to do about answering questions. What methods and techniques of data generation and analysis will best align with research questions and goals?

Validity asks questions about in the interaction of the above research design components, as they might vouchsafe or deny the credibility of the study, with attention to potential alternatives in the case of each component.

It is perhaps necessary at this point to distinguish between research methodology and research design. Research methodology refers to the philosophical logic behind the use of particular methods (Roberts 2014, p. 2). Research design is the frame of reference for the development of the study methodology (Babbie et al. 2003, p. 74).

The research terminology melee has recently been much complicated by vehement debate about the relative importance of theory and data in a research design. As Alvesson and Kärreman (2013, p. 2) have said:

[That] both inductivist and deductivist approaches share a belief in a clear separation of theory and data and a deep-seated trust in the capacity of data to inform and correct theory building. They also share a strong belief in premeditated process.

What theory might bring to research data is the chief concern here. The master's dissertation examined in the next section is offered as a case in point.

A 'research for design' study: theory and research design

The idea of distinct purposes for art and design research was first raised by Frayling (1993). These were 'research for art and design', 'research into art and design', and 'research through art and design'. There has been some debate about what these distinctions mean, with a tendency to favour Findeli's 2004 analysis (written in French and cited by Goldin & Zahedi 2014, pp. 2–3). The differences are roughly that 'research for design' is research that informs design practice; 'research into design' studies examine designed artefacts and their history, and research through design' reflects on the design production process of a designer or designers. The present illustrative study of theory in research design uses a 'research for design' example.

Goals

The challenge of the 'research for design' study concerned the graphic design need to understand the social identities of those who view the visual messages that graphic designers create. To understand their audience, graphic designers must monitor changing values and shifting social milieux, discerning and 'speaking to' the transforming and proliferating social identities of those whom they address.

Arguably, social media websites are a pre-eminent arena for monitoring changing social identities (Lane et al. 2005). This study focuses on divergent or diversifying masculinities as a currently salient area of social identity change. The diversification of masculinities is seen as a matter of the visual rhetoric content about masculinity in image posts depicting men. The chosen social media website is Tumblr, because of the prolific but anonymous posting of images on this site. The goal of the study was to show how masculinities as aspects of social identity may come to diverge through visual rhetoric transactions on the Tumblr social media platform.

Conceptual framework

The beginning conceptual point of reference for the study was visual rhetoric. Seminal texts on visual rhetoric provided a starting point but did not address the rapid exchange of images on Tumblr in which the 'rhetor' role constantly switched from post originators to post responses. Carnegie's (2009) theory on interactive rhetorical functions in new media was then integrated with the seminal visual rhetoric texts in the dissertation literature review. This laid the foundation for a theory of digital visual rhetoric.

Gender theory informed the masculinity focus and more importantly provided the broad concept of performativity (Butler 2011) as encompassing the 'rhetor' generation of visual rhetoric on Tumblr, through image posts. Giddens's (2013) conception of social reflexivity similarly embraced user post responses to performed visual rhetoric. Tumblr users constantly switched between initiating (performative) or responsive (reflexive) image posts.

Here, theory served a methodological purpose by showing that performative and reflexive image posts could be verified en masse, or in a small set of linked posts.

The final stage of the creation of the conceptual apparatus was the inclusion of fashion theory. There is a large and venerable body of theory connecting fashion with social identity. Fashion theory has drawn upon sociological, anthropological, economic communication theory over the twentieth century. Fashion theory embraces all of the preceding concepts, namely social identity visual rhetoric, gender, performativity, and reflexivity. Arguing for fashion as the visual surface of these concepts in Tumblr image posts was then possible, especially in the light of broader interpretations of fashion. The master's scholar drew upon Pan et al.'s (2015, p. 53) conception of fashion:

Fashion refers to the symbolic, aesthetic, and cultural meanings that artefacts carry, especially the ways in which people use objects to express their taste, lifestyle, social status and belonging to a community.

The embodiment of this conception of fashion is illustrated by the Tumblr post in Figure 2.



Figure 2: Fashion as taste, lifestyle, and belonging to a community (Nair 2018, p. 25)

Together, the theoretical elements described above shaped the conceptual framework shown in Figure 3.

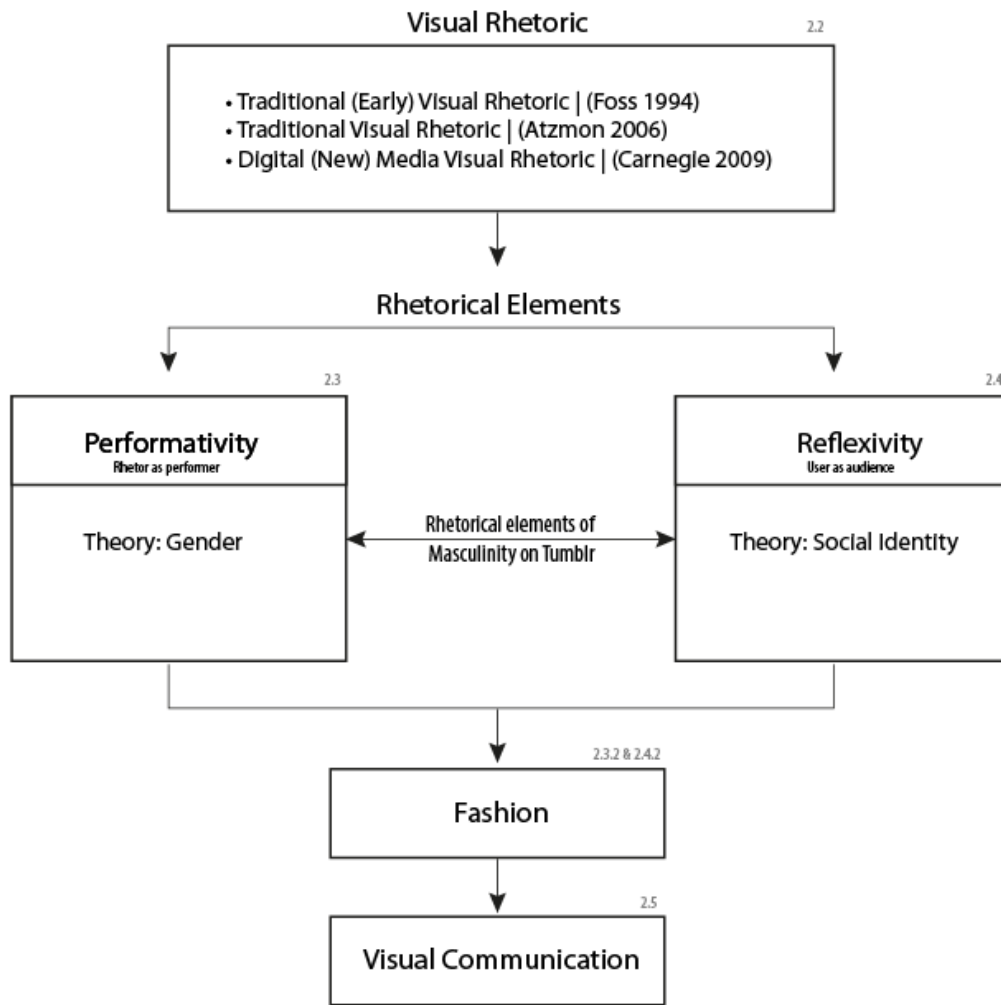


Figure 3: Theoretical shaping of the conceptual framework (Nair 2018, p 12)

Methods

The constantly unfolding visual events and the proliferation of actors in the Tumblr theatre, made a traditional ‘methodology’ chapter seem highly inappropriate. This is first because Tumblr shows user-generated content, such as posts, comments, re-blogs, hashtags and re-posting of images. In this way, the extent of user interactions with an image can be discerned. Such user interactions with an image can also be tracked from the initial image post through a series of further user interactions, arriving perhaps on a user Tumblr wall where images are combined.

In this way, the Tumblr user interface suggested a strategy for tracking posts that concerned masculinity. The Tumblr research setting itself then shaped the ‘methodology’ of data generation and analysis.

Tracking Tumblr user activity concerning masculinity content required needed an initial piloting process. The piloting process was called ‘analytical sampling’ because it used the conceptual framework to analyse user activity for image sampling purposes. This strategy required an initial conceptualisation, a trial run and then refinement before it could be implemented. The piloting process is shown below in diagrammatic form in Figure 4.

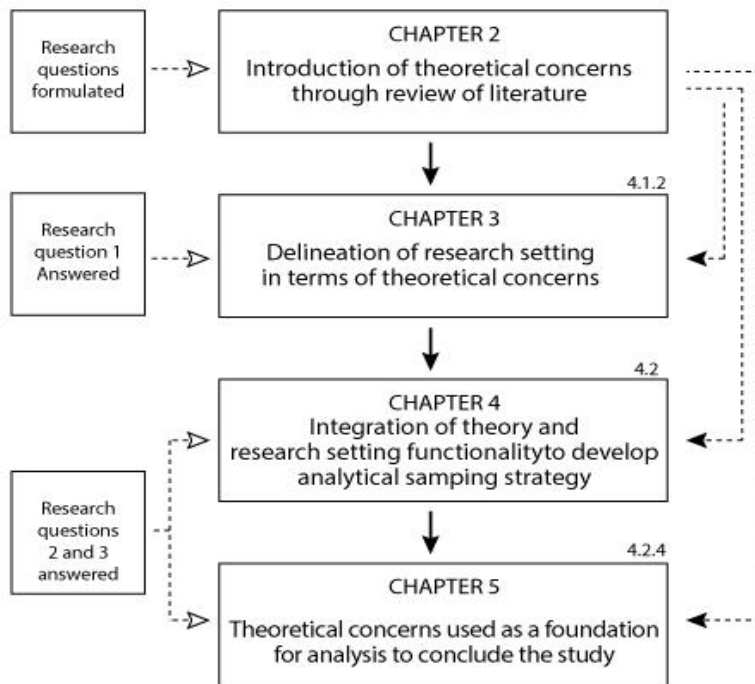


Figure 4: Initial piloting of the conceptual framework for analytical sampling on Tumblr (Nair 2018, p. 51)

The refinement of the piloted analytical sampling strategy achieved a reciprocal leveraging of theory and data. The finalised ‘analytical sampling strategy’ consisted of two layers: firstly, a framework for standardising the researcher’s interaction with Tumblr, and secondly theoretical protocols for an analytic sampling of what was encountered in the researcher’s interaction with Tumblr. This is shown in Figure 5.

Framework
Images could come from anywhere on Tumblr, both through Tumblr’s search functionality (researcher actively searching for images as an average user would), as well as via images suggested to me by Tumblr itself on the Tumblr Dashboard (researcher functioning as a passive audience to Tumblr’s suggested content)
As user-researcher, I would allow myself to move multi-directionally (Carnegie 2009) through Tumblr as an average user would (from image link to image link), images to be considered for sampling should have accrued over 1000 notes
Each sampling session would last for 1 hour
Each search session would occur once a day at the same time each day (18h00)
Search sessions would be carried out for 60 days (between July and September 2016)
No limit would be placed on the number of images collected within a session
The date of upload of the image would not be a sampling factor
New search sessions could follow hashtags discovered in previous sessions as starting points
Images should be placed within a context (through montage, on a Tumblr wall) of fashion imagery if not overtly relating to fashion or masculinity in isolation

Images saved would be moved to a Tumblr wall, as a means of recording both the image, as well as the attached shifting meta-data

Protocols		
Theoretical considerations		Structural considerations
Search inputs should relate to male fashion	➔	Any search inputs must be auto-completed by Tumblr
All Tumblr walls and hashtags explored should relate to male fashion	➔	Only automatically suggested content can be explored from Tumblr's search functionality
Images should relate to the performance of masculinity through fashion	➔	Images must have fashion-centric hashtags
All images considered for sampling should be potent indicators of the evolution of ideas from relatively arbitrary challenges to normative social identity constructions to a shared shift in thinking	➔	Images must have accrued a minimum of 1000 notes signifying that the image has been interacted with by 1000 anonymous users on the network, who have either liked the image or have reblogged the image on Tumblr

Figure 5: The analytical sampling process (Nair 2018, pp. 60–61)

Figure 6 gives an example of what, through the analytical sampling strategy, could be considered 'data' or empirical evidence in this study. This example shows the kind of combinatory montage that may constitute a Tumblr user's predilections, reflected on their Tumblr user wall.

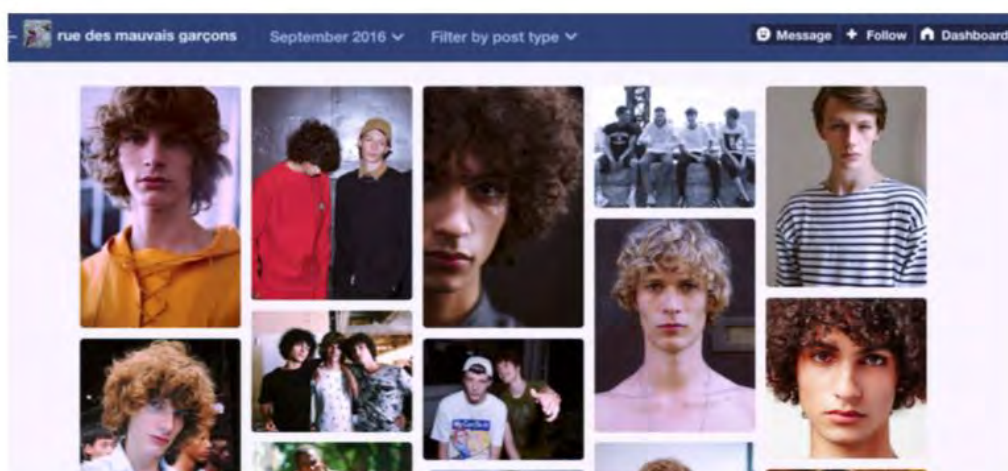


Figure 6: Combinatory montage of images on a user wall (Nair, 2018, p. 67)

Research questions

Research questions are only now addressed in this paper because much of what is narrated above preceded their precise formulation. The scholar's research questions were initially shaped by theory in the literature review and addressed and amended over the course of the

study. Following a detailed explanation of the research questions, Figure 7 gives a diagrammatic representation of how these questions were tackled over chapters.

1. How is masculine identity expressed and understood through visual rhetoric on Tumblr? Chapter 3 contributes to answering this question by delineating the masculinity visual rhetoric research setting within Tumblr’s overall environment, examining the ways in which Tumblr users perform and reflexively respond to visual masculinity rhetoric.
2. How do masculinities as aspects of social identity diverge through visual rhetoric on Tumblr? By developing and implementing an analytical sampling strategy, Chapters 4 and 5 address this second research question.
3. What is the broader significance, for visual communication design, of visual rhetoric on Tumblr that evidences divergent masculinities? This question concerns the importance of the study to the visual- communication design industry and is addressed in the concluding section of Chapter 5 by drawing upon insights gained throughout the study.

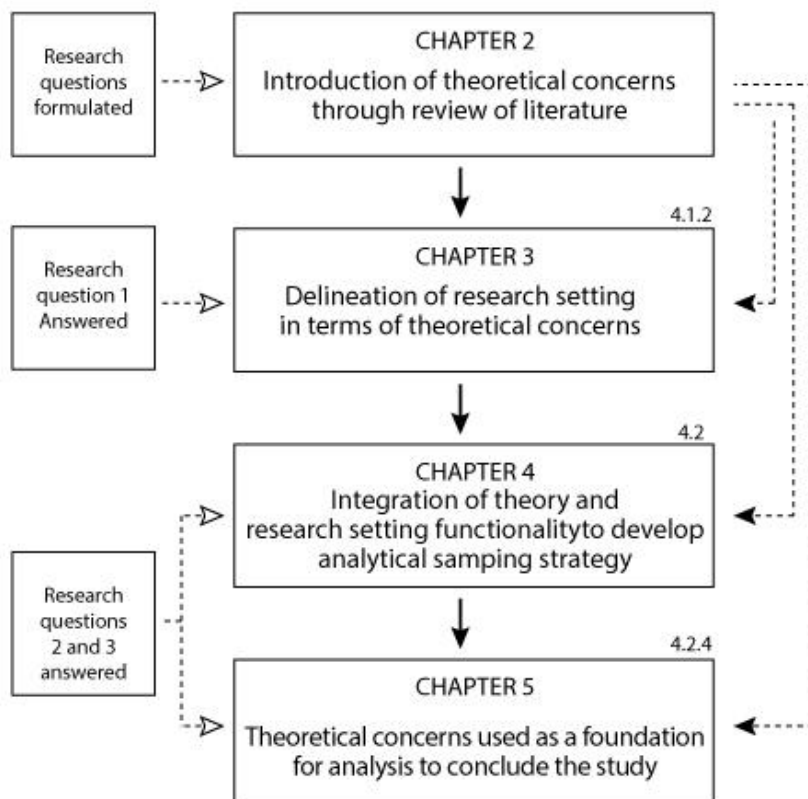


Figure 7: Evolving research questions and answers (Nair 2018, p. 51)

Validity

There are many different ways of construing validity. In this study, we took the view that validity “applies to entire research process and refers to ways of legitimising knowledge that rest on *the quality of fit* [my emphasis] between observations, facts or data and conclusions based these” (Gaede 2004, p. 13). Echoing this summation, Maxwell (2013, p. 121) emphasises the relative nature of validity, as “assessed in relationship to the purposes and circumstances of the research, and not a context-independent property of methods or conclusions”.

These validity tenets very much concern the research design interactions. The issue of validity was chiefly addressed in this master's dissertation through diagrammatic depictions of research design relationships. Figure 8 shows, for instance, how data was generated, and it is one of the figures in the thesis that evidences research design moves.

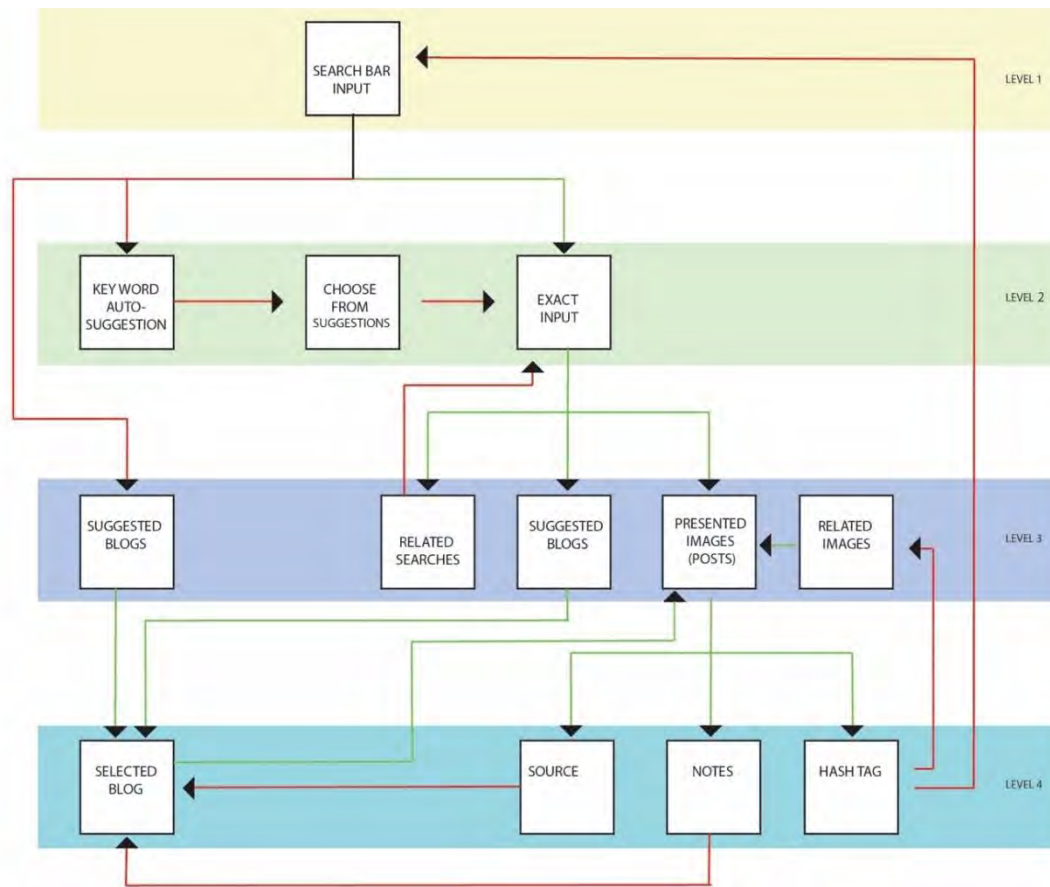


Figure 8: The researcher's analytic sampling map (Nair 2018, p. 93)

The research design of this study then emerged through theory and data interactions, in which theory was the driving element. As a result, five diverging masculinities were illustrated, as exemplars of an ongoing process of masculinity diversification.

Further, though, it became evident that other forms of changing identity could be discerned using the research design of this study. As the master's scholar, Nair (2018, p. iii), noted in the study abstract:

It is suggested that the research design and methodology of the study can be used to investigate other forms of changing social identity besides masculinity. This is important for visual communication designers, who need to monitor changing social identity mores and their visual expression on social media.

Reflections on theory and data in research design

There has been a criticism of what are called 'dataistic' approaches (Alvesson & Kärreman 2013, p. 5) where the data 'collected' by the researcher is expected to fit the theoretical or conceptual framework. In the first place, data are not 'collected' as if they were scattered about the research setting, ready for plucking. Nor is the research setting (in which data are

'collected') necessarily commensurate with the real-world problem or issue the researcher wants to investigate, as Pratt (2016b, p. 1) explains:

The research problem addresses what researchers perceive is wrong, missing, or puzzling, or what requires changing, in the world (Sandelowski 2008, p. 784). Indeed, it does so address such issues, and, as Sandelowski (2008) continues, "leads directly to the research purpose(s) and research question(s)" (i.e. after a review of how this problem has been conceptualised and studied by other researchers, in the literature review). But, the research problem addresses the real-world problem: it is not the same as it.

This is the case even if we are indeed in the very place where the research phenomenon occurs: the naturalistic context that is a hallmark of qualitative research (Henwood 1996) where the research problem occurs. Rather data are a *generated* montage of worldview, theoretical focus and research questions, and the choice of data sources (St Pierre 2013). This is before data comes to be analysed, a matter on which Stelmach makes some cautionary comments. There are three kinds of data, namely 'direct or descriptive data', 'semi-direct data' and 'indirect data' (Morse 2006, cited in Stelmach 2016, p. 25). 'Direct data' describes a phenomenon, but description requires at least some implicit theory of what it is that is being described (Strauss 2010). Description is then not possible without some level of theory about what is being described (Strauss 2010). Agar's (cited in Maxwell 2013, p. 59) statement that "You can't pick up rocks in a field without a theory" puts this in stark terms. A 'picking up rocks' theory is a foregone conclusion in surveys and also what is regarded as 'base data' or demographic information. More abstracted semi-direct data' are grounded in fallible researcher interpretations of 'raw' data. Highly abstracted 'Indirect data' are inferences drawn from non-verbal cues or symbolic indications, on the basis of their repeated occurrence in the data, rather than the verification of any instance.

Conclusion: Theory in research design

In the Tumblr study examined in this paper, theory and data are juxtaposed. This is consistent with Jackson and Mazzei's (2013) 'plugging' theory into data and data into theory. Most importantly, though, theory allows a tailor-made methodological approach that is interpretive, but still substantive. The theoretical pluralism (Kelle 2005) of the study also provides heuristic theoretical concepts for deciding what might constitute data.

The study research goal of identifying diversifying masculinities through visual rhetoric was reached and also opened up further possibilities for tracking social identity on social media. This does seem to be because of the *utility* of the theoretical components. Visual rhetoric analysis is a quintessentially interpretive endeavour, yet visual performativity and reflexivity could be substantively 'enmeshed' with social media metadata and functionality. From this perspective, the research design of this study might be considered to be 'praxis'. While 'praxis' usually refers to theory and practice relationships, an effective research design achieves more: praxis is the engineering of theory and data relationships over the entire research design.

Theory in this unusual master's research design also importantly resists the re-territorialising (Perold-Bull & Costandius 2019) of a research inquiry, that might make issues more tractable but tends to imbue the inquiry with highly inferential features. Admittedly, the particular theories put to work in this master's study do steer the research design, but not in a pre-emptive way. A conceptual framework of theories is first forged on the basis of access to the phenomenon of diversifying masculinities which is under study. Second, this conceptual framework is subjected to emerging data and accordingly made malleable. The result is an application of theory that interlocks with data. Because this is done in a critical and reflexive

way, the research may be regarded as making a valuable contribution (Alvesson & Kärreman 2013, p. 45).

With regard to praxis, 'research for design', and 'research into design' can rely on the kind of research design interactions described in this paper. However, 'research *through* design' (involving a practice component) poses different and contentious challenges (Godin & Zahedi 2014, pp. 2–3). Artefacts always carry knowledge, with which they are imbued by our activities and practices. But, practice-based research artefacts are not (yet) part of the social world of participative activities and practices. So, research artefacts must be contextualised by the researcher, in a critical and reflexive way. The 'making' function of research through design is one where the designer-researcher must "evaluate from *within* the activity that which evolves *through* the activity: the realisation of intention in concrete form" (Prentice 1995, p. 12). This means that the practicum is may be 'disclosive' (McLaughlin 2006) of its own theory, and therefore practice-based research designs may be more interactive and emergent than research designs of the 'theory in' (MacKellar 2010) variety.

In practice-based research, 'praxis' is misconstrued as the complementary relationship between the practical 'making' element and theory. While research design interactions within and between theory and practice-based elements are what count for credibility, they are not limited to theory and practice. A research design is made up of calculated and strategic changes read off research component interactions, for the intensely praxeological function of argument. Of these research design components though, theory is the component most crucial to research design as praxis.

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Typographic Shifts Arising from the Connection between the User, User Interface and Typographic Layout

So-dam Lee: Cape Peninsula University of Technology
Izak van Zyl: Cape Peninsula University of Technology
Monwabisi Ralarala: Cape Peninsula University of Technology

Abstract

Typography is constantly shifting its form according to technologies and audiences. Understanding the constant motions of typography is critical in designing forms of visual communication. In addition, current digital technologies provide novel opportunities for users to participate and co-create new typographic conventions. Online 'fandoms' consist of communities with interests in cultural phenomena, ranging from fan art to celebrities, to artefacts. Fandoms are an example of user-generated content with strong typographic shifts. This study undertook gawlix as a case, to examine the relationship between online users, typographic layouts and digital technologies, with the aim to understand current conditions of typography. Gawlix is a series of symbols (e.g. !@#)\$) and visual effects that are used in comics to enhance the narrative and to disguise potentially offensive content, like expletives. However, online users are introducing new typographic conventions and uses of gawlix in digital settings. In particular, this study describes and explores those conventions that manifested in the typographic layouts of Twitter as a popular digital platform. Waller's (1987) typographic genre model was used to understand the connections between the online user, interface and typographic layout. Data was obtained through three methods: participant observation of a fandom, document analysis of interface and typographic layouts, and semi-structured interviews with online fans. Interpretative Phenomenological Analysis (IPA) was also used to describe the experience of the online user as a producer of typography and audience. The primary finding of this research is that the narrative use of gawlix in print media shifts to a medium of social and emotional self-expression in a digital setting. The study suggests that the distributed aesthetics of typography produced in a digital setting are dynamic as these are continuously consumed and redistributed by online users. It is no longer the designer's sole role to manipulate and produce typography; rather, the designer has become a central collaborator in an organic process of online typographic development.

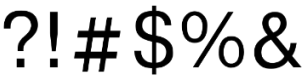



Keywords: Typography, grawlix, typographic genre, user-generated content, typographic layout, online fan

Introduction

Grawlix is a series of typographical symbols and signs used in comic strips and cartoons as a visual tool to enhance narrative and visual experiences for readers (Racicot 2014). Grawlix was coined by American cartoonist, Mark Walker (1980) under the umbrella term *maladica*, the language of cartoon symbology. Broadly, grawlix is the creative substitution of profanity and any other offensive content using symbols and glyphs. Van Elburg (2013) extends grawlix by introducing non-conventional typographical elements such as spiral or dynamic lines and textual effects that are incorporated in comics to enrich the narrative (Table 1). Van Elburg’s study also identifies several cases where grawlix is used in digital formats such as emails, fonts and emoticons. Indeed, as new digital technologies enable self-publication on digital platforms, online texts are readily accessible, recreated and repurposed.

To understand the contemporary context of typography, this paper describes and explores the typographical genre shifts in grawlix. The paper draws on Waller’s (1987) typographical genres theory and employs Interpretative Phenomenological Analysis (IPA) to uncover how online users on social media platforms interact with digital interfaces and tools to create unique typographic conventions.

Table 1. A list of grawlix examples (Van Elburg 2013)

Types	Examples
Use of glyphs and punctuation marks	
Obscenicons (a series of negative imaginaries presented in pictogram)	
Scribble lines, shapes and spiral lines	
Visual-textual effects	

Specifically, we explore how grawlix is repurposed by users, and in this case, online fans. According to Bell (2001), online fans are typically infatuated with particular cultural media such as series anime (Japanese animation), manga (Japanese comic books), cartoons or celebrities. An online fan community shares its strong affiliations through fandoms: collectives of fan-made cultural works and activities from particular media of interest. Through fandoms, users interact using self-created artefacts such as fan fiction, fan art and role play. Fandoms are a bricolage of unique forms of cultural production, as users actively produce and consume their own fandom (Pullen 2004, p. 81). Fan communities have their own communicative practices that involve language socialisation, adaptation and creative semiotic works, that are repurposed within a bricolage (Thorne et al. 2009, p. 806). These lead to new communication opportunities and include new uses of language and different, shifting typographic forms. Hybridised resources in fandoms promote new uses of typographic forms and conventions that differ from the 'traditional' grawlix used in comics. Therefore, we depart from the assumption that grawlix used by online fans on digital media may be perceived differently from grawlix used in comic strips. Consequently, we observe the emergence of new typographic genres.

Definitions of typography

This section outlines the definitions of typography relevant to this particular study. This study shares Mawhood's (2014, p. 4) views of typography as the visual manifestation of marks represented in any form of communication medium. Mawhood (2014) also discusses the ambiguities in typography and lettering. According to Baines and Haslam (2005), lettering is an illustrated, unique composition of letters; typography is related to repeatable units and specific graphic conventions often used in writing, which concerns the typographic form in relation to how it is produced. However, Mawhood (2014) argues this to be an ambiguous description of typography because it is concerned with articulated meaning within a visual framework and with the visual organisation of specific graphic forms. These views of typography are particularly relevant as typography itself does not communicate in isolation but relies on other visual interferences to communicate holistically. Therefore, in this study, we emphasise the importance of typographic layout and its interaction with visual interferences.

Typography in motion

Digital technologies enable ordinary users (non-professional typographers) to produce diverse typographic conventions. In this section, we define the current context of typography and how it is influenced by digital technologies and users.

People rely on typography more than ever as they access information and interact through digital screens. Reichenstein (2006) underlines the importance of typography as 95% of information on the web is (or was then) presented in written form. Lupton (2010, p. 9) regards typography as complimentary to writing as it gives visual expression to the writer's ideas, enhancing readability. Similar to the written form, typographic communication manifests in an author-text-reader relationship. This could be regarded as the interaction between the designer (author), typographic form (text) and audience (reader). Printed media clearly establish the author (designer) as the sole owner or producer of the text. Hence, typography is complete and fixed.

Conversely, digital media allow for multiple authorships. Thus, typography is open and fluid (ibid.). Yee (2006, p. 193) observes the contemporary shifts of typography, as designers do not

have absolute control but rather provide open templates for users to complete through their constant engagement and interaction.

The emergence of digital technologies has shifted the role of passive reader-consumer to that of active author-writer. In terms of the current study, we observe this in the transitions from printed media (comics) to digital media (social media platforms), in which online fans actively repurpose and reformat grawlix communication. This implies a typographic genre shift in grawlix. In the following section, we discuss Waller’s (1987) typographic genres model as a theoretical guideline to understanding the connection(s) between users, the user interface and typographic layout.

The typographic layout of the interface

An interface is defined as a visual feature that connects the device, the digital content and the user. In digital documents, users access and create content through the interface. Therefore, in this study, we focus on the typographic layout embodied in the digital interface. To do so, we define typographic genres and discuss how typographic layout helps to make sense of a certain typographic genre.

As highlighted by Waller (1987), the document layout has a particular generic structure that leads to certain expectations in reading and writing. Waller here regards typographic genres as dynamically non-sequential because these rely on visual inferences that are interpreted differently according to context and purpose. Waller distinguishes between linguistic and typographic genres based on the principle that linguistics presents a linear, sequential, internal and systematic structure (De Saussure et al. 1996). This linear sequence occurs through the arbitrary relationship between the abstract, virtual, internal system (signified) to the material form (signifier).

However, Waller (1987) suggests that typographic communication does not rely on any abstract internal systems or linear relationships between words. Rather, it relies on the document (medium) itself. By this means, the writer and reader rely on the expected layout conventions and constraints of a certain document. Based on this distinction, Waller (1999) proposes a genre model of typographic communication involving three stages: (1) the relationship between writer, text and readers, (2) functional constraints, and (3) genre structure (Figure 1).

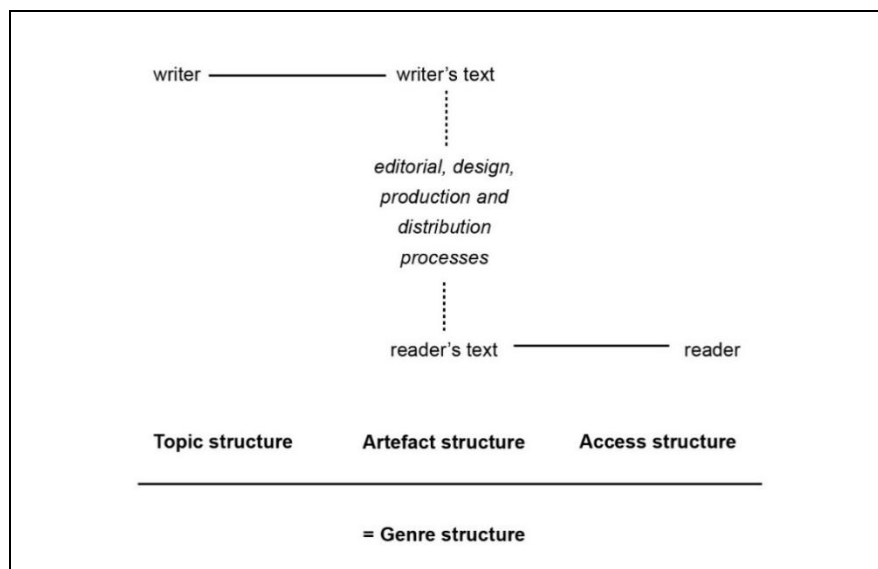


Figure 1: A diagram of Waller’s genre model (1999)

Waller (1987; 1999) introduces three important structures that lead to a certain typographic genre structure. These three structures influence how certain typographic layout choices are made and composed. 1) Topic structure concerns the composition of information and content by the writer to support their argument and intention. An example of a topic structure could be a writing plan, such as a photo session and mind mapping technique, 2) Artefact structure is associated with the constraints of the document and its technological production. This structure often influences a particular typographic choice, 3) Access structure investigates the interaction between text and reader. This structure focuses on how the reader gains access to the writer's text. Readers often self-organise and self-reference from their prior knowledge of a particular document style, especially if consistency or patterns appear in the layout as a visual cue (ibid.).

Finally, genre structure comprises the relationship between the three structures, as mentioned earlier. Waller (1987, p. 229) identifies and categorises four typical features of typographic genres:

- *Typical context of use*: Situations (such as industrial, domestic, educational and bureaucratic); products (such as books, periodicals, objects, packs and containers); and, in the case of historical examples, date of origination.
- *Typical format and configuration*: page (or field) size and shape; binding (where appropriate); paper or other surface material; and frequency and use of colour, grid and boundary (such as line, box, column, page, book and container).
- *Typical treatment of verbal language*: Composition system (such as letter, image quality); typographic style (such as atmosphere and associations); range of signalling (such as underlining, bold, and italics); and additional features (such as rules, tints and borders).
- *Typical treatment of visual elements*: Pictorial syntax or style; proportion of visual to verbal language; and how visual and verbal language are integrated.

This list effectively demonstrates how typographical genres are visually identified. Therefore, we attempt to uncover new typographic genres as they emerge on Twitter.

Interpretative Phenomenological Analysis (IPA)

The nature of this study involves uncovering a multiplicity of meanings and personal interpretations embodied in visual form. As per Waller's (1987) model of typographic genres, there is a need to understand the relationship between the writer, text and reader, as well as the functional constraints of certain documents, to underline particular typographic genres. This requires capturing the lived experience of online fans as active writers and readers, and how they make certain typographic decisions as they interact through digital interfaces and their social contexts.

Consequently, we adopt the Interpretative Phenomenological Analysis (IPA) as an underpinning analytical lens. IPA is based on the phenomenological tradition, which centres on interpersonal, subjective knowledge and experience (Reiners 2012). According to Pietkiewicz and Smith (2012), IPA provides a comprehensive guideline to investigate how individual experiences of certain phenomena in context and attach meaning to it. The methods are drawn to the thick descriptive and interpretative analysis of data obtained from the participant's perspective (Pietkiewicz & Smith 2012). Therefore, the IPA method involved treating data on a case-by-case basis through an open-ended approach that helped to capture the individual online fan's lived experiences of their process of typographic production and interpretation in the digital medium.

Methodology

The open and participatory nature of IPA encourages researchers to engage in participants' views of the world. In this regard, we employed three methods to capture data: 1) Participant observation of online fan communities on a social media platform; 2) Document analysis of interfaces and typographic layouts produced by online fans; and 3) Semi-structured interviews with six online fans to describe their experiences as active content producers and consumers. The study centred around online interactions on Twitter, a microblogging site where online fans share their fandom and enable research engagement through commenting and fan discussion.

Contextual analysis of grawlix on Twitter

In this section of the paper, we describe the journey of how typographic layouts are composed on Twitter from the perspective of online fans. As discussed earlier, IPA allows the researcher to immerse into the participant's world fully as the researcher is actively engaged in their natural settings. Subjective knowledge is described through the researcher's experience as an active fan. In what follows, we examine the Twitter interface and the lead researcher's experience as an online fan.

Twitter is populated with online text called 'tweet' or 'tweets'. According to Kelsey (2010, p. 181), a tweet refers to a short message and the act of writing a post. A tweet is published by a Twitter user and shown to followers who have subscribed to the Twitter user in a process known as 'following'. A Twitter user is a writer who publishes a tweet, and a follower is a reader of the tweet. However, it is important to note that the roles of writer and reader can easily shift as a Twitter user interacts with tweets by replying and commenting on other users' published tweets.

The Twitter interface consists of two important pages that are critical in establishing grawlix communication: 1) a Tweet Composer, and 2) a Home timeline. Online fans use the Tweet Composer to design and plan their tweets before they self-publish it (O'Reily & Milstein 2009). This relates to Waller's topic structure, where a user composes their text. A Home timeline is where followers gain access to other users' published tweets. This corresponds to Waller's access structure.

The multimedia features available on Twitter allow users to create layouts that are dynamic and typographically versatile. The Tweet Composer, as illustrated in Figure 2, has various multimedia features and options available. By clicking Tweet Composer items (Block A), Figure 2 illustrates a tweet generated within a text box in Block B. Underneath this text box, multimedia features are accessed, illustrated by Blocks C (pictures and videos) and D (GIFs).

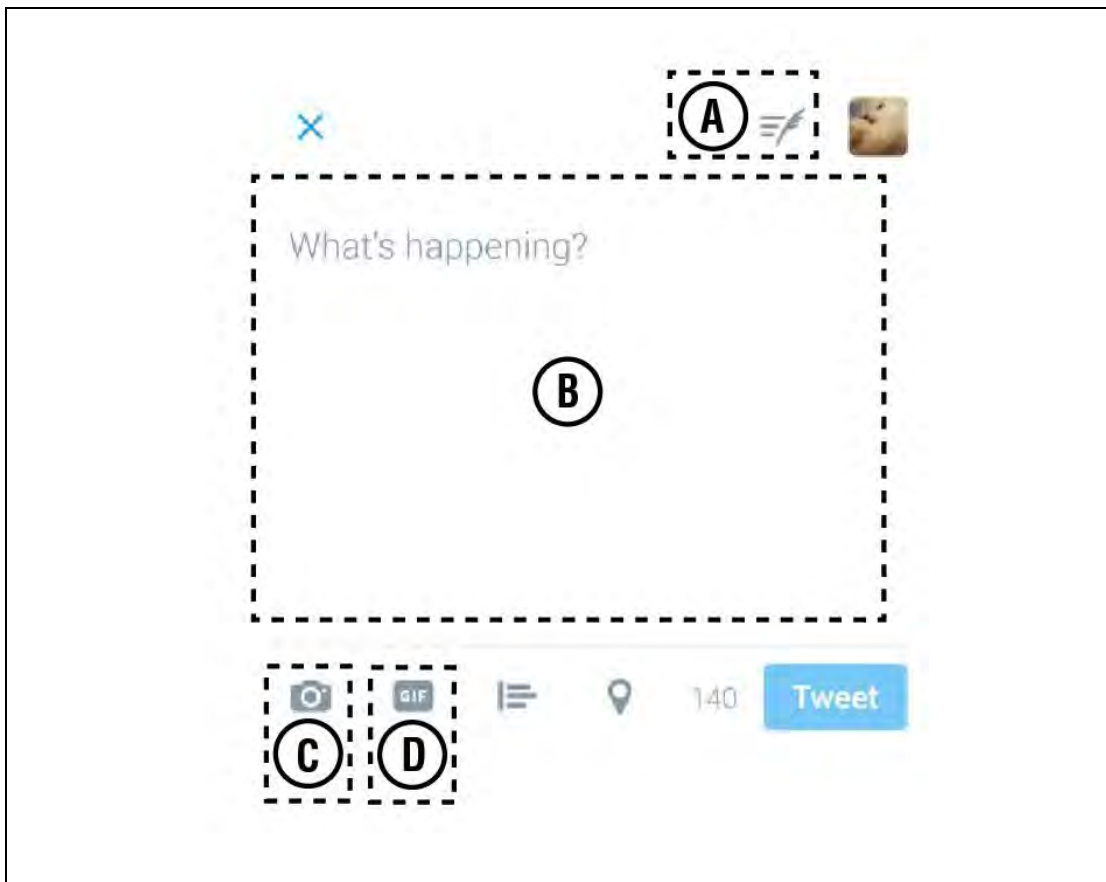


Figure 2: A screenshot of the Tweet Composer box

The various multimedia features in the Tweet Composer allow users to select various typographic layouts (see examples presented in Table 2). Many non-conventional typographic variables are often incorporated with or without text. These can include GIFs, emoticons, pseudo-alphabets and images or video with dynamic layout varieties. It is also important to note that eclectic and distributed aesthetics in typographic forms are produced through these multimedia features. Askehave and Nielsen (2005) emphasise that the multimedia feature of web text encourages users to produce polysemous text. For instance, the use of emoticons does not only serve to signify facial expression but could be used to substitute words or tones of the text in the given context (see example B, listed in Table 2).

The online fan's ability to create a bricolage of various existing resources leads to new typographic forms. The pseudo-alphabet is one such case. According to Eli the Bearded (2016), a pseudo-alphabet is an eclectic mixture of Unicode and symbols that are selected based on their superficial similarities. As illustrated in Table 2 (Example C), the user incorporated various non-linguistic symbols and linguistic characters (Korean Hangu, the English alphabet and Chinese characters) in composing a tweet. However, it is important to note that a pseudo-alphabet does not only denote character replacement: it could include any other graphic variations that are substitutions for any similar exterior appearance or linguistic connections to the original text.

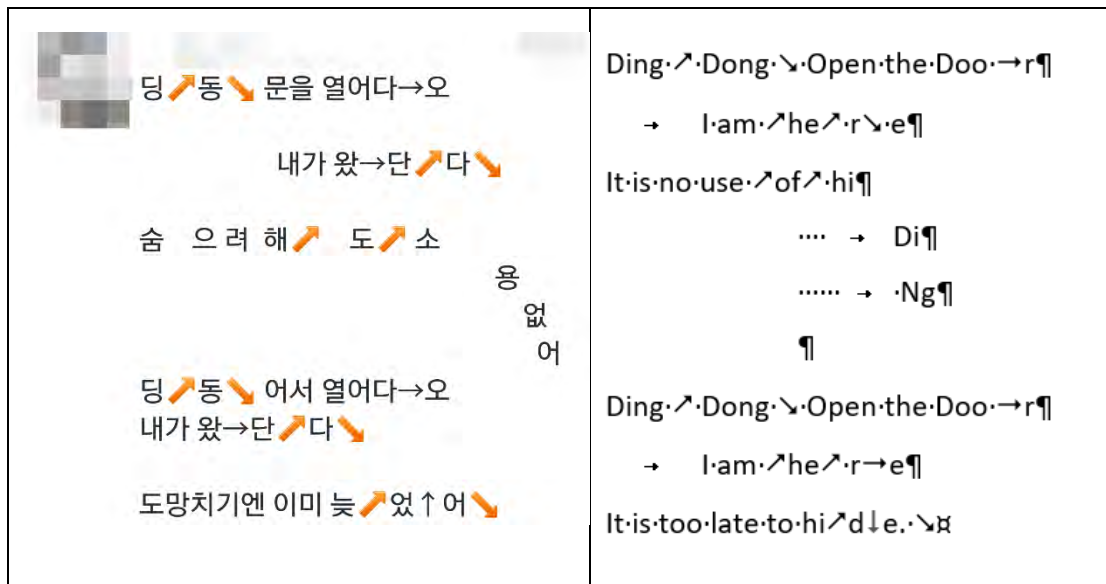


Figure 3: An example of layout variations

Twitter has a tweet limitation of 140 chars (characters). This influences the choice and arrangement of multimedia features, such as emoticons, memes, or images. It is important to note the 140 characters limitation is closely related to artefact structure because it serves as a technical constraint within the document. This boundary creates a certain typographic convention and default interpretation. During interviews with online fans, participants mentioned Twitter's character limitation as to the reason for making a certain typographical choice, for example, using abbreviations, acronyms or emoticons that take up fewer characters.

The online fans, as a reader often accesses tweets through their Home timeline page. This page features a list of published tweets (Figure 4), and this is where the user accesses others' online text. This corresponds to Waller's (1987) access structure as the Home timeline connects followers (readers) and text (produced by the writer). The default typographical layout featured in Twitter is illustrated in Figure 4. The list of tweets is organised vertically from top to bottom. Each tweet is separated by a light grey line (see F). G illustrates a standard typographical layout, which consists of a user's profile picture or icon (H) on the left and the content of the tweet displayed on the right (I). The content of the tweet is headed by a username in bold (**@username**), signifying the writer. The user icon and username both serve to indicate the author of the tweet, so to differentiate from other users' tweets displayed in the timeline. Directly below the tweet content (I), four functions are indicated in J, namely Reply, RT (Retweet), Like and DM (Direct Message). These enable users to interact with and respond to a tweet, using answering (reply), forwarding to others (RT), indicating approval (like) and direct private contact (DM). Furthermore, the 'reply' function can be used to extend the original tweet, thus compensating for the 140 character limitation, as illustrated in Figure 5.



Figure 4: Published tweets displayed on a Home timeline

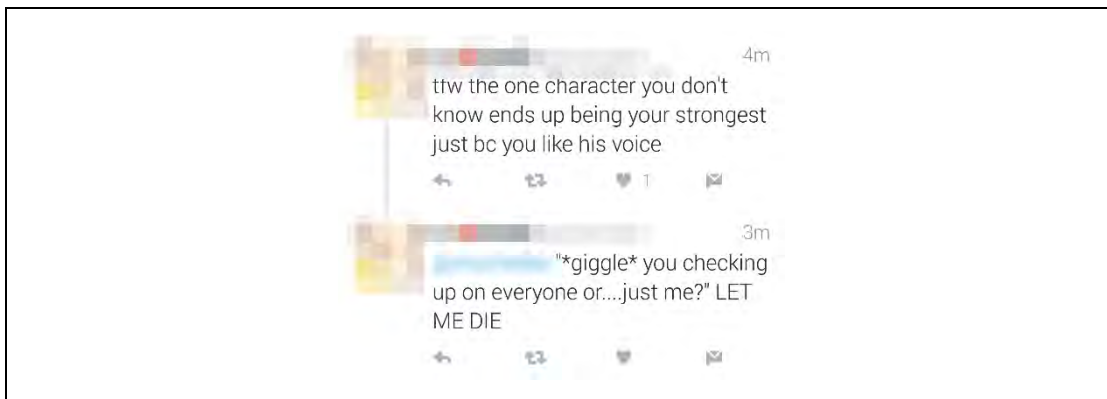


Figure 5: The reply function in Twitter

Apart from being a central information point, the Home timeline also provides a social space within which users interact. During an interview with one of the participants, she illustrated how she acquires new knowledge on new typographic forms and uses (see the interview in Figure 6).



Figure 6: The influence of others' typographic choices (Interview with P6)

This transcript demonstrates that many online fans acquire new typographic uses and forms by interacting with other users, which often occurs through the Home timeline. This indicates that typographic layouts used in grawlix are dynamically constructed through an online community. Based on the analysis of the typographical layout in Twitter, this section presents a summary of typographic genre structure on Twitter (Table 3).

Grawlix used in Twitter fits a genre of microblogging sites that are typically presented in short text messages, often limited to 140 characters. Because Twitter offers a virtual platform within which to socialise, grawlix is typically used by online fans in their contribution to fandoms. The use of grawlix is often interpersonal and self-expressive, as it serves a social and paralinguistic function. Online fans use the Tweet Composer to create dynamic typographical layouts that comprise a bricolage of grawlix and online resources. The 140 character limitation motivates online fans to look for alternative ways to compose their message, for example, by substituting words with emoticons.

The typical layout of grawlix in Twitter (Figure 4), consists of a profile picture and username, online text, and four multimedia functions. These functions lead to dynamic and unconventional typographical layouts (Table 2). Grawlix is accessed through the Home timeline, which users employ as a central information point to access and interact with others' tweets. This indicates that grawlix used by online fans is a dynamic and distributed aesthetic.

Table 3. Summary of findings

	Grawlix used in Twitter
Typical context of use	<ul style="list-style-type: none"> – Asynchronous setting – (text could be exchanged in offline and online interactions)
Typical format and configuration	<ul style="list-style-type: none"> – Character restriction: 140 characters – Image upload is restricted to four images and one GIF – Online text is produced within the compose box – Online text is accessed through the Home timeline
Typical treatment of	<ul style="list-style-type: none"> – Text is mostly accompanied by multimodal media

verbal language	– Text could be displayed vertically, horizontally, and diagonally
Typical treatment of visual language	– Diverse use of non-typographic features – Highly pictographic – Textual layout is dynamic – Use of external materials from other websites

Conclusion and implications

The invention of Gutenberg’s printing press enabled the mass production of print media, and the emergence of new typographic forms. Historically, many designers have been influenced by the technologies of their time to create their own typographic movements. We need to reflect on the relationship between technologies and audiences in the past to understand the current emergence(s) of typography. This can be achieved by studying the typographical layout in a particular medium. As technology shifts from print to digital (on-screen) media, this study examined the typographical genres embodied in a digital interface.

As Waller (1987) describes, the interaction between the typographic layout in a certain document, a writer and a reader, helps to establish a particular form of typographic communication. Hence, we examined the interaction between typographic layouts on the Twitter interface and online fans as active writers (composers) and readers. We conclude that there is a typographic genre shift in the use of gawlix. Where the original use of gawlix in comic strips serves to enhance the narrative (e.g. to represent obscenities), gawlix used in Twitter serves a social and interactive purpose. Here, online fans typically use gawlix for creative self-expression. In this regard, we find that gawlix is highly dynamic as it is being reshaped and repurposed by online fans through the bricolage process. This indicates that current notions and uses of typography in digital settings are fluid and include distributed aesthetics. As long as there are online users who create and interact, continuously, through digital platforms, typography will be in constant motion.

Acknowledgements

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

In Search of a Wisdom-Seeking Creative Research Approach: Intimacy, creativity and rasa

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Abstract

Despite the development of Practice-Led Research (PLR) to acknowledge the centrality of practice in the pursuit of research outcomes, the methodology still seems to be confined by the necessity to separate out the cognitive/conscious processes (of writing, for example) from the phenomenological and body/mind dynamics at play in the creative process. This confinement seems to be a product of duality or a binary research system as espoused in the West. The central thesis of this paper, therefore, is to attempt to demonstrate a potential strategy that circumvents or collapses this dichotomy. This paper sets a triadic relationship between/among practice-led research, Kasulis' (2002) theorising of intimacy in understanding, and the eastern philosophy of Rasa, in the pursuit of wisdom.

Keywords: Rasa, practice-led research (PLR), neuroscience, creative process

Introduction

The advent of Practice-Led Research (PLR) over the last decade or so has led to the actual creative process becoming central to the research process. In this, the designers, with their own abilities, training, philosophical and theoretical context, political and cultural positionings, gender and race situational views and related idiosyncratic identity has centralised the design process in research. Nevertheless, the demands of research itself has opened up a duality between, in simplistic terms, offering solutions to a problem that design procedures engage in, and the necessity to find some way of documenting the process, justifying (or explaining) the process and offering some form of 'finding transferability' that might arise from the creative act. Instead of the final design manifesting as the findings, the necessity for the justification act can also be seen to guide the process of problem resolution, resulting in a dualistic, visual-to-verbal-and-back-again dichotomy.

This 'dual thinking' demand runs the risk of the potential alienation of the one side of the creative equation from the other. Following Hatchuel and Weil (2003) and others, this split between conceptualisation and knowledge generation/justification, as captured in their C-K

notions of design, can be argued to be deeply embedded in a Western approach to problem engagement and solution-seeking in design. This paper suggests that this alienation can be obviated by an approach that is monistic in its conceptualisation and can be found in the Eastern philosophy and practice of Rasa.

To make this argument, I first open up the tensions between such a Western, dualistic approach to dealing with problems, and an Eastern, monistic approach. To do this, I turn to the work of Kasulis (2002) and his understanding of a Western, duality manifested integrity model of dealing with the world, and the Eastern, monist, intimacy model of engagement with and in the world. Following this, I outline the precepts and dynamics of Rasa and then proceed to suggest ways in which Rasa can operate in the field of design. I suggest that the 'bridge' between the two approaches can be conceptualised through an understanding of neuroscience, as several neuroscientists have made this argument.

I speculate, therefore, that Rasa can be a process, a strategy, an underpinning and the like to be used as a way of 'rediscovering' the fields of the unknown in pursuit of new wisdom (the supposed hallmark of research objectives. A pursuit that is, by its very nature, emergent, iterative and creative (Hallam & Ingold 2007) and therefore the domain of practice-led research. As such, the potential contributions to new knowledge lie in engaging in the possible efficacies of the interweave of the processes, and in fostering the notion of transferability.

I start this journey by drawing on a central Kasulis metaphor from his book titled *Intimacy or Integrity Philosophy and Cultural Difference* (2002, p. 68) the role of salt and water in seawater, and sand and water where shore and sea meet. When salt and water are mixed, the one is dissolved and appears no longer to be salt. They have become one, inseparable, displaying an act of intimacy. If one removes the salt from the seawater, it is no longer seawater. In the act of becoming seawater, salt is no longer salt, and seawater is no longer water. To attempt to deal with each aspect individually loses the very essence of seawater – seawater suffers loss in analysis, dissection and duality. Its 'seawaterness' exists after dissection only as a memory, so to speak. However, in the case of where the sand of the shore meets the sea, the shore influences sea flows, currents, energies and the like, and the sea influences shorelines, shapes, intensities and the like, yet the sand and sea retain their individual identities of self-sufficiency and purity. Separation does no 'damage' to either entity. Although they influence each other they are discrete and maintain their integrity (to a large extent, although an argument can be made about the power of the sea to erode the sand particles – no metaphor is complete).

This metaphor or analogy opens the duality of 'practice' as 'research', in that, seen separately, the West has traditionally seen 'practice' as the 'work in the studio' and 'research' as 'the work in the laboratory', so to speak. These two working methods seem to need to maintain their integrity, although, of course, the results in each case, speak to and engage with the other, yet, upon 'retreat', the 'studio' delivers product or conceptualisation, and the 'laboratory' delivers knowledge. Both can exist without the other. Given this position, how might this be changed so that the studio *is* the laboratory, the product *is* the knowledge, the practice *is* the research? In other words, how can one 'intimately collapse' the duality into a monist sense of creative being in the world? I suggest that Rasa provides this opportunity and strategy.

Integrity and intimacy in research

Kasulis (2002) explains the integrity mode as independent of emotions, sentiments or feelings – a sense of objectivity (or, in this argument, two sets of subjectivities that interact objectively, to be able to retreat, their subjectivity intact). Kasulis identifies integrity and intimacy as generalisations or heuristic patterns. Integrity is described as something that retains its wholeness, is self-sufficient, pure and impersonal. Kasulis further describes integrity as seeking

objectivity through external verification where the 'truth' is verified by the five senses and in this Kasulis, through his heuristic model, provides another avenue on how we see, think and interpret the world we work and live in. The cognitive changes that occur transform from inspiration to desired outcomes, transcending both the physical and mental. Knowledge is gained through the dualistic, objectivity-driven, disembodied and discrete, integrity model (of the West).

Kasulis's intimacy lens focuses on the knowledge of seeking objectivity (seen as 'wholeness') through assimilation of emotion, experience and holistic analysis of the phenomenon itself in the 'coming into existence of the phenomenon'. The intimacy orientation engages with the heart of the human being and how we see and interpret/engage with/operate in the world. The Intimacy model, therefore, speaks of the interweaving of everything, of Yin and Yang, because if you remove Yin, there is no Yang. As Kasulis argues, separation or discreteness brings loss and the loss of intimacy, where intimacy can be seen as a persistent moving forward of and toward the emergence of subject formation. Tentatively, this approach acknowledges and settles into the 'seeming' of the past through memory, embeds its being in the present and celebrates the promise of becoming in the future. As a narrative journey, it fosters the inseparability of the designer and the design, the context as an intimate whole in the process of making, and therefore, and inevitably, it locates me as designer in the emerging and renewing hybrid self in the processes of subject formation. It also, inevitably, embraces empathetically, the presence of those for whom the design is to be used in the pursuit of flourishing. Thus, it becomes extraordinarily difficult to shed my intimate design presence to take on my/an 'intimate' research presence, for example. Furthermore, because design is, by its very nature, intimately involved with those for whom and with whom the design is 'made', it becomes futile to exclude them from the process.

Introducing Rasa

(Before proceeding to a discussion on Rasa, two matters need to be clarified. Firstly, much will be made of the presence of the 'emotions' in the matter. Through neuroscience, as discussed below, one is aware that the primary emotions are the driving forces of cognitive activity and the regulation of being in the world, and so the use of the term in this paper is embedded in that definition. 'Feelings' are the conscious realisations – both in terms of manifestations and in terms of conscious recognition – of the emotional drives. Therefore, 'emotions' can be seen to be closer to 'life forces' than feelings. Secondly, in an ironic twist to this paper, much of the describers of Rasa who operate close to the source of Rasa, have been compelled, in their writing about Rasa, to take on the dualistic, Western, objective language usage that is, therefore, often problematic because it cannot, almost by obvious implication, capture the 'essence of an emotion'. In this regard, I am aware that my own effort, in this paper, is laden with the same 'flattened and flattening' potential!)

Rasa is metaphorically defined as sap, juice or nectar to refined connotations of desire, love and beauty that evolved into the intellectual sophistication, and reflected as a life-resonating force or energy (Prasad 1994; Nair 2007; Kumar 2015). Rasa is defined by Kumar (2015) in his web article *Rasa theory and its application in translation with reference to Shakuntala of Kalidas* as "the structural analysis of the totality of human experience and behaviour, and is based on the conception of experience, being knowledge and cognitive mechanisms". The argument is that cognition emerges through/following the act of experiencing. Whereas cognition (concrete realisation, in both senses of the word 'realisation', that is, 'bringing forth' and 'making conscious') is sentiment/feeling-based (see the section on neuroscience, below), exploratory expressive actions are driven through the emotions (or life-forces). Rasa is translated (problematically) as a 'sentiment' or 'mood' and *bhava* as an emotion or feeling (also problematically). The difference between the artist/designer and the aesthetic is that the

artist is embedded in experience-driven action, whereas the aesthetic is traditionally seen as perception. Following Kasulis, however, aesthetics in Rasa should also be seen as an action-driven experience. Thus, this creative, emergent, cognitive and/or emotion-driven experience is metaphorised as the sap or juice that spills into and ‘fills up’ the ultimate metaphysical experience of attaining a sense of an elevated state of consciousness. Rasa’s strategic creative focus is on the three main areas of design and meaning-making, firstly **form** (the world, the shapes of the world, the designerly shapes in the world, the world as designerly shape, my form as designer/a design as and in the world, and so on), secondly the **experience** (the action, moving in and through time and form, driven and energised by emotion/bhava/the life forces), and thirdly the **meaning** (ever emergent, contextual, present and shaping). Phenomenology and Rasa engage with the human, lived experience, a search for and through the senses including awareness and reflection and encoding/decoding of the emotion to understand or be in the moment of design practice.

Drawing closer to the (Western dichotomy of) designer and ‘the act of designing’, I define Rasa emotion as an expressive state during an interaction. Rasa requires the designer to connect the outside atmosphere/world/experience of all to a deep-seated inside emotional connection, and this transformation is considered to enunciate the elements of beauty (wellbeing) and sense of joy in a subject formation. This inside/outside connection has an almost symbiotic relationship shared between the artist/designer and their work. The philosophy embraces how art universalises emotions, making them a channel of appeal to those for whom is designed. The designer, the designed and the observer mould/transform together in the moment of emotion-driven, interaction. Western philosophy defines this as a moment of supreme empathy brought about by an emergence in (a) shared experience. According to Bhat (1984, n.p.), Rasa can be presented and “interpreted as an intense emotional experience revealed through certain structures, leading to an awareness of universally shared emotion resulting in pleasurable relish”.

Experience is core to transcending. Here Rasa acknowledges the seeming, being and becoming of experience. In this way, one becomes ‘experienced’ through practice, through skill acquisition, and through acting in time and context. As one enters the experiencing of the ‘now’ this ‘past experience’ guides, supports, channels, and directs the present experience. The channelled current experience points towards the becoming of the transcendent, the future, the sublime, the oneness with the world. The promise of ‘Becoming’ allows one to access the creative, emergent world (of subject formation, following Kaiser [2012], for example) and abductive thinking in what we become after the experience.

It is critical to realise that such Rasa-driven moments are not isolated in the experiences of the designer (in this case) alone but are always seen in intimate relationship or oneness with the world. As a designer I am in (and of) the world, and it is through the intimate moment of design action in and for the world, that I become/transcend, the design becomes/ transcends, and the world becomes/transcends, so to speak. Inevitably, therefore, those for whom the design is intended becomes part of that empathetic, embedded, designerly process.

Neuroscience

The human mind or intellect is in constant probe or searching for the connection between the body, mind, and spirit. This curiosity (*jigyasa*) is the foundation of the embodied experience. Csikszentmihalyi (1976) describes it as a state of flow. Drawing on neuroscience to explain emotion as a ‘subjective experience’, Peil (2014, p. 81) describes it as primal perceptions/experiences of time, space and self, self-moving constituting a feeling of being. He further describes emotions as rooted in self-reflexive feedback loops that could be both positive and negative in nature and in the embodied experience. The mind-body relationship

within the intimacy context is that the mind has the creative potential and the physical body follows as a duplication of the creative image and that the mind and body are simply an immaterial-material continuum that supports and complement each other. We are body and mind, material and immaterial, yin and yang.

The problem seems to arise (in the West, and therefore in research matters) when this experience needs to be made conscious, to be 'converted' to data, words, disputation, and logical and defensible rationalisations. This puzzle of consciousness represents a struggle between the epistemology and the phenomenology of Rasa, intimacy, aesthetics and its engagement in artistic/design practice, on the one hand, and formalised research, on the other. Here the connection between neuroscience and artist/designerly collaboration to create new awareness/a changed world is important. Intimacy is related to the personal subjective experience having an introspective ability. Ramachandran, Hubbard and Butcher (Nair 2013, p. 1) explain the concept of the synesthetic as "a theory explaining the neural mechanism of aesthetic experience where a set of neurobiological principles form the very nature of human perception and its multiple modes of emotional experiences relating to external stimuli that evoke a specific functional reaction" a view also shared by Hubbard and Butcher (2004). Indeed, Ramachandran's description of this theory neatly captures the core dynamics of the Rasa moment, yet using concepts that arise from neuroscience. According to Bhattacharjee (2018, p. 1), "consciousness has as a property the neurons in the brain". This insight places the artist/designer at a critical juncture to delve more deeply into the structuring of thoughts, ideas and emotions experienced during creative output because it is reinforced by neural mechanisms, as explained by Johnson (Nair 2013). Creativity, according to Wiggins and Bhattacharya (2014, p. 1) attempts to bridge the gap between the scientific, cognitive and the human element. Consequently, research, or the seeking of wisdom, about the designerly process opens up avenues that can move towards justification. Yet it does not preclude the enfolding of those for whom the design is made into the emergent process through empathy, for example.

Argued in this way, it seems that, by redefining research demands to move away from 'new knowledge' (or documentable information and strategies to be applied elsewhere) and toward 'new wisdom' (seen as embodied empathetic flourishing in the world) or, *phronesis* (practical wisdom), Practice-Led Research (see below) is explainable through both Rasa and neuroscience. To all intents and purposes, *phronesis*/practical wisdom refers to the ability to engage with current forms, times, actions and problems in the world in such a way that they are transcended into solutions for the future. Practical wisdom is the ability to realign the future by drawing on the experiences of the past and the present – the task of the designer, one might argue. It is also the working mechanisms of Rasa (both as designer-in-practice, and as designer-in-community), and, as I shall argue in the next section, of Practice-led Research in design.

Practice-Led Research

The argument now proceeds to interrogate the dynamics of practice-led research as temporal, iterative, contextual, and emergent and driven by *phronesis* (practical wisdom) (Hallam & Ingold 2007).

I wish to argue that the wisdom of intimacy and the knowledge of integrity demonstrate how Rasa is an effective methodology for practice-led research. According to Candy (2006), practice-led research brings new understanding about the practice and advanced knowledge within the practice. Rust, Mottram and Till (2007, p. 11) define practice-led research as a methodology that includes "an explicit understanding of how the practice contributes to the inquiry and the research is distinguished from other forms of practice by that explicit

understanding". According to McIntyre (2006), the writing process – together with the knowledge gained through the reflective activity – exercises the space for academic analysis. Once again, I approach the position laid out by Kasulis (2002) as he explores the tensions between an Integrity approach to understanding (discrete and therefore binary) phenomena, and an Intimacy approach (the yin/yang of existence) that resonates so strongly with embodiment and the act of making. It also opens out the phenomenology of essence and Rasa. Haidet (2012, p. 76) points to "knowledge [that] often is gained or transmitted in a non-discursive way" and "intimate knowledge gained through praxis allows the artist or creative [designer] in intimate relation to having inside knowledge". The frame adopted by this paper is around the change in research from an Integrity model, which draws on the notion of discrete units and phenomena, including discrete units of people, places and the like, on the one hand, to the intimacy (of) the immersion and emergence – the becoming which fosters understanding. The argument that follows suggests a move from 'designing for' – with its Western notion of the separation of designer and 'receiver' – towards a notion of 'designing with' – where the intimacy of shared experience is foregrounded.

Practice-led research is described as no single set of ideas but varies from discipline to area and individual depending on the type of questions been asked/problems encountered/contradictions and obstacles to flourishing, that is being and investigated.¹⁷ This fluidity spills into the domain of research practice that plays a critical role in research inquiry or investigation. Since practice-led research is described as purposed for working through process with a certain aim in mind, this further ties in with Schön's (1983) reflective practise leading to new insight. Practice-led research further concentrates on how issues, concerns and interest can be examined and the knowledge that stems from the investigative experience lies in the tangible final product, and evidence/experience-based. Bruner (2017, p. 27) describes practice-led research as a "methodology for designers to access and grasp such implicit understanding in a manner that is most intuitive to them – through the act of designing". Drawing Rasa into this description foregrounds the nature of the implied empathetic experience of those for/with whom the design is generated.

Mafe and Brown (2006, p. 2) point out that the area of interest and approach in practice-led research is also attributed to "individual interest, skill and context". The creative and analytical seed is initially planted by a thought, experience or a belief, which, then, following McNamara (2013) asks that the designer-researcher take cognisance of the shortfalls, elaborations and descriptions arising from the temporal, iterative, contextual, and emergent design, which is driven by *phronesis* (practical wisdom) (Hallam & Ingold 2007). This then sparks, I would argue, the Rasa journey. Whereas this description seems to emphasise the designer's experience, the argument being made is that it needs, *ipso facto*, to embrace all involved.

Smith and Dean (2009, p. 47) note that practice-led research "aims through creativity and practice to illuminate or bring about new knowledge and understanding, and results in outputs that may not be text-based, but rather a performance (music, dance, and drama), design, film or exhibition". This adds to new knowledge across different fields. In 'traditional' integrity-driven research, the methods to be used in capturing the emergent data parallel the autoethnographic strategies through exegesis and growing the practice. Rasa would argue, perhaps, that the data is not 'captured' but 'lived'. Uneasy as this may seem for traditional research, it suggests, through Rasa, the embodied and experience design is the research,

17 It is perhaps significant that the word 'investigate' contains the concept of 'investing', which is to say that, following the argument being developed, all are 'invested in' the pursuit of flourishing towards experiential transcendence.

because it pursues the transcendence of conventional knowledge and occupies a realm of empathetic experience.

Practice-led research, seen through the emotions of Rasa, allows that intimate insight to expand in the reflective process to understand the mechanics of experience and emotion better when engaging with different designerly projects. Through the integrated nature of the intimacy model, students need to be led to towards an empathetic and therefore shared experiential plane of design briefs and projects through lived experience, tacit knowledge and idea generation. Rasa strategies trace the 'seeming' of technique, the 'being' of empathy, and the 'becoming' of flourishing. The learning platform is a space for self-discovery along this journey, a space that is fluid and allows the designer to engage with the experience and the mapping of the emergent thoughts of the mind, beginning from embodied doodles, sketching and writing, with the target of a shared and transcendent human flourishing. The Intimacy model speaks of the interweaving of everything, of Yin and Yang. As Kasulis argues, separation or discreteness brings loss while intimacy brings a persistent moving forward towards the emergence of subject formation. After the assimilation takes place, there is an interconnectedness with the designer, their work and community. Such a 'research process' transcends into wisdom.

Conclusion

Emotions are complex, rich and fundamental life forces, and enhance a different kind of awareness that is universal in nature and features across cultures. Rasa intimacy fosters the interconnectedness of all things. These mental states are manifested in the world through experience. New knowledge, through Rasa, is experiential knowledge, tacit knowledge and self-knowledge – in other words, practical wisdom or *phronesis*. Tacit knowledge is temporal, iterative, contextual and emergent, is not (often) part of traditional research paradigms. Rasa could allow practice-led research to foster new concepts of knowledge that are continuously being created. This is the new knowledge that is required by research that is not discreet but is acquired by experiential knowledge or Rasa. Connecting to core somatic states also connects life and design narratives with emotion and feeling states, which drive and energise action and perception. Through Rasa, the designer/designing 'is the experience'. The phenomenology of awareness allows the design-researcher to enter into and 'experience' the transitional-towards-transcendental space and to connect with the self (also known as the inner being or inner voice) and with/through this the flourishing world. Such design is, inevitably, research.

And the design/designer/world emerges into the world/designed/design/designer.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Sincerity, Authenticity and the Artistic Imperative in contemporary Zulu indlamu dance costume

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Abstract

Historically, the Zulu indlamu costume is a traditional battle dress. Over the years, it has come to constitute a significant feature of contemporary theatre stages in South Africa. Like other traditional forms that have made the transition from original functionality into the realm of art as education and entertainment, its accompanying costumes and regalia have aided the process. Together with these iconic costumes and related regalia, the indlamu dance continues to play a prominent role in the propagation of Zulu art and cultural identity. In this paper, we focus on contemporary Zulu indlamu costume in terms of how contemporary designers have been able to strike a fine balance between sincerity and the artistic imperative within a form that has traditionally relied on authenticity for effect. Our point of departure is the supposition that whether as art or as cultural propagation, the effectiveness of indlamu is to a considerable extent reposed in the sincerity and authenticity of the regalia. Our purpose is to investigate the extent to which contemporary designers have been able to strike an effective balance between sincerity, authenticity and the artistic imperative, especially in those instances when the dance is transported out of its original context and presented as education and/or entertainment.

Our investigation and analysis are particularly interested in finding out how a form whose basis is in war and tradition has transited into the realm of the artistic through costume design, as well as the challenges, innovations and alterations that have been effected to maintain sincerity and authenticity in attaining the artistic imperative. In arriving at a conclusion, we adopt Lionel Trilling's (1972) twin notions of sincerity and authenticity. According to Trilling, authenticity refers to the ability to 'stay true to oneself' while sincerity refers to a way of acknowledging that even if something need not be given aesthetic or intellectual admiration as the best or the original, "it was at least conceived in innocence of heart" (1972, p. 6). We rely on a qualitative methodology, which involved direct observation, as well as interviews with several Zulu cultural practitioners and other theatre design experts.

Keywords: Costume, sincerity, authenticity, artistic, transition, identity

Introduction

Like other traditional forms that have made the transition from original functionality to the realm of art as education and/or entertainment, the Zulu *indlamu* dance has been aided in this process by its accompanying costumes and regalia. Over the years, cultural productions from the Zulu nation in South Africa have achieved worldwide critical acclaim and established their artistic provenance through such shows as *Umoja* and *Ipi Ntombi* among several others. Not only have these shows toured the world, but they have also mesmerised world audiences with their colourful, exquisite and elaborate traditional Zulu costumes, also displaying the Zulu *indlamu* dance. These shows have played a significant part in helping the Zulu *indlamu* dance to find its way to theatre stages at home and abroad.

Zulu *indlamu* dance arose as a celebration of Zulu identity, traditional cultural events and rites of passage. However, over the years it has transformed into an artistic dance spectacle both at home and abroad, thereby providing a quintessential example of a phenomenon that has become prevalent across many postcolonial societies. This is the phenomenon of traditional cultural forms evolving into artistic spectacles through hybridity and adaptation through evolutionary processes. Latrell (2008, p. 42) uses the term 'heritainment' to refer to traditional shows or performances that exhibit seemingly authentic cultural forms while providing entertaining and imparting easily recognisable images and narratives. These shows can be in the form of multifaceted tourist shows that fulfil a myriad of functions including entertainment and education, as well as the construction of identities through subject matter, format and performance style. In such instances, education refers to the propagation of cultural identities through panache. The dynamism that inheres at the crossroads of these different variables inspires us to investigate notions of sincerity and authenticity in the transition from cultural functionalism to art in contemporary Zulu *indlamu* dance. We are particularly interested in interrogating how contemporary designers and traditional costume makers have been able to strike a fine balance between sincerity and the artistic imperative within a form that has traditionally relied on authenticity for effect. Our point of departure is the supposition that whether as art or as a cultural artefact, the effectiveness of *indlamu* dance costume is to a considerable extent reposed in the authenticity of the dress. Our purpose is to investigate the extent to which contemporary designers have been able to achieve the artistic imperative through sincerity and authenticity when the dance is transported out of its original context and presented as education and/or entertainment. The crossroads between sincerity, authenticity and the artistic imperative is particularly interesting for us. It is interesting in the sense that unlike real life, art and its accessories rely on make-believe (Schechner 2004). In other words, modern audiences tend to be fascinated and impressed when imitations reach the zenith in trying to approximate lived reality, whether in presentational or representational contexts. This is what we refer to as the artistic imperative in this paper. We argue that there is a fascinating contradiction in that while the artistic imperative thrives on make-believe, Zulu *indlamu* costume seems to achieve effect and effectiveness through sincerity and authenticity. This is not least because of the costume's origin and function as a principal propagator and marker of Zulu national identity and Zulu material culture.

In its original context, the Zulu *indlamu* dance was a military drill whose purpose was to instil discipline among men of the Zulu nation. The dance also performed a function to prepare members of the military regiments for war (Asante 2000, pp. 68-69).



Figure 1: Zulu *indlamu* dancers in Zulu *Indlamu* dance costume (De La Harpe 1998)***

Sincerity and authenticity in costume, regalia and performance

In this paper, our approach to sincerity and authenticity is informed by Lionel Trilling's (1972) twin notions of sincerity and authenticity. According to Trilling, authenticity refers to the ability to 'stay true to oneself' while sincerity refers to a way of acknowledging that even if something need not be given aesthetic or intellectual admiration as the best or the original, "it was at least conceived in innocence of heart" (1972, p. 6). We seek to explore the interplay between sincerity, authenticity and the artistic imperative against the background of how westernisation and urbanisation, with its attendant hybridity, has gradually led to certain transformations in Zulu *indlamu* attire. We believe that an understanding of the interplay between sincerity, authenticity and the artistic imperative can play a prominent role in assisting educators and modern designers of traditional costume and regalia in coming up with more convincing artefacts, especially in those instances where original construction materials are no longer available.

'Dress', 'costume' and 'regalia' are three inter-related terms. In performance studies, the three terms are often used interchangeably (Grote 1989, p. 237). Roach-Higgins and Eicher (1995, p. 7) define dress as an assemblage of modifications and supplements to the body, while costume is a form of dress in general, which includes adornments like bodily accessories, beads, tattoos and headdresses (Anderson & Anderson 1984, p. 18). Unlike dress, which is a bodily adornment in pursuit of modesty, protection from natural elements and cultural decency, costume serves a primary function to portray the wearer as a character or type that is distinct from their regular personality. Costume is usually worn at social events like weddings, graduations, rites of passage and other special occasions. However, the term is most often associated with theatre performance, where costume plays a prominent role in delineating character and events (Eubank et al. 2005). In this study, we adopt Anderson and Anderson's (1984) definition of costume as a key cornerstone in the process of attaining the fictional realm or the world of make-believe. Therefore, we differentiate costume from regalia as far as the latter belongs within the realm of dress for special or specific social occasions. At such occasions, the wearer does not necessarily adopt a fictitious identity but adorns certain items of dress (as regalia) with a purpose to accentuate the realm of make-believe. According to Schechner (2004), 'make-believe' happens when the part played becomes inseparable from

the character or role in real life. A magistrate or a supreme court judge adorn items of regalia that delineate their role as a custodian of justice and the peace without them necessarily playing the part. This is the world of 'make-believe'. The traditional respondents in this research corroborated the essential difference between costume and dress/regalia. They were quite reluctant to use the term 'costume' to refer to Zulu *indlamu* outfits, preferring to rather refer to it as regalia as they felt that the term 'costume' refers to something that is used for playful activities and/or purposes.

Costume is a central aspect of theatre and performance. It helps to tell the story. Actors in costume instantly direct the audience to the setting of the events as it also assists the transition into the realm of fiction and the world of 'make-believe' (Holt 1988, p. 7). Actors in costume hasten the process of the willful suspension of disbelief among the audience. It also helps the performance to come alive for the spectator by connecting their visual and tactile senses to the charisma and suspense of the unfolding storyline (Dogbe 2003). In Zulu traditional societies, regalia defined occasion and ceremony. Different items of regalia were worn in times of war, at funerals, during rites of passage, and at weddings and other social celebrations (Dougherty 2008). In all instances, the dress worn reflected the content, substance and the mood of the ceremony. According to Brussell (1983, p. xiv), several things ought to be taken into account when studying the history of traditional dress such as that of the Zulu nation. These factors include culture, the socio-political environment, geographical location and the function of the dress. This renders the study of traditional costume and dress as a complex phenomenon that takes into account issues of a people's psychological, socio-economic, and environmental influences and well-being. The latter is particularly the case with regard to Zulu traditional dress, which continues to place a premium on sincerity and authenticity in both original and contemporary contexts.

Several researchers, including Brussell (1983) and Zaloumis (2000) have documented the use of animal skin-based military costumes. For instance, Dougherty (2008) writes that in times of war Zulu regiments dressed in light and loosely fitting animal skins to stay cool in a generally hot African climate. The king and other members of royalty wore the skins of more valued animal species such as leopards and royal game. Military regiments wore headdresses of feathers, with strips of animal fur tied around their waists. Tufts and strips of animal skin were tied around the shins, the ankles, and the arms. Some warriors wore necklaces made out of animal teeth, horns and wood (Dougherty 2008). The practice of making garments out of the skins of domesticated animals, notably cattle and sheep is still comparatively widespread among the Zulu people (Magubane & Klopper 2001, p. 37). De La Harpe (1998, p. 21) explains that the Zulu traditional male costume consists of two strips of animal hide hanging from a central waistband to which is added the tails of cows, monkeys or genets. Strips of rolled animal hide and beads are worn across the chest and around the neck. The headdresses consist of a ring of animal hide that is sometimes embellished with feathers and quills. The use of leopard skins signifies that the wearer is a member of royalty – either a chief or a chief's councillor. Nowadays, these outfits have been hybridised with the inclusion of brightly coloured synthetic fabrics, with bicycle chevrons and reflectors also added to the skins. The notion of evolution and hybridity in traditional forms of dress in Africa leads the famous Nobel Prize-winning South African writer, Nadine Gordimer to ask 'What is a tribal dress?' as she proceeds to supply the answer "Something in a constant state of change since Africans began to wear anything" (1988, p. 194).

In this paper, we argue that as traditional cultural and war regalia, the insistence on using organic animal hides and skins in the construction of the Zulu *indlamu* dress was part of an enduring quest for authenticity within the broader matrix of the psychology of warfare. In other words, the organic element afforded the wearer the psychological strength to face adversaries from a zoomorphic frame of mind in which he identified with the source animal

for the skins. On world stages, the Zulu *indlamu* costume has striven to display the full regimental attire of elaborate skins and shields, as well as headdresses, ceremonial belts, knobkerries and spears that continue to epitomise Zulu material culture (Hatfordhouse 2008). However, presentation on the international stage has occasioned a new set of challenges for the Zulu *indlamu* costume. The major challenge for the designer, the design educator and the design student has had to do with the tension between achieving sincerity and authenticity on the one hand and the artistic imperative on the other. According to Hill and Bucknell (1987), clothes and costumes for theatre stage performances often develop out of necessity and artistic functionalism depending on the projected visual outcome and the desired aesthetic of the play or performance. As Brussell (1983, p. xii) explains, several factors influence the development of stage costumes. Technological development is one of them. In Africa, as in other parts of the world, the idea of performance is very much about 'showing' and 'seeing'. It is about spectacle where the spectator encounters and engages with the performer as the two define and continuously redefine and aesthetically evaluate that encounter throughout the performance (Okagbue 2007, p. 2). Costume plays an important part in this process. It defines the significance of the event, be it ceremonial or military through the design and the style of the costume.

In our interrogation of the tension between sincerity, authenticity and the artistic imperative, we used a qualitative research approach. This entailed direct observation, as well as formal and informal conversations with Zulu cultural experts, traditional Zulu costume makers, as well as professional theatre costume designers and design educators. This method enabled us to discover, to understand and to gain insights on the evolution and transition of the Zulu *indlamu* dress from traditional cultural contexts and battlefields to contemporary theatre stages.

Sincerity and authenticity in the manufacture and use of Zulu indlamu dress for cultural/traditional purposes

The history of Zulu *indlamu* costume is old as the Zulu nation. According to the four cultural experts that participated in the study, *indlamu* dress and costume adaptations are the results of urbanisation and various internal changes within Zulu society. What is presented as Zulu *indlamu* costume on South African and international theatre stages today is the result of a series of adaptations and developments that have taken place over the years. In this paper, we argue that design educators ought to realise that the process of evolution has led to strategies that are marked by the need to maintain sincerity and authenticity with the original to achieve the artistic imperative. This was corroborated by some of our respondents who, when asked to define contemporary Zulu *indlamu* dance attire, indicated that the current Zulu *indlamu* dance costume is a representation of Zulu men's traditional attire that is used for entertainment purposes. The respondents also made the significant point that although cheaper and modern synthetic materials are now used to construct costume, these are used alongside the animal skins of mainly domestic animals. According to these experts, animal skins are retained to maintain a modicum of original authenticity, without which the costume would lose sincerity altogether. According to these respondents, spectators can only get to appreciate the Zulu material culture on display through a combination of authenticity, sincerity and adaptation that is informed by a mixture of functionality and modernisation. Our research respondents described the basic authentic *indlamu* dance costume as an attire comprising the following pieces, namely a headpiece called *insinyane*; an animal hide piece that covers the chest and the upper back called *imbatha*; upper arm dressings called *amavolo*; the loin skirt, which consists of a front piece called *isinene* and a back piece called *ibeshu*. To cover the shins, they used the same dressing as the upper arm, also called *amavolo*. The Zulu people would go barefoot or wear sandals made out of animal hides called *imbadada*. Below

is an image of the full *indlamu* attire as worn by Zulu men, complete with accessories such as the shield and a fighting stick/knobkerrie.



Figure 2: Full front view of the traditional Zulu *indlamu* dance costume (Manyeneng 2013)

The respondents also stated that one way of maintaining sincerity and authenticity in contemporary Zulu *indlamu* costume and regalia was through the inclusion of traditional weaponry. The weapons that Zulu men carried when wearing the *indlamu* costume included the shield, the spear and the knobkerrie as presented in the image above. In other words, we argue that contemporary designers and design educators could do well to realise that a Zulu man dressed up in *indlamu* costume made of modern synthetic materials could still achieve artistic poise, as well as maintain authenticity and sincerity to the original by carrying traditional Zulu weapons to social gatherings and ceremonies. This is more so because the Zulu nation is often referred to as a warrior nation, with a rich history of warrior culture that is traceable to the military conquests and organisational capabilities of King Shaka. As De La Harpe (1998) rightly observes, Zulu culture still places great emphasis on courage and physical combat. Zulu *indlamu* dance, therefore, originates from the drills and exercises that were performed by the members of the Zulu regiments when preparing for war. It is for this reason that *indlamu* dance attire is often presented against the backdrop of war.

In between sincerity, authenticity and the artistic imperative, the military dimension seems to be a central aspect of contemporary adaptations of *indlamu* costume. The military dimension appears to be at the centre of the modifications that have influenced the design of the modern *indlamu* dance costume on both the local and the international theatre stage. Contemporary designers and design educators ought to realise that the military dimension has worked in tandem with urbanisation as an influence. Urbanisation has come with the gradual retreat of militarism as a central tenet of Zulu culture. We, therefore, argue that the inclusion of traditional Zulu weapons of war as a central design aspect of *indlamu* dance costume on theatre stages lends the costume a significant element of sincerity and authenticity through exoticism and spectacle in ways that greatly enhance the artistic imperative. Table 1 is an illustration of the various manifestations of *indlamu* costume with the attributes of the different attires described. From this table it is clear that one of the reasons behind the provenance of war and dance attire on world stages is in the flamboyance of detail, making it easily amenable for expropriation by those that would seek to propagate Zulu cultural identity through the performing arts.

Table 1: Attire

Costume Type	Functions	Characteristics	Practicality
Daily attire	<ul style="list-style-type: none"> – Hunting – Domestic activities – Farming, Courting – Protection against harsh weathers – Clan identification 	<ul style="list-style-type: none"> – Simple – Minimalistic – less intricate attire pieces 	<ul style="list-style-type: none"> – Practical – Comfortable
War costume	<ul style="list-style-type: none"> – Fighting – Protection – Troop identification 	<ul style="list-style-type: none"> – Minimalistic – Protective (large shields) – Small attire pieces 	<ul style="list-style-type: none"> – Accommodates agility
Ceremonial dance costume	<ul style="list-style-type: none"> – Rituals – Traditional ceremonies (weddings) – Social status identification 	<ul style="list-style-type: none"> – Very elaborate attire pieces – Additional attire pieces for enhancement 	<ul style="list-style-type: none"> – Accommodates acrobatic moves – Accentuates the dance moves and creates a great aesthetic impression

Earlier on, we made the point that one of the biggest influences on the development of *indlamu* dress has been the combination of urbanisation and western modernity. This combination has meant that with time and the growth of urbanisation, the dance and its accompanying material culture has been taken out of its traditional context. With this has come the challenge to maintain cultural authenticity within a context where original construction materials are no longer easily available. Hanna (1965) observes that urbanisation has also come together with hybridity and the adoption of western values and European standards, including the use of alternative fabrics and materials. For contemporary designers and design educators, this has put the use and availability of traditional organic materials under threat due to lower relative costs and easier accessibility of the latter in comparison with traditional construction materials. Consequently, few people still use the original materials as the costume has come under relentless pressure to undergo a process of transition and adaptation. As Hanna (1965) correctly observes the costumes, which proliferate on theatre stages today reflect this change although they seldom simulate or accent the

authenticity and cultural functionalism that the original costumes had. In this paper, we argue that *indlamu* dance has been able to maintain sincerity and authenticity by adopting a hybrid strategy. It has transited convincingly from its original context through the retention of certain original aspects of the regalia and props, which it uses together with westernised items of personal adornment that serve as an essential part of costume. Figure 3 is an illustration of this hybrid combination.



Figure 3: Zulu men in contemporary urban clothing doing the *indlamu* dance (Nqobo 2011)

Hanna (1965) states that hybridity in the form of the adornment of traditional Zulu dress with western garments seems to have taken root following the Zulu victory against the British at the Battle of Isandlwana in 1879. It is alleged that the Zulus took the weapons and skirts off the fallen Scottish soldiers. Nowadays, it is quite common to see Zulu *indlamu* dancers in long trousers that are hidden beneath animal skins or adorned with patches of Zulu national colours as illustrated in the image above.

Although modern costume designers and design educators still make an effort to construct costume in more or less the same way that the dress was made and presented in the past, accessing animal skins and other organic materials are no longer simple. This presents the most basic challenge in terms of the quest to maintain a fine balance between authenticity and the artistic imperative, which is the focus of our paper. Faced with the challenges of modernity, and the ready and easier access to synthetic costume construction materials that have come with it, contemporary costume designers, design educators and manufacturers have come up with a solution. Interestingly, the solution that they have come up with is also located in the on-going tension between the need to achieve sincerity and authenticity while paying homage to the artistic imperative. According to one respondent, whenever an outfit is bought or produced for cultural or traditional purposes, a special ceremony/ritual is performed to cleanse the outfit. This is meant to remove any bad energies or spirits.

In our investigation and analysis, we also sought to find out the extent to which the notion of sincerity and authenticity in Zulu *indlamu* was reposed in construction patterns, construction methods and construction skills, given the iconic place that the dress occupies as a key exponent and propagator of Zulu national identity. In this regard, it was important to

determine if the traditional costume makers and educators had received any kind of formal training relating to the making of the Zulu *indlamu* dress as regalia. All the respondents interviewed indicated that they learned the trade either through their parents or through apprenticeships with traditional experts in the trade. The majority of the respondents indicated that they had learned the craft through what Frost (2013) has referred to as 'tacit knowledge'. Frost uses the term 'tacit knowledge' to refer to knowledge, skills or expertise that is deeply rooted in the context, experience, and practice of a people's socio-cultural values. Tacit knowledge becomes a form of authenticity in as far as it is hard to communicate and because it resides in the mind of the practitioner. The respondents also indicated that they made all the items of Zulu *indlamu* pieces in their studios from inception up to the finished product. We thus discovered that the sincerity and authenticity of the dress inhered in the fact that these costumes were not simple commercial products that were put on sale on behalf of other people. This finding highlights the point we made earlier that traditional Zulu dressmakers have tacit knowledge that has been gained through close attachment with relatives and experts who have practised the trade over considerable periods. All the respondents acquired the skill through observation and understudying older craftsmen and practitioners.

However, as with most forms of skills passed through oral traditions, these traditional dressmakers seemed to have no specific written record of the processes that they apply or practise. Everything seemed to be done through memory and simple recollection. While on the surface, this may appear to be a weakness, in this paper, we argue that the use and propagation of tacit knowledge in Zulu *indlamu* dress construction lend authenticity to the final product. In other words, as the sages live and continue to impart the skill through oral traditions, the skill will not die, and the authenticity that inheres in it will continue to be enhanced.

Closely related to the above is the sourcing of materials for the construction of Zulu *indlamu* dress. In our analysis, we believe that sourcing construction material for these outfits also has a significant bearing on the intersection between sincerity, authenticity and the artistic imperative. This is particularly the case in the context of westernisation, urbanisation, hybridity and the cheap commercialism that has come with it. We examine this in relation to the point we made earlier that Zulu *indlamu* dance has roots in war and that it is a tradition that has transited into the realm of the artistic through costume design. In addressing the matter of sourcing construction materials, we seek to find out what innovations and alterations designers and design educators put in place to maintain sincerity and authenticity in a quest to achieve the artistic imperative. Earlier on, we made the point that in original contexts, Zulu regalia was made out of the skins and furs of wild animals, some of which have become protected game because of modern conservation initiatives.

When asked about the materials used for the production of the outfits, our respondents indicated that materials were sourced from the skins of both wild and domestic animals. Animal hides play a major role in the construction of the skirt, the shield and the smaller pieces used as furs and accessories. The animal skins used included those from the springbok, goat, monkey, leopard, cow, and red duiker. Out of this, leopard skin is used strictly on costume pieces for the king and members of the royal family. The skin of the red duiker is used for the back of the loin skirt called *ibeshu* while monkey tails are used for the front part of the loin skirt called *isinene*. Although these animal skins occupy a central place in terms of meaning in Zulu culture, there is the ever-present threat that synthetic materials, because the animal rights lobby and the conservationist movement will eventually replace the animal skins.

When asked where they source the skins of protected game, all the respondents simply stated that they source them individually from the surrounding wilderness while the skins of domestic animals are obtained from livestock hand-reared by the Zulu people. Although the

traditional makers indicated an awareness that South African law forbids them from poaching activities, they insisted that hunting these animals for their hides is something that they do in the name of observing and propagating an enduring cultural tradition and practice. Our respondents also indicated that sometimes, animal skins are obtained from professional hunters, from abattoirs and from members of the community who slaughter their animals for weddings, for ritual purposes and for other traditional ceremonies. One respondent indicated that some organic accessories and construction materials were no longer readily available due to stringent conservation laws and ethics campaigns on the protection of animal species. Because of this, outfit producers were now substituting the rare blue cranes' feathers with the more readily available ostrich feathers. In this paper, we argue that the increased use of cowhides in place of protected species has the potential to go a long way to assist designers and design educators in Zulu *indlamu* costume and regalia to tread the fine line between sincerity, authenticity and the artistic imperative as a medium for propagating Zulu material culture.

Although all our respondents indicated that rituals and traditional ceremonies of the Zulu people are the easiest sources for the skins of domestic animal hides, there is a slight challenge in that most of these events are seasonal. These events take place during spring or summer. To obviate this specific challenge, producers resort to using synthetic fabrics as a substitute for real leather.

In our argument, the use of synthetic materials severely detracts from the authenticity of the dress. However, this is ameliorated by the use of accompanying weaponry and props. According to our respondents, in the olden days, there were rules and regulations set out for hunters to control excessive hunting. These rules seem to have worked effectively to reinforce authenticity in the costume. According to these respondents, wild animals could not be hunted and slaughtered willy-nilly unless one was granted authority to do so. Royal game such as the leopard could be hunted only with the permission of the king and his council. Therefore, an individual could not go out into the forest to hunt such game. However, because of the iconic nature of Zulu *indlamu* dress and the role that it plays as a key propagator of Zulu material culture, all the respondents confided in us that sometimes outfit makers are pressured by the rich and the politically powerful to go out of their way to obtain particular animal hides. The pressure is at its greatest when it comes to the use of leopard skins, as the clients are quite ready to pay at whatever cost. The pressure and monetary temptation that comes with securing such rare and/or protected organic construction materials then force the traditional outfit makers to look beyond South Africa's borders as they try to source the skins from neighbouring countries such as Zimbabwe, Botswana, Mozambique and Swaziland.

Once obtained, the process of preparing the animal hides for dress construction is just as elaborate. According to the respondents, preparing the skins is the most important part in the construction of the traditional *indlamu* outfits as the preparation process can make or break the final product in terms of sincerity and authenticity. The skins are prepared under favourable weather conditions as the skins are stretched out and sundried in a specific way and under specific conditions before they are softened and cut into the different parts. The image below illustrates the process of drying in the sun and preparation of the animal hides for cutting.



Figure 4: Stretched out animal skin (Desert Harvesters 2014)

When the skins of domestic animals are used in place of royal game, all respondents indicated that they prefer to use animal skins from calves to make *ibeshu* as it is supple and pliable, also producing the desired effect when worn by the user. To achieve authenticity the condition of the skin is also taken into account in the preparation process. The animal hides require thorough treatment and cleaning to remove all traces of animal flesh after slaughter. According to the respondents, costume makers are extremely reluctant to use lacerated hides or skins that are damaged during slaughter as this severely detracts from the authenticity and effectiveness of the final product as an item of Zulu cultural representation. The following step-by-step list of the outfit construction process that is followed in the making of effective Zulu *indlamu* dress as outlined by our informants:

- Step I – The animal skin is soaked in water for a certain period to make it soft
- Step II – The animal hide is hand washed to make it softer
- Step III – The skin is stretched out in the sun and nailed onto a wooden surface or frame to remove unnecessary creases that could make it uneven.
- Step IV – Once the skin is dry, metal scrap is used to remove dirt, fat and any pieces of flesh remaining on the skin.
- Step V – Once the inner side of the skin has been scraped and smoothed, the skin is soaked in detergent to clean it.
- Step VI – The skin is dried again.
- Step VII – The skin is oiled to soften it.
- Step VIII – Once the skin is soft, it is treated with maize meal to dry and to absorb excess oil. Only then is it ready for use in costume construction.

The animal hide is meticulously cut into the various pieces and assembled according to a specific size, style and design only when fully soft and dry.

As with every other item of dress that is made with a specific purpose to achieve force and effect through sincerity and authenticity, there are several challenges that come with the assemblage and maintenance of Zulu *indlamu* dress. When asked to outline and explain some of the challenges that come with the process of making and handling these items on a day-to-day basis, our informants indicated that one of the biggest challenges is the difficulty surrounding the acquisition of certain construction materials. The main one has to do with obtaining the skins of royal game and other protected species such as red duiker, as well as

the feathers from wild birds such as the blue crane. The respondents also indicated that in some instances, the skins remain rigid and continue to give off an unpleasant scent even after undergoing the rigorous regimen for softening, curing and treatment as previously outlined. They also reported that it was generally difficult to clean materials that are made out of leather and quite expensive to dry-clean such materials. The fact that most costume manufacturers and users neither have the requisite knowledge on how to care for materials that are made out of leather nor do they have any formal training on how to care for leather products exacerbates these challenges. We believe that matters to do with the behavioural peculiarities of construction materials, as well as aspects of proper costume maintenance as outlined above, are key issues that contemporary designers and with which design educators must be conversant. This is highly imperative because more often than not, these items are either sold to the consumer or used on stage without any advice on issues to do with care and maintenance.

Sincerity and authenticity in the manufacture and use of Zulu indlamu costume on the commercial theatre stage

In the preceding sections, our focus was on the sourcing, construction and maintenance of Zulu *indlamu* as dress or regalia in traditional contexts. In this section, we explore issues of sincerity and authenticity in the manufacture and use of Zulu *indlamu* costume that is meant for use on the commercial theatre stage. Our discussion is based on the responses from respondents with a traceable record designing and constructing Zulu *indlamu* costume for the theatre stage. These informants were selected based on their individual experience and expertise. For purposes of honing our interrogation on issues of sincerity and authenticity in Zulu *indlamu* costume that is meant for the stage, we provide a select outline of the design experience of our informants for this section of the paper.

The first professional theatre costume designer is a multi-award winning theatre designer of national and international repute. The respondent has thirty years of experience in South African theatre and has extensive skills in the field of costume design and design education. The respondent has wide experience designing for South African performance in a wide range of styles since the mid-1980s. Some of the renowned theatre directors that the informant has worked with include the late Barney Simon of the Market Theatre fame, Mbongeni Ngema, Welcome Msomi, Gcina Mhlope, John Kani and Janice Honeyman. The second respondent underwent professional training at the Camberwell School of Art at the University of Reading before lecturing at the University of Durban Westville (then University College, Durban), as well as at the Natal Technikon. Some of the respondent's most notable theatre designs include set and costume design for *Opera Africa's Faust*, *Princess Magogo*, *La Traviata* and *Rigoletto*, as well as designing for the American production of *Princess Magogo*.

The third respondent studied costume at Tshwane University of Technology's Department of Entertainment Technology before taking up full-time employment as a theatre designer in the local theatre industry. As accomplished designers and design educators, we believe that the three respondents whose profiles we outline above were all eminently well placed to provide insights into matters of sincerity, authenticity and the artistic imperative in Zulu *indlamu* costume especially in contexts that thrive on the principle of make-believe. This is particularly so because earlier in the paper, we observed that a unique feature of theatre practice is that it relies significantly on the notion of make-believe to achieve the effect (Schechner 2004). We identified this as an artistic imperative. In other words, the artistic imperative thrives on the theatre's ability to create illusions of reality by using materials and techniques that are often no more than approximations of the real thing.

Given that scenario, our purpose in this paper is to interrogate the extent to which Zulu *indlamu* costume that is made for the theatre differs from or makes an effort to mimic that which is made for real life to strike an effective balance between sincerity, authenticity and the artistic imperative. According to the respondents, the making of Zulu *indlamu* costume for the stage equally relies on extensive pre-planning procedures that entail thorough research and direct observation. All this has to be based on an in-depth understanding and appreciation of Zulu material culture. The designers begin with a presentation of all the different characters to the theatre director. The director then indicates if they have any intention to adapt the original costume or to add some additional items to enhance the costume. Once agreed, the costume designer prepares sketch drawings and a set of guidelines on how materials work. The sketch drawings are presented in pencil, and they serve as indicator of shape, line and proportion, all of which are central to costume design.

According to our respondents, presenting the concepts in this way allows for a measure of flexibility and space to refine and develop costume detail in direct response to the frame and build of a specific user, as well as the overall design concept for the production. It also helps to incorporate the malleability of available or selected materials. Unlike costume design and construction for cultural purposes as identified in the first section of our paper, costume design and construction for the stage involves aspects of conceptualisation, text analysis, research, as well as initial sketch drawings and briefs by a small team of individuals who are specialists in executing such designs. From the data gathered, a common approach among costume designers when putting together Zulu *indlamu* costume for the theatre is the combination of design and co-ordination to amalgamate the three considerations of sincerity, authenticity and the artistic imperative. The artistic imperative is achieved through the presentation of costumes that are made to measure within a specific design concept, which satisfies the overarching framework of make-believe in the theatre. As Mastamet-Mason (2008, p. 27) rightly observes, design plays an important role in the aesthetics of apparel.

Costume design for the stage often incorporates the use of items such as sandals, spears and shields that the theatre costumers prefer to purchase ready-made for use on stage. These items of hand properties also enhance the notion of sincerity and authenticity for the stage in the same way as they do in cultural contexts. While its cultural or ceremonial counterpart is made with a purpose of being reasonably durable and sturdy, Zulu *indlamu* costume that is made for the stage is constructed with a purpose of being sturdy and robust, particularly for performances that involve a great deal of movement such as the *indlamu* dance itself. Because of the physicality of the dance, Zulu *indlamu* performers are constantly extending their arms and legs in all directions and in expansive ways, and this requires the designs to accommodate these often-vigorous actions. As observed by Mastemat-Mason (2008:27), effective costume design must incorporate functional ease to create a specific style and to allow for comfortable bodily movement. In light of this, the professional costume designers were asked to provide an outline on how they come up with their costume designs for the stage. According to all three respondents, Zulu *indlamu* costume that is made for the stage is largely a stage representation of the traditional Zulu costume, which it tries to replicate as much as possible through a combination of the use of original materials, synthetic garments and original hand properties. This is achieved by ensuring that the dance costume fits the stage design concept based on research. In this context, the process of conceptualisation refers to the research that is carried out on Zulu material culture before sketching and the presentation of concepts to the director and the production team. All three informants also confirmed that Zulu *indlamu* costume for the stage has to consist of the same number of pieces like the traditional costume for purposes of sincerity and authenticity as indicated in the illustration below.



Theatre Zulu *Indlamu* costume (front view)



Theatre Zulu *Indlamu* costume (back view)

Figure 5: Full Zulu *indlamu* costume for the stage (Manyeneng 2014)

The illustration above shows the full frontal and back view of Zulu *indlamu* costume that has been made from synthetic fabric. According to our respondents, design and construction have to be of a high standard when. The entire process has to be based on thorough research on Zulu history and material culture. The research processes used by professional costume designers for the stage aids them to understand Zulu history and material culture, including the use of artefacts and hand props. In turn, this facilitates the design and construction of convincing replicas of the traditional Zulu men's costume, but with the rigours of performance in mind in line with the need to strike a fine balance between sincerity, authenticity and the artistic imperative. Costumes meant for the stage are designed and constructed according to specific production requirements. This must be in harmony with the theme of the show, as well as the physique of the actors presenting the performance. In other words, unlike its cultural counterpart, *indlamu* dance costume for the stage is made to fit for the specific individual. While our respondents indicated that it is often the director who determines the tone and style of the production, the translation of the whole process lies in the skill of the designer who has to use knowledge of fabrics, history and material culture to represent history and theme with accuracy. This becomes highly imperative in those instances where limitations to do with the sourcing of designated animal hides (e.g. leopard skins) are imposed on the performance.

When faced with such limitations, designers and costume constructors always resort to modifications to strike the necessary balance between sincerity, authenticity and the artistic imperative. These modifications simultaneously involve making the costume applicable to the

theatre performance even as the costume captures the significant symbols, conventions and aesthetic impressions that are embedded in the original traditional costume. Applications such as the substitution of organic animal hide with synthetic leather and furs among other things are all aspects of the mediations and translations that occur during the process of adapting the traditional costume for it to be applicable for theatre purposes in fulfilment of the artistic imperative. This facilitates the fulfilment of other demands of the theatre, such as the washability of the costume alongside the total cost of maintaining the costume for repeated use. Unlike traditional costume makers, professional theatre costume designers are relatively more informed on issues to do with fabric characteristics and maintenance. They are also better able to adapt different fabrics for theatrical performance in ways that strike an effective balance between sincerity, authenticity and the artistic imperative. Our informants indicated that professional costume designers for the stage source their materials from fabric stores, art galleries, curio stalls and cultural markets, and sometimes import materials that are not locally available. They also indicated that cheaper animal hides (such as that from springbok) are then used alongside synthetic materials and artificial furs in ways that are meant to reinforce a sense of authenticity while achieving the artistic imperative. As we found earlier in the section on traditional costume construction, similar challenges also exist in the usage, maintenance and storage of Zulu *indlamu* costume that is meant for the stage.

One of the main challenges for non-Zulu indigenes who are involved in professional costume design and construction is the lack of an ethnographic cultural frame of reference that often comes with being part of a specific national identity. This positions the non-Zulu theatre designer as an outsider who can only rely on secondary research. It also creates a certain cultural distance between the costume designer, the staged narrative text and the specific identities, which the costume designer is required to engage with, and bridges with the people of a different race and culture. The discrepancy in sourcing organic cultural references and the use of acceptable synthetic alternatives often poses serious challenges in the designer's perennial quest to strike a convincing balance between sincerity, authenticity and the artistic imperative. Whereas the use of costumes constructed from original organic materials would appear to be the more obviously desirable option for the average professional user or designer, the irony of it is that it comes with considerable challenges in terms of long-term use and maintenance. According to our respondents, costumes made out of pure animal hides or skins require thorough cleaning after a series of runs. Unfortunately, however, all three respondents were agreed that it is a challenge to wash, clean and maintain Zulu *indlamu* costume that is constructed out of organic materials such as animal hides and feathers. The problem is exacerbated by the financial challenge and difficulty that comes with dry-cleaning and maintaining materials that are made of real leather. Therefore, costume designers and design educators for the stage must always make an effort to identify ideal fabrics that can substitute the real thing without compromising on sincerity, authenticity and the artistic imperative. As one respondent indicated, "I learned the hard way when it came to selecting the ideal fabrics, fabrics that are functional in all respects".

Compared to the use of Zulu *indlamu* costume, as ceremonial dress where the user is at leisure to adorn and adjust the costume as deemed fit, one of the challenges inherent in costuming for the stage is the limited time available to change or adjust costume during scene changes. Members of the ensemble often make very quick costume changes, all of which involves properly adorning many pieces of costume with small components that the costume comprises. Ensuring that all the bits and pieces that make up the costume are put on properly, quickly and firmly without the risk of coming off because of the physicality of the performance often presents a huge challenge in terms of maintaining and balancing issues of sincerity, authenticity and the artistic imperative. This has meant some rethinking and adaptation on the security of these items with the use of elastic bands in place of simply tying these different items to the actor's body.

Conclusion

According to Emery (1981, p. 3), stage costume is a vital aspect of bodily adornment in performance. As a key component in achieving the artistic imperative, costume helps to enhance the qualities and aesthetics of the performance as it helps to delineate character. The Zulu *indlamu* costume plays a central role in giving productions within the genre a distinctive Zulu identity. It also helps to position performances within a Zulu cultural backdrop in which Zulu material culture is a central aspect through iconic items of costume. Therefore, it is in that context that matters of sincerity, authenticity and the artistic imperative become of central importance. According to Hanna (1965), historical wear has gained ascendancy in the propagation of African cultural identities within the theatre and in other social domains. The success of a number of historical costume dramas on the world stage, such as *Umoja*, *Ipi Ntombi*, and *Touring the World*, including some that featured Zulu *indlamu* dance, such as *Princess Magogo* and *Shaka Zulu: The Musical*, have no doubt allowed African theatre to stake a niche in the annals of western theatre spaces (Hatford House 2008). With these shows, *indlamu* dance brought the magnificent Zulu men's costume to western theatre stages. What was once a cultural dance used by the Zulu nation to celebrate weddings, the inauguration of royalty, military conquest, and rites of passage, has become a staged dance aesthetic that has come to enthral crowds the world over. Over the years, Zulu *indlamu* dance and its accompanying costume have evolved into a stage phenomenon in ways that provide interesting insights into the intersection between sincerity, cultural authenticity and the artistic imperative for the contemporary designer and design educator.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

'The Pretty Stuff': Gender bias and the future of design knowledge in the South African industrial design context

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Abstract

In the era of the fourth industrial revolution that proposes an increasingly automated future, designers need not lose focus on the discipline's important role in social design and innovation. Such an undertaking becomes difficult when the discipline of design itself has inbuilt biases and inequalities. Gender bias is one such prejudice that design educators and researchers need to become more aware of and engage with, not only to prepare our students for the workplace but also to begin to change the patriarchal dominance of the design industry and hence the equity of the discipline itself.

Current issues of gender disparity in design industries and academia have been studied and clearly articulated in the Global North. For example, in a recent study by the British Design Council, the United Kingdom's (UK) design workforce comprised of a 78:22 gender split (male to female), with Industrial Design showing the greatest disparity with a 95:5 gender split (Design Council 2018). In comparison to the 53:47 gender split of the wider UK workforce, this inequity is alarming, especially considering that 63% of all UK Art and Design graduates are female (Design Council 2018). Furthermore, various studies report a significant lack of female role models in leadership positions. This raises the question, 'Where have all the women gone?'

One of the authors is a young female academic, who, during South Africa's Women's Month in 2018, was inspired by these global statistics to conduct a small-scale study within a South African academic institution to investigate and reflect on the participation and experiences of female graduates in the local Industrial Design industry. Gender-based data of departmental enrolment and throughput over the past 20 years were analysed, and 10 female Industrial Design graduates were interviewed regarding their experiences in industry. Findings indicated significant gender biases and inequity within the local Industrial Design discipline, echoing global statistics.

Female student enrolment has increased from 9% in 1997 to 36% in 2018. The exit-level graduate gender split has evened out from 97:3 in 1997 to 55:45 (male to female) in 2017. This indicates that more and more women are slowly entering industry. However, feedback from

women in industry highlighted sexual harassment, misogyny, condescension and significant pay gaps as some of the many challenges faced when entering the long-established patriarchal Industrial Design industry. Stereotypical expectations of women's role in creating 'the pretty stuff' hinders their ability to access experiential knowledge. This stunts their growth in the field, resulting in many women leaving the 'boy's club' and pursuing opportunities in more female-dominated disciplines; ultimately perpetuating the patriarchy of Industrial Design.

It is therefore important to invest in gender diversity in design academia and to understand, engage with and tackle such issues locally. This includes preparing our students for the current realities of industry and empowering them with the necessary knowledge and skills to implement change by fostering innovation, and ultimately enabling them to break out of the confines of a long-established patriarchal industry.

Keywords: Design knowledge, local vs global, gender bias, 4IR, innovation, diversity

Introduction

Industrial Design is defined as "a strategic problem-solving process that drives innovation, builds business success, and leads to a better quality of life through innovative products, systems, services, and experiences" (World Design Organization 2016). As we enter the fourth industrial revolution amid complex economic, social, political and environmental upheavals, Industrial Design, at the nexus of engineering and the humanities, has an important role to play in bringing about sustainable change (Loy & Novak 2019). "Good design puts people first" (Design Council 2018, p. 4), and as evidenced by many human-centred design methodologies (van der Bijl-Brouwer & Dorst 2017), for change to be appropriate, diverse voices need to be heard. The participation of women, with their own tacit knowledge, in the design process is, therefore, vital to arrive at suitably diverse, appropriate and innovative outcomes (Barnhart & Walters 2018b). There is no better way to do this than for the design discipline itself to be diverse. Race and ethnicity aside, Industrial Design is noted for its absence of practising women designers with "low levels of female participation, retention and long-term success in the profession (Bruce 1985; Lockhart 2016). For decades, other male-dominated disciplines such as Architecture and Engineering have acknowledged, formally documented, discussed and actively attempted to transform the underrepresentation of women in their industries. However, in Industrial Design, even the first step of documentation has not been rigorously undertaken with limited statistical data on women in the profession (Barnhart & Walters 2018a 2018b). While data regarding the participation and retention of women in Industrial Design are 'patchy and difficult to obtain' in the Global North (Lockhart 2016, p. 11), in the Global South and South Africa in particular, this data is non-existent. This paper, therefore, attempts to engage with this gap and focuses on the issues of gender disparity in the discipline of Industrial Design within both the educational and professional contexts in South Africa.

Contextualisation

The fourth industrial revolution presents a global transformation in all aspects of business and production. Higher education has an indispensable role to play in facilitating the educational and societal transitions necessary to adjust to Industry 4.0 (Gleason 2018, p. 5). To participate and compete in the fast-changing industry, leaders of Industry 4.0 will need to be critical thinkers, problem solvers and innovators. South Africa is one of the few countries in a technological recession, facing a significant skills shortage in the areas of technology and innovation (Merrington 2017). Innovation is not reliant on new technology alone, but rather, requires a fusion of technology and creative thinking through design (Land 2013). "With increased shifts away from an economy premised on labour and resource-intensive industries

towards a knowledge economy, the skill sets and capabilities needed [for Industry 4.0] have shifted" (Rodny-Gumede 2019). Therefore, the success of South African higher education in this new era will be dependent on its ability to cultivate innovation through fostering transferable, divergent skills and capabilities, such as critical thinking, collaboration, communication and creativity (Rodny-Gumede 2019). Where traditional Science, Technology, Engineering and Mathematics (STEM) degrees focus on convergent skills/thinking, Art and Design degrees focus on the divergent skills necessary to remain competitive in Industry 4.0 (Land 2013). Therefore, design and design knowledge are at the heart of the fourth industrial revolution as both a resource for and a form of innovation (Design Council 2018).

"Designers have the ability to shape the built environment, the digital world and the products and services we use" (Design Council 2018). Not only will future design professionals need to be trained in emerging technologies, but also, in the human values associated with using such technologies. "For those educating the next generation of designers, the challenge will be to find the balance between teaching traditional foundational design skills and the new, emerging elements and technologies needed to prepare students for the changing world" (Lockhart & Miller 2015a; Lockhart 2016, p. 93). Such a focus will not only be on technology, but also the greater need for the understanding of human interaction (Lockhart & Miller 2015a).

Underpinning all of the considerations of higher education in Industry 4.0 are issues surrounding gender (Gleason 2018). "Economists predict that by closing the gender gap in both representation and pay gap by just 10%, South Africa could achieve higher economic growth" (Chauke 2018). However, Industry 4.0 will impact women and men differently (Gleason 2018). The current underrepresentation of women in STEM fields around the world, suggests that women are less likely to have digital literacy, and will thereby be less likely to take advantage of technological opportunities (Blickenstaff 2005; Gleason 2018). While it is widely understood that women are significantly underrepresented in STEM disciplines, little research exploring the participation, experience and success of women in design exists (Lockhart 2016, p. 2). Do women in design have equal opportunities to participate and succeed in Industry 4.0 as men? Some believe that Industry 4.0 serves as an opportunity to bridge the gender gap (Chauke 2018). In the First Industrial Revolution, workers with physical strength and quick acquisition of skills replaced artisans previously valued for their ingenuity and creativity. Today, those workers are being replaced by machines capable of handling repetitive tasks and heavy lifting in factories. Industry 4.0 will, therefore, put emphasis and value back on the human elements of ingenuity, creativity and innovation, not only traditionally masculine skillsets (Funna 2018).

Historically, men and women have been sorted into different types of design employment through gender socialisation (the social and cultural characteristics traditionally expected from women and men) and stereotypical demarcations of gender boundaries. Women are overrepresented in the 'soft' design areas of Interior, Fashion and Textiles, and Jewellery Design and underrepresented in the 'hard' design areas of Industrial, Digital and Architecture (Clegg & Mayfield 1999; Lockhart & Miller 2015a; Lockhart 2016; Reimer 2016). Academically, "there is a paucity of research explicitly exploring the participation, retention and success of women in design industries" (Lockhart 2016). However, the issue of gender disparity in design is gaining traction in the Global North.

Research indicates that the United Kingdom's (UK) design industry is distinctively white and male-dominated (Design Council 2018; Reimer 2016). A recent study by the British Design Council has provided significant insight into the issue of gender disparity in the UK design industry. *The Design Economy 2018 Report* (Design Council 2018) revealed that the UK design workforce comprised of a 78:22 (male to female) gender split, compared to the 53:47 gender split of the wider UK workforce. This inequity is especially alarming, considering that 63% of

all UK Art and Design students/graduates are female (Design Council 2018). The disciplines of Multimedia, Architecture and Industrial Design showed the most significant gender imbalances (Table 1), with Industrial Design showing the greatest disparity with women comprising of only 5% of the Industrial Design workforce (Design Council 2018). According to McMahon and Kieran (2017), the disciplines of Architecture and Graphic Design appear to be closing the gender gap. However, female industrial designers remain significantly underrepresented in both professional and student realms in the UK.

Table 1. UK Design occupations by gender in 2016 (Design Council 2018, p. 52)

Design subsector	Male (total)	Male (percentage)	Female (total)	Female (percentage)	Total
Architecture and built environment	273,300	80.0%	68,200	20.0%	341,500
Design (multidisciplinary)	31,700	36.3%	55,600	63.7%	87,300
Design (advertising)	22,900	62.7%	13,600	37.3%	36,500
Design (craft)	82,000	77.4%	23,900	22.6%	105,900
Design (digital)	411,900	85.1%	72,400	14.9%	484,300
Design (clothing)	3,800	27.5%	10,000	72.5%	13,800
Design (graphic)	78,100	64.4%	43,200	35.6%	121,300
Design (product and industrial)	148,900	94.7%	8,300	5.3%	157,200
Design economy	1,052,400	78.1%	295,200	21.9%	1,347,700

In 1990, women comprised only 15% of Australian Universities' Industrial Design graduates (Lockhart 2016). By 2010, women made up approximately 50% of the student cohort (Lockhart 2016). Although the gender mix of the student population in Industrial Design courses in Australia has shown a notable increase in female graduates over the past 20 years, according to Lockhart (2016), and concurring with the findings of the UK Design Council's report, the same change does not reflect in the profession, with women remaining 'seriously underrepresented' and even 'invisible' as practising industrial designers in Australia. Similarly, Industrial Design schools in the United States of America (USA) have equal ratios of male to female students, but professional practice is merely 19% female (Barnhart & Walters 2018b).

The 'leaky pipeline' metaphor, commonly used with regards to STEM disciplines, attributes the lack of female representation in industry to the 'leaking' out of women from the pipeline carrying students from school through university and on to industry (Blickenstaff 2005). It is evident that there exists a leaky pipeline in the Design disciplines, especially the field of Industrial Design. As with most STEM disciplines, the absence of women in Industrial Design appears to be progressive, in other words, "the farther along the pipeline, the fewer women you find" (Blickenstaff 2005). According to Blickenstaff (2005), *various* complex factors act as 'layers' in a gender-based filter that removes women from the pipeline as opposed to any single primary cause (Blickenstaff 2005). Examples of these filters include "a lack of mentors, a lack of female role models, gender bias and unequal growth opportunities compared to men" (Gleason 2018). Back in 1990, Bruce and Lewis described three hurdles that women face in design, first, the completion of a Design degree, second, getting a job and third, obtaining success in industry. These hurdles continue to be relevant today and form the bases of our study's exploration.

Methodology

To understand the leaky pipeline phenomenon in Industrial Design, we explored female participation and experiences at each of Bruce and Lewis' hurdles (1990). It was, therefore, important to explore both professional and educational contexts.

In terms of the professional context, during South Africa's Women's Month in 2018, one of the authors conducted a small-scale study within a South African academic institution to investigate and reflect on the experiences of female graduates on their Industrial Design education and their roles and participation in Industrial Design industry. Due to the Industrial Design profession in South Africa is relatively fluid, there was a lack of up-to-date contact details of graduates. Therefore, an open invitation to participate was placed on the institution's Department of Industrial Design Facebook group, which consisted of almost 1000 members, including past alumni, current students and other interested parties. Additionally, LinkedIn was used to approach known female graduates through the networks of academics who had been working at the department for a significant amount of time. Email-based interviews were conducted with 10 women who had graduated from the Industrial Design course within the last 15 years. Participants varied in age, race and work experience. Each participant was asked to provide feedback/insight into their experiences as a practising female industrial designer. All participants were informed that their identities would remain anonymous, this anonymity also enabled open and honest explorations of their experiences. It is interesting to note that the female author that undertook the study has a name that recently is more common for men, this resulted in some of the more critical female graduates immediately highlighting the irony of what they thought to be a male undertaking such research!

In terms of the educational context, we investigated the demographics and culture of the education system that designers (male and female) have come from. There is no published gender-related data on South African design students, we, therefore, used data from the same South African educational institution with particular focus on the design faculty and gender-based enrolment and throughput.

In the findings below, the authors not only unpack the study, but also contextualise and discuss the findings with regards to South African statistics found in other cognate disciplines, as well as within broader global statistics and experiences, as a means of better understanding the local and global extent of gender bias in design, and in particular Industrial Design.

Findings and discussion – Industry

A UK Women in Architecture survey indicated 73% of respondents (from 500) claimed to have experienced or witnessed gendered discrimination during their career, with 10% reporting that they directly suffer from gendered discrimination weekly (Waite & Corvin, cited in Lockhart 2016, p. 28). Findings from our study indicated significant gender biases and inequity within the local Industrial Design discipline, echoing global statistics. Most participants acknowledged sexual harassment, misogyny and condescension from employers and colleagues as some of the many challenges faced when entering the long-established patriarchal South African Industrial Design industry. Such patriarchy is found in many cognate industries in South Africa, with the World Economic Forum, stating that South African women are under-represented at a ratio of 3:10 in Engineering, Manufacturing and Construction (Chauke 2018). This reality played out in many of the first-hand experiences of those that were interviewed:

My first few months, as the only female at this small design consultancy, saw me dealing with misogyny, harassment and a general condescending attitude – especially when it came to the technical aspect of manufacture (P5 2018).

Many participants echoed experiences that it was not only their employers that were problematic in their bias, but that,

[C]lients, suppliers and manufacturers won't look you in the eye or shake your hand. You'll often get asked to make coffee for meetings and have to listen to offensive, sexist jokes (P3 2018).

[C]lients would put far more faith and trust into a male colleague's opinion and skills than [the participant's] own. This lack of trust in me and my skills gave me confidence as a designer and maker quite a knock (P1 2018).

As a result of these stereotypical expectations of women's abilities, some women only receive the types of work that offer little creativity and responsibility, resulting in reduced opportunity for advancement (Lockhart 2016). Examples of this include the following statements:

We are not always trusted with technical projects, and we are often given projects at the end to be prettified (P2 2018).

I was generally confined to drawing pretty concept drawings (P5 2018).

According to the mind-set of our industry, we are women, so we make things look pretty while the men are physical and create things (P7 2018).

This hinders women's ability to access experiential knowledge, and by losing out on learning opportunities, this stunts their growth in the field, and engagement/interest in the discipline, as described by one of the participants:

I felt very much obliged just to put up with it for the sake of gaining experience – but really, I was excluded from most learning opportunities (P5 2018).

A few of the participants had subsequently left the profession in favour of more gender-equitable industries such as Interior Design, Graphic Design and Advertising. Two participants explained that,

[T]he advertising industry is a lot more receptive to a female's opinion, perhaps because there are so many females in that industry (P1 2018).

I possibly feel more comfortable here because most of my colleagues are women, and we can relate to each other more easily (P6 2018).

This may be true in the lower levels of employment, but it is common knowledge in the South African context that there is also a 'glass ceiling' in these industries regarding women getting into senior management positions. According to Lockhart (2016, p. 137), "the glass ceiling is quite low in Industrial Design". In a UK survey of female industrial designers, it was observed that if they did not see other women in the field, particularly in positions of leadership, confidence in females began to erode and opportunities to progress in their career were not exploited (Kieran & McMahon 2017).

Furthermore, several female UK industrial designers interviewed related experiences of inappropriate behaviours towards them and a pervasive 'lads' culture that made for an uncomfortable working atmosphere (Kieran & McMahon 2017). To escape such discomfort, one of the participants in our study, after working in industry for eight years, was currently studying to move out of the field stating, "studying Industrial Design and coming into this field has been my biggest regret!" (P2 2018). Unfortunately, women leaving the 'boys' club' and

pursuing opportunities in more female-dominated disciplines ultimately perpetuates the patriarchy of Industrial Design.

There were, a few positive comments from participants who just "ignor[ed] the nonsense" and let their work speak for itself:

In my experience, it doesn't matter if you're male or female, your work speaks for itself (P7 2018).

I don't really acknowledge it, because if you don't treat it as an issue, it generally doesn't become one (P8 2018).

A similar study to the one we undertook was conducted at an Australian university in 2016 (Lockhart 2016) and showed very similar results. Most respondents found the Australian Industrial Design industry to be male-dominated and reported that they "struggled to develop the confidence and courage to actively contribute design ideas" (Lockhart 2016). 52% of female industrial designers interviewed described experiencing gender-based issues and stereotypes in the workplace, including sexism, male gatekeeping and stereotypical perceptions of their skills and abilities (Lockhart 2016, p. 137). According to Lockhart (2016, p. 141), "gender-based patterns appear to be accepted as just something that women must deal with", and to achieve success in the industry women must "adopt male-attributed traits such as toughness and competitiveness".

In response to these realities, coupled with a dissatisfaction with the types of work, levels of creativity, and lacking work-life balance, 42% of the Australian participants had decided to embrace their own abilities by creating their own businesses (Lockhart 2016, p. 161). These women described how mentors were critical in entrepreneurship (Lockhart 2016). One participant from our study also decided to become a design entrepreneur, where she was currently developing children's furniture and other homeware. Similarly to the Australian study, she felt she was able to take this leap since there was an "incredible community of women entrepreneurs who support and uplift each other" (P1 2018). A key benefit to starting your own business as a woman is that instead of having to try to change or conform to the existing industry, you make it your own.

Findings and discussion – Education

The above findings suggest that the two 'hurdles' of entering and succeeding in industry still stand for female industrial designers (and other cognate disciplines) globally. To understand why this gender disparity and culture exists in industry better and why this male dominance is still so prevalent, one must begin by considering the first 'hurdle', obtaining a design qualification (Bruce & Lewis 1990).

The faculty that was studied comprised of eight departments, namely Fashion, Jewellery, Interior, Architecture, Industrial, Graphics, Multimedia/UX and Visual Art (as this study focuses on design disciplines, data related to Visual Art is not included). Over the past 10 years, women account for over 50% of the student cohort. In 2018, women represented 51%. However, there is an uneven distribution of gender within the various disciplines. Table 2 shows an overview of the gender split in the student cohort (across all year groups) in each department over the last 10 years. The Departments of Graphic, Interior and Fashion Design have remained female-dominated, although more recently tending towards an 'evening out'.

Table 2. Overview of departmental gender profiles of total student numbers from 2009 to 2018

Department	Industrial		Graphic		Multimedia		Interior		Jewellery		Architecture		Fashion	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M
2009	19%	81%	66%	34%	34%	66%	84%	16%	69%	31%	33%	67%	89%	11%
2010	23%	77%	64%	36%	36%	64%	78%	22%	67%	33%	35%	65%	90%	10%
2011	19%	81%	65%	35%	34%	66%	75%	25%	65%	35%	35%	65%	90%	10%
2012	23%	77%	65%	35%	36%	64%	76%	24%	69%	31%	33%	67%	92%	8%
2013	28%	72%	65%	35%	38%	62%	77%	23%	65%	35%	31%	69%	89%	11%
2014	38%	62%	70%	30%	36%	64%	75%	25%	65%	35%	34%	66%	88%	12%
2015	40%	60%	68%	32%	33%	67%	71%	29%	59%	41%	35%	65%	88%	12%
2016	36%	64%	66%	34%	30%	70%	72%	28%	42%	58%	39%	61%	87%	13%
2017	37%	63%	62%	38%	31%	69%	74%	26%	42%	58%	37%	63%	85%	15%
2018	39%	61%	61%	39%	34%	66%	75%	25%	33%	67%	38%	62%	85%	15%

Table 2's data aligns with the stereotypical overrepresentation of women in these 'soft' design disciplines. The Departments of Industrial Design, Multimedia and Architecture are clearly male-dominated. However, only Industrial Design has shown a significant shift in gender equality over the past 10 years (from 19:81 in 2009 to 39:61 in 2018). Interestingly, the Department of Jewellery design has shown the most significant change, flipping from a 2:1 female dominance in 2009 to the opposite in 2018. This dramatic change is most likely attributable to the statistical influence of relatively small student cohorts.

Focusing specifically on Industrial Design over a longer 20-year period, female first-year student enrolment has increased from 9% in 1997 to 36% in 2018 (Figure 1). The number of female exit-level graduates has evened out from 3% in 1997 to 45% in 2017. The greater numbers of female graduates indicate that more and more women are slowly entering industry over time. These figures, to some extent, also explain the patriarchy of the industry with a history of far more men than women entering industry. Past graduates worked for men and with men. These men are now well-established in industry.

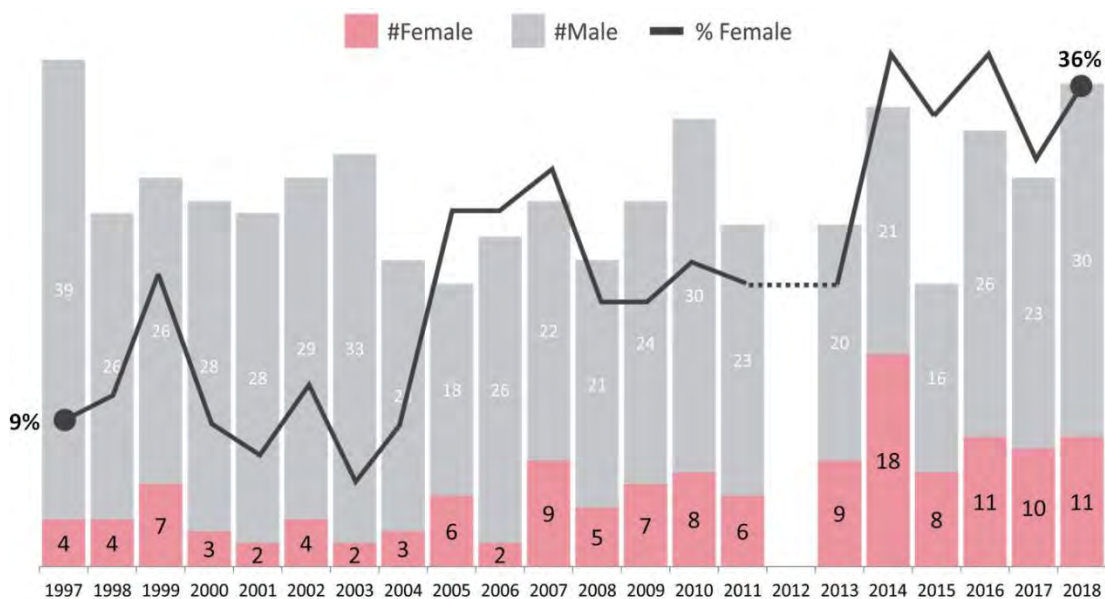


Figure 6: Department of Industrial Design first-year student enrolment numbers by gender, and female representation (percentage) from 1997 to 2018

An interesting observation is that women seem to have more staying power in the department. Figure 2 demonstrates that as year groups get smaller as students progress through the three or four-year programme (the BA is a three-year qualification, and the BA honours is a fourth year), the percentage of women increases. This indicates that although fewer women enrol into the programme, more men drop out. Furthermore, for the past five years, the Dean's Award for top achieving students in the department has consistently been awarded to female students. At surface level, these quantitative findings would suggest that women are currently successfully clearing the 'first hurdle' more successfully than men, and that indicates a promising trajectory. However, studies in the Global North investigating the experiences of students, tell a different story.

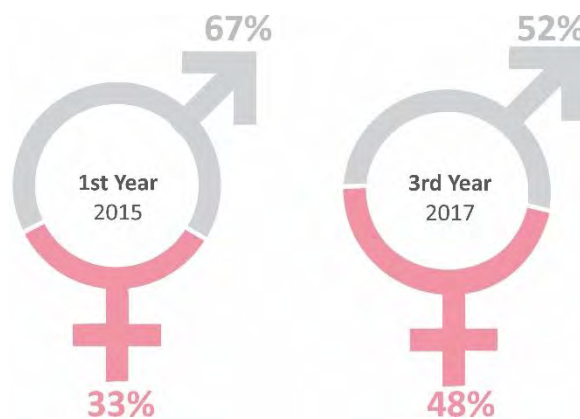


Figure 7: Gender split comparison of the 2015 Industrial Design student cohort in their first and third year of study

USA Industrial Design schools have equal ratios of male to female students (Barnhart & Walters 2018b). In 1993, a study including observations of 112 juries (a group/panel discussion more commonly used in the evaluation of work in the Architecture discipline) and a survey evaluating student experiences in three USA design schools, found that "female students were interrupted significantly more often during presentations than their male counterparts, and thus felt less confident of defending their designs to criticism" (Lockhart & Miller 2015b). A more recent study at Iowa State University unpacked the environment and culture of the design studio and the effect it has on women (Barnhart & Walters 2018a). Findings indicated that women preferred to work from home, away from the judgment of others, with some respondents claiming to be uncomfortable working in their university studios (Barnhart & Walters 2018a). Female students claimed to be afraid to ask questions because they felt that they are "rarely heard or fear sounding stupid" (Barnhart & Walters 2018a).

Echoing the South African data, gender diversity of the student population in Australian Industrial Design courses has also shown a notable increase in female graduates over the past 20 years. Lockhart and Miller (Lockhart & Miller 2015a) investigate the design knowledge development of young women studying industrial design in Australia. They provide insight into how gendered projects and environments can impact the skills development and engagement of women in the education process (Lockhart & Miller 2015a). Lockhart and Miller's investigation onto female student experiences at Australian universities showed that "the vast majority felt that gender was not a major factor in their experience of the course or how they were treated" (Lockhart & Miller 2015a). However, the vast majority felt that the nature of the

assigned projects aligned more with masculine interests, hindering their sustained engagement in the course (Lockhart & Miller 2015a).

Furthermore, the study showed that the experience of the workshop environment was perceived to be gendered with male students feeling more confident and women students having to grow their confidence throughout the course (Lockhart & Miller 2015a). These findings highlight the critical role of the educational experience in developing not only an appropriate skills base but also the confidence of female designers to promote their sustained engagement with the field (Lockhart & Miller 2015a). Barnhart and Walters (2018a) bring this point to home by questioning, "If women are fundamentally uncomfortable in current educational Industrial Design environments, how can we expect them to confidently move into professional practice?"

Many of the issues discussed above are echoed in STEM programmes, with problems such as the absence of female role models, curricula that are irrelevant to many women and pressure for women to conform to traditional cultural gender roles and stereotypes (Blickenstaff 2005). South African academia is dominated by men (Moosa 2017). Although more female students are enrolled at universities at an undergraduate level, there are more men at postgraduate master's and doctoral levels – resulting in fewer female academics (Moosa 2017). There is much value in having appropriate mentors and role models for female students, and to do this, the industry must transform, and the academy must become more gender diverse.

Gender diversity is important in both educational and professional levels. Not drawing on the tacit knowledge of women can lead to homogenous design solutions and single-sided design conversations (Kieran & McMahon 2017). "Homogenous student groups result in a lack of diversity in the tacit knowledge available both to individual students and limits peer learning in the studio environment" (Mayfield 2009). At a professional level, the underrepresentation of women in design creates a gender data gap (Criado-Perez 2019). The consequences of this data gap in the Industrial Design profession are, firstly, the loss of women's tacit knowledge in the design process, and secondly, the underdevelopment of products and markets in relation to the specific needs of women (Bruce 1985, p. 150; Criado-Perez 2019; Design Council 2018; Lockhart 2016, p. 3; Mayfield 2009; Ranga & Etzkowitz 2010). Products that are inappropriate for the needs and concerns of women impact their everyday lives. Such impacts can be relatively minor or irritating, such as struggling to reach a top shelf placed at an average male height or trying to grip an oversized cell phone. However, the consequences of living in a world built around male data can also have serious health/safety implications (Criado-Perez 2019). For example, car safety tests do not account for women's measurements (Criado-Perez 2019). As a result, women are 71% more likely than men to be *moderately* injured, 47% more likely to be *seriously* injured and 17% more likely to be *fatally* injured when involved in comparable car accidents (Criado-Perez 2019). These statistics are a result of how cars are designed and for whom (Criado-Perez 2019). The 'one-size-fits-men' approach to design, such as in hand tools that are often too large for women's hands, also further perpetuates gender stereotypes and "clichéd concepts of masculinity and femininity" (Kieran & McMahon 2017).

Conclusion

It is clear that there are still significant gender biases found in both the professional and educational Industrial Design contexts. As per the definition of Industrial Design presented at the start of this paper, we would like to change this situation. It is a difficult task to change an industry. A more realistic starting point is to build on the transformations that have already taken place in terms of gender equity in higher education in South Africa and at the same time learning from the experiences of women in other countries (Blickenstaff 2005). Such educational change could better prepare female students for the reality of the industry they

may work in, or more radically empower them to challenge the industry itself by beginning alternative enterprises.

Without change, design education will be limited in its ability to make use of the tacit knowledge and life experiences that individual students bring, but even these are hidden without skilled academics teasing them out. It is crucial for personal and professional development (Mayfield 2009), in an increasingly automated future, to come to the important realisation that as a designer, your own experiences are core to your success.

Although this paper has focused on gender disparity in the field of Industrial Design, gender is not the only imbalance evident in this field. Imbalances are seen in factors such as ethnicity, age, disability and social class (Mayfield 2009). The value of nurturing human diversity in design to address issues of inequality needs to be amplified through education (Gleason 2018). This will allow graduating designers to face the complexities of the economic, social, political and environmental upheavals that will become all the more evident in the fourth industrial revolution.

The findings of this small-scale study that are presented in this paper are just the beginning of a more in-depth and cross-disciplinary investigation into educational and industry experiences of women in South Africa. This will be expanded on through a three-year research project in partnership with Falmouth University that will collaboratively compare gender-bias in design in the two locations through the financial support of the UK Global Challenges Research Fund.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

An Unknowable Future: The significance of fashion entrepreneurship education in preparing young designers for the industry

Tando Sisanda Mbanga: Durban University of Technology

Abstract

One of the most significant challenges faced by South Africans is the high youth unemployment rate. Government and the private sector are unable to create sufficient job opportunities to accommodate young graduates. Entrepreneurship is a significant solution in a climate of unstable economy, limited job security and abundant social issues. It is debated whether entrepreneurship can be taught. Some researchers believe entrepreneurs are born and cannot be made. However, employers seek people with specialised skills, quick learners who can easily shift from one role to another (Majithia 2017), competing on a global level. Fashion entrepreneurship education could help prepare students for real business situations, whether as entrepreneurs or responsive employees.

Fashion design students have the necessary knowledge and technical skills required to design and make fashion products (Burke 2013), and fashion entrepreneurship should follow naturally. However, Blomfield and Trade (2002) argue that fashion design students do not know how to use their creativity for commercial gain. These young designers struggle to promote and sell their products to the envisaged market. This paper gives voice to fashion alumni, who believe their education should have prepared them for business.

A successful fashion entrepreneur must have personal entrepreneurial qualities to identify prospects in a fast-paced industry (Burke 2013). This paper explores how these characteristics can be embedded in the curriculum to equip students with necessary skills needed to compete in an unknowable future. Objectives of a fashion education programme should match socio-economic needs of its context. It is necessary for academia to adapt to best practices to establish a viable and sustainable future (Palomo-Lovinski & Faerm 2014). In sharing the voices of students past and present, this research aims to contribute to the discussions and development of a sustainable and effective Fashion Entrepreneurship curriculum within a South African context.

Keywords: Fashion, fashion entrepreneurship, fashion entrepreneurship education

Introduction

Entrepreneurship education is a large, expanding and important field in today's economy, and one of the growing fields of education globally (Sirelkhatim & Gangi 2015). In spite of the belief that entrepreneurs are born and not made, there is an increasing amount of research that recognises the significance of entrepreneurship education. Some academics believe entrepreneurial traits are 'born' rather than developed. However, research acknowledges that an entrepreneurial attitude can be fostered by entrepreneurial practise, ethos and setting (Jenny Shi, Chen, Kate Gifford & Jin 2012). Entrepreneurship education, therefore, benefits students to be more innovative and confident in whatever they carry out. An entrepreneurial mindset relates to managing one's own life, being creative in any working activity, and establishing and expanding a business successfully. This paper, therefore, argues that entrepreneurship education can inspire entrepreneurial potential.

In the United Kingdom (UK), universities are responding to the call from the government to inspire students to consider entrepreneurship as a potential career path (Carey & Naudin 2006). The demand for entrepreneurship education has also been promoted by student needs, as students want to study courses ranging from "business planning and start-up, to entrepreneurial finance and technology management" (Wilson, Vyakarnam, Volkmann, Mariotti & Rabuzzi 2009, p. 19). Today's graduates identify work as something that allows for self-development and self-expression (Arnett 2004). With current social and economic challenges, choosing a career path has profound significance for today's young graduates. They are graduating during great economic challenges, and this has made them choose careers that are more than just giving a salary, but something creative that will allow innovation. The career choices graduates make still require certain skills and traits that will allow them to be competitive and survive in an ever-changing world.

Due to high unemployment rates among the youth, Higher Institutions of Learning (HEIs) in South Africa are facing an academic change. A call made by the Department of Higher Education for all HEIs to include entrepreneurship modules to their existing programmes. Member of the Executive Council (MEC) for Economic Development and Tourism, Mike Mabuyakhulu (KwaZulu-Natal Department of Economic Development and Tourism 2015) supports the call made by the Department of Higher Education, which highlights a variety of opportunities and recommendations for unemployed graduates through entrepreneurship. Carey and Naudin (2006) state that, in so doing, HEIs will not only produce graduates who will look for jobs but possible entrepreneurs that will contribute to the growth of the newly-emerging, knowledge-based economy by starting businesses. Wilson et al. (2009) assert that schools and HEIs should be required to develop students to work in a self-motivated, fast-moving entrepreneurial and global environment. Lazenby and Machaba (2011) report that while education is significant for promoting and stimulating intelligence, graduates appear to be hesitant when it comes to business starters and taking necessary risks and venturing into the unknown. This study highlights the importance of a tailor-made entrepreneurship curriculum for a specific programme that speaks directly to a specific industry rather than a generic curriculum.

The business education in a fashion programme

Although design education is mostly the main part of fashion education, design is only a small part of the wider fashion industry (Gale 2011). Entrepreneurship in the fashion industry is practicable and important, as the fashion business sector comprises of many small, medium, micro enterprises (SMMEs). In the context of creative education, many design programmes have recently included basic entrepreneurship skills (Mills 2012). Rao and Joshi (2010) state that a paradigm shift is necessary to focus on entrepreneurial education custom-made to suit

various disciplines. Meaning, there is no one size fits all, and fashion education must be aligned to benefit the increasing professionalisation of the sector and social-economic needs.

Rao and Joshi (2010) indicate that fashion and apparel design is a 'specialised' sector. Therefore, it requires entrepreneurs to be taught fashion entrepreneurship and fashion entrepreneurial characteristics. Research studies advise that formal education positively influence entrepreneurial activities. However, there is also literature to the contrary (Lazenby & Machaba 2011). Fashion designers are at an advantage of starting their own businesses compared to those in other professions, as they possess technical skills required to design, make and sell their products (Burke 2013). However, many up-coming designers do not know how to monetise their creativity (Blomfield & Trade 2002). This has contributed to debate among academics, business professionals and stakeholders on the quality of entrepreneurship education, whether entrepreneurship can be taught or practised and how the content is delivered. What should be taught in these programmes and how to teach them have been highlighted by many researchers (Sirelkhatim & Gangi 2015).

The core function of HEIs is to offer quality education to future leaders and develop high-level technical capacities that support economic growth (World Bank 1994). However, how does one know whether a programme's objective is being carried out successfully? Blenkin, Kelly and Edwards (1992) suggest that a curriculum must be revised and tested frequently to guarantee that it responds to changes occurring in society so that it can benefit the educational process.

According to Jamieson (cited in Rao & Joshi 2010, p. 2), entrepreneurial education for fashion and apparel design, must be planned in relation to 1) entrepreneurial education of the enterprise; 2) entrepreneurial education for the enterprise; and 3) entrepreneurial education through the enterprise. Furthermore, Rao and Joshi (2010) suggest fashion entrepreneurship should develop students to have entrepreneurship traits that should include the ability to pioneer their designs and create a unique style, consistent and new, the ability to manage the process of communication on which fashion depends and the ability to manage strategic and marketing issues. While appreciating Jamieson's (1984) model, this paper argues that a curriculum must guarantee that it reacts to changes occurring globally and importantly socio-economic circumstances so that it can benefit the educational development.

These debates prompted an investigation into whether the Durban University of Technology's (DUT) Fashion entrepreneurship curriculum for the Fashion and Textiles Department does meet its intended objectives or not, and whether it has considered the changing social-economic needs. According to Faerm (2012), these needs comprise of an industry that is fluctuating at an extraordinarily high level. With a different group of students, a new set of skills and abilities are demanded by today's economy and the world at large. This paper brings attention to the future of fashion entrepreneurship through fashion entrepreneurship education and current professional practices amid speculations into an uncertain future. The question is, are our students ready for the unknowable change? Are we equipping our students to be able to solve problems, survive and thrive in this changing world? To answer these questions, this study examined alumni perceptions of the efficacy of entrepreneurship education within the fashion business studies curriculum of the universities of technology (UoT).

The fashion business studies module

The Fashion Entrepreneurship module at the Durban University of Technology (DUT) is referred to as a Business Studies module in the annual programme offering. Influenced by the socio-economic needs, the Durban University of Technology's Fashion and Textiles Department included the Business Studies (BS) module in its programme at the beginning of

2002. The motivation to introduce fashion entrepreneurship education resulted from noticing a rapid change globally. There was a need and demand for entrepreneurship knowledge and skills, as students had little to no understanding of how to start and run a fashion business. Initially, the Fashion and Textiles Department outsourced the services from the university's Business Studies Unit, and subsequently from the Entrepreneurial Studies and Management Department. This meant that the Fashion programme focused on basic entrepreneurial knowledge. The outsourced departments lacked the contextual knowledge of the fashion business world, presenting generic content fashion students could not use. As the demand for fashion-specific entrepreneurial knowledge and skills grew, the department designed its own Business Studies curriculum, tailored to entrepreneurship opportunities for the fashion and textile industry's needs. The developed module targets more than just fashion students interested in starting their businesses. All registered students must complete the module, developing critical skills that will allow students to be competitive, creative and innovative.

Currently, the Business Studies module is taught at all three levels of a National Diploma in Fashion. Further to this, Business Studies is offered as a module in the Bachelor of Technology in Fashion qualification. The following modules are part of the undergraduate qualification:

Business Skills 1: Introduction to fashion business terminology, problem solving, and going through the fashion business sector to understand different roles within a fashion business and relevant responsibilities.

Business Studies 2: Students do two modules, Marketing and Merchandising (module 1) and Business Skills (module 2). In module 2, students are exposed to practical, creative and innovative elements of entrepreneurship. Students research the gap for setting up a new fashion or fashion-related business in South Africa. In Marketing and Merchandising, students are introduced to market research and the marketing mix-elements, among other things.

Business Studies 3: Comprised of two modules, Business Creation (module 1) and Business Management (module 2). The Business Creation module introduces students to financial management and related activities for a small business. It includes the role of sourcing finance in supporting the functional areas of business and fosters an understanding of how financial decisions themselves can create value. By doing this module, students are given basic knowledge that will help them build a better financial future for their business. The module also looks at the importance of promotion and branding in a small business. Business Management aims to assist students in understanding the human resources functions of business by addressing recruitment and hiring, labour relations and leadership skills. It also teaches students to develop the ability to multitask and build confidence in managing a business.

Furthermore, the module aims to aid students' understanding of the Operations Management (OM) and the design and production processes in an apparel/footwear/retail organisation. Operations Management refers to the administration of business practices, activities, decisions and responsibilities of managing the resources (technologies, systems and personnel) (Nieuwenhuizen 2004) which are dedicated to the production and delivery of products and services. This is achieved through work-integrated learning (WIL), which aims at placing students in workplaces within the apparel/footwear/retail organisations to extend the students' learning within the programme.

BTech: This module offers a higher level of study with more theoretical and academic content. Each student submits a business research report based on the area of interest.

Since the revision and implementation of the changes in the early 2000s to the Business Studies syllabus, the curriculum has not been tested to see if it actually meets its desired outcomes (including developing designers that can understand broader contexts, contribute

to social entrepreneurship, come up with creative and innovative new products and ideas, and rethink new business methods, think critically and solve problems). The long-standing views of entrepreneurship education and its purpose in the fashion design industry requires critical rethinking to be able to prepare students for the uncertain future. This study explored the perceptions and lived experiences of alumni who graduated between 2002 and 2012 having covered the Business Studies curriculum 1) to establish whether or not the knowledge and skills acquired were sufficient for the fashion alumni to start a fashion enterprise in the Kwa-Zulu Natal Durban metropolitan region; 2) to determine whether the content of the Business Studies curriculum increased the likelihood of fashion students pursuing entrepreneurship; and 3) to establish whether or not the curriculum needed to be revised.

Research design and methodology

A sample of nine fashion alumni entrepreneurs of the Durban University of Technology was selected by using the purposive sampling method. The criteria used to select the suitable criteria comprised of:

- fashion alumni who graduated from Durban University of Technology, between 2002 and 2012; and
- fashion alumni who had formally set up and run a fashion business for a minimum of two years, operating within the Durban metropolitan region.

These criteria aimed to select appropriate individuals who could provide insight into whether the Business Studies curriculum was practically meeting its objectives. Data was collected through semi-structured personal and in-depth interviews that consisted of open-ended questions as it gave me the opportunity to create probing questions that allowed for clarity in answers during the conversations. An interview schedule was developed as a guide to ensure consistency across the interviews. This instrument was tailored to collect a large amount of data on alumni perceptions of how the Business Studies module affected their entrepreneurship knowledge, skills, expertise, graduate attributes (outcomes) and engagement in other additional educational or professional endeavours.

Findings and discussion

Of the participants running fashion businesses, 89% were females, and 11% were males. Of the nine graduates, 56% graduated in 2009, and 44% graduated between 2003, 2005, 2006 and 2007. 100% of the participants started their businesses from scratch, which is very important in the creative industry, as one is judged by originality to be able to maintain the brand.

Participants were asked whether the Business Studies module triggered an interest in starting a business. Of the nine respondents, 11% (one participant) started a business while studying towards a National Diploma. The remaining 89% (eight participants) only started their businesses after graduation, and some had to secure jobs for financial reasons and experience first, and then started their businesses while working. This can be interpreted to mean that most graduates were not business-ready immediately after graduation or during the course of study due to lack of finance or lack of business skills, hence the need for experience. Interestingly, participants I, D, H and G, enrolled in the fashion programme, never intending to look for formal employment. Participant H stated, "I have always wanted to be an independent business owner, to have the freedom, both financially and creatively. To build and contribute to my own dream instead of working for an established company and not being

creatively fulfilled". Participant I said, "this has been a lifelong dream. I have always wanted to employ local labour and pay them fairly for their skill".

Business professionals that mentor up-coming entrepreneurs argue that graduates lack business skills such as bookkeeping, accounting and finance literacy. When asked whether the Business Studies module did provide them with financial skills and bookkeeping skills required to start and run a fashion business. Participant I mentioned she had to learn on the way through her business and seeking mentorship from other business owners. Another participant G recognised that she had limited knowledge, and went on to take a business course that she found to be an immense help. "Having parents that own a financial planning business and they were, and still are, extremely helpful regarding advice, and general business tips and financial growth". Participant G and H are in a partnership business and answered by saying, "the module was somehow relevant as the assignments were related to fashion, however, during the years at tech they never took the subject seriously because of how it was taught". However, they both knew that business studies were important for career success.

This requires academics and curriculum developers to consider entrepreneurship needs and demands as required by the changing industry. How entrepreneurship is taught needs immense attention. This requires educators to find new ways to teach and move away from traditional teaching and learning. According to Rasmussen and Sørheim (2006, p. 1), action-orientated learning has multiple objectives, such as "educating entrepreneurs, establishing new ventures, and commercialising university research". This promotes that learning by doing is the most suitable method for teaching and learning entrepreneurship for today's student. This is because action learning helps students deal with real-world problems and adopt many of the entrepreneurship education principles" (Rao & Joshi 2010).

This study argues the issue of a generalised entrepreneurship curriculum, as there is a need for tailored, programme-specific curricula. Participants were asked whether the content of the curriculum was adequately structured to help them gain the skills and knowledge required by the fashion business industry. Participant D enrolled in the fashion programme already having decided that she wanted to own a fashion business. She said, "Luckily I had already known that entrepreneurship was the way for me as I owned a sewing machine at the age of 16 and by the time I was in my second year of study I started making bridal gowns". Participant B stated that "the fashion programme as a whole prepared students for employment". In the words of participant F, "it was all about getting a job within the industry, but not about using my creativity to make money out of it". Participant C concurred with F, saying, "We were mostly encouraged to take the employment route; it was never about starting a business". Participant B stated, "the Business Studies syllabus was not fashion related. However, the assignments were linked to fashion". She further explained that "the module was taught by an outsider [outside the Fashion and Textiles Department]. If the lecturer had a fashion background it would have helped". What this study has proved is that the background of the educator plays a role in teaching and learning, as teaching methodologies play a role in how students learn. In agreement with Rao and Joshi (2010), the study believes that educators of fashion entrepreneurship must be familiar with entrepreneurship requirements of the fashion and apparel design sector. The syllabus has since been structured to focus on fashion/clothing entrepreneurship opportunities to meet the student and fashion business needs, taught by Fashion and Textiles lecturers instead of outsourced. Joshi (2010) point out that fashion and apparel design is a 'specialised' sector. Therefore, it requires fashion students to be taught fashion-specific entrepreneurship and entrepreneurial characteristics.

In trying to understand whether the Business Studies curriculum had gaps that needed to be considered in terms of required skills by the fashion business industry, Participant I indicated that, "the skill to be able to network and build a list of suppliers in the industry is just as important as it took me time to establish contacts". "The knowledge of labour laws, patents,

CCMA policies, brand and social media understanding and marketing knowledge was as essential". Interestingly, the results showed that 56% of the participants responded by saying that costing and pricing or accounting and bookkeeping was also crucial. It became evident that there was a gap in the manner in which the Business Studies syllabus was structured.

The current syllabus does address the terminology and basics of the human resources function of a business. However, the bookkeeping knowledge and labour law gap suggested by participants requires a specialist in the field of labour law and auditing/accounting. Auditing/accounting are necessary skills required to financially manage a business and requires a specialist in the field, hence the importance of industry collaborations that allow guest speakers who are professionals in certain fields, to be invited to speak on certain topics. In agreeing with (Rasmussena & Sørheim 2006), this would also allow the module to be more action-orientated rather than focusing on the traditional teaching. Currently, the Fashion and Textiles Department puts emphasis on industry collaborations and guest lectures, however, the important thing is to identify critical topics within the syllabus for all levels of study. The revised Business Studies curriculum is in the process of review to determine whether it has been effectively revised to meet the changing students' needs and whether it does prepare fashion graduates for the changing world.

Conclusion and recommendations

Since the initial changes to the 'basic' Business Studies curriculum, the Fashion and Textiles Department has recently reviewed the curriculum and made further changes. The Fashion and Textiles Department reviewed the content, structure, duration, approach and delivery style of the Business Studies and made changes appropriate for a fashion student. These changes included the review of the module content, delivery and relevance in relation to the South African socio-economic needs and motivated by the students themselves through the subject evaluation questionnaire surveys (SEQs), the industry players and in relation to the South African socio-economic needs. The review process has been improved by involving the advisory board to review and give feedback on the curriculum based on fashion industry needs and economic needs in general. The advisory board includes industry players with various specialties within the industry and fashion entrepreneurs that happen to be alumni of the Fashion and Textiles Department of the university of technology.

The findings have provided some thought-provoking insights that, in the researcher's opinion, will contribute to the body of knowledge about and a better understanding of fashion entrepreneurship education. Given the fact that the South African Department of Higher Education is in support of entrepreneurship education, and has developed policies and introduced programmes for the promotion of this initiative at higher education institutions. It is hoped that the findings of this study will inform the effective execution of those developmental programmes within higher education institutions offering Fashion education. It is also anticipated that curriculum developers will find the study relevant to their objectives in that there could be lessons to be learned from the results.

Based on the findings, considering some best practices recommendations for Fashion Entrepreneurship education are:

Entrepreneurship education content

The elements of an entrepreneurial personality that are essential for a fashion enterprise and must be included in the curriculum are creativity, innovation, identifying opportunities in the changing world and practice of entrepreneurship. Identifying innovative prospects and making them happen at calculated risks should also be the emphasis. This would prepare the students for the fashion business industry.

Business content

The Business Studies content should broadly include topics such as marketing and branding, trend research, market research, finance and human resources, design and product cycle. This will help the students develop the skills base to encourage more enterprising behaviour and gain an integrated and holistic business management perspective.

Legal aspects

The legal aspects should be included, such as intellectual property rights, employment legislation, insurance and labour acts. This would prepare the students to face various challenges in the process of creating and sustaining the enterprise.

Communication skills

Making sales is the primary challenge. This is based on the ability to convince potential clients. A fashion and apparel entrepreneur should be in a position to persuade the buyers that the products would satisfy their needs. This requires the fashion and apparel entrepreneur to have good communication skills.

Whether entrepreneurs are born or made has raised much attention and debate. There are many studies on this concern. However, there are not many answers and even more questions (Lazenby & Machaba 2011). In conclusion, the impression of this study is that entrepreneurship education has to play a role in enhancing entrepreneurial knowledge, traits and capabilities preparing graduates for tomorrow. For entrepreneurship education to achieve its goals, the curriculum should be tailored to each discipline and not generalised. There is no one-size-fits-all curriculum.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

The Value of Using Hypothesis-Testing Research for Graphic Design: Do decorative pictures contribute to learning?

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Abstract

Graphic design as an academic and research practice is relatively young when compared to the established disciplines such as education, psychology, medicine, and history. It was only community-type colleges and technical institutions that offered design as a vocational trade. Universities in South Africa started to offer design in the latter half of the twentieth century. It is only in the last two decades that we have seen design research output in South Africa. The relatively low number of international design journals when compared to education, for example, attest to the young scientific discipline of research in design. New media and the exponential growth in the digital forms of communication, education, training, and marketing have created an overlap between design, information technology, education, communication, and marketing. Graphic design research is no longer a discipline that is solely driven by theoretical frameworks and reliant on descriptive and qualitative research methods. Research in graphic design overlaps with other scientific practices and should embrace their research methods. One such method is hypothesis-testing research. This method allows for the comparison of values between groups and for the calculation of the effect size of a design variable. Hypothesis-testing research is a quantifiable process that enables a design researcher to determine objectively whether a design intervention makes an improvement and allows for the quantification of this improvement. This paper reports on a hypothesis-testing study that questions the use of decorative material as a variable to improve learning. We will further illustrate the value of this method by demonstrating the use of inferential statistics to calculate the effect size of the decorative graphic that is supposed to improve learning. We conclude by arguing that the adoption of enquiring methods nestled in other academic disciplines will add value to research in the design disciplines.

Keywords: Hypothesis-testing research, pictures, learning, decorative pictures

Introduction

Graphic design as an academic and research practice is relatively young when compared to the established disciplines such as education, psychology, medicine, and history. It was only community colleges and technical institutions that offered design as a vocational trade. Universities in South Africa started to offer design in the latter half of the twentieth century. It is only in the last two decades that we have seen design research output in South Africa. The relatively low numbers of international design journals when compared to education, for example, attest to the young scientific discipline of research in design. New media and the exponential growth in the digital forms of communication, education, and training, and marketing have created an overlap between design, information technology, education, communication and marketing. Graphic design research is no longer a discipline that is solely driven by theoretical frameworks and reliant on descriptive and qualitative research methods. Research in graphic design overlaps with other scientific practices and should embrace their research methods. One such method is inferential statistics and hypothesis-testing research. This method allows for the comparison of values between groups and for the calculation of the effect size of a design variable. Hypothesis-testing research is a quantifiable process that enables a design researcher to determine objectively whether a design intervention makes an improvement and allows for the quantification of this improvement.

The aim of this paper is to provide an overview of the hypothesis-testing method, its application in a design research project, and the value it holds for future design projects. When used in conjunction with learning material, research results about the effectiveness of decorative pictures appear to be inconsistent. Scholars use various terms when they refer to such images in learning material. Some of these terms overlap and may create some uncertainty. We tabulated these terms with their meaning at the end of this paper.

The results of earlier paper-based studies conducted from the 1970s through to the 1980s indicate that irrelevant elements in learning material such as decorative material, do not contribute to learning. Current digitally based studies suggest that decorative graphics may contribute to learning. Our experiment tested the results of recent studies that reported that decorative graphics in learning material may facilitate the learning process (Schneider, Nebel and Rey 2016; Mayer & Estrella 2014; Plass, Heidig, Hayward, Homer & Um 2014; Um, Plass, Hayward & Homer 2012). These authors used the term 'positive emotional graphics' to describe what we as graphic designers, would describe as 'decorative graphics'. These results appear to contradict the earlier work of scholars (Levin & Lesgold 1978; Levin 1981; Levie & Lentz 1982; Digdon, Pressley & Levin 1985; Levin, Anglin & Carney 1987) that worked in the field of visual literacy, and in particular, those that looked at the use of imagery in learning material as an agent to improve learning. The results of the more recent studies seem to suggest that some decorative graphics, and when used with learning material, can contribute to improved learning. The term 'decorative graphics' in this context, has a similar meaning to the terms 'aesthetically appealing design' (Plass et al. 2014), 'emotional design' (Mayer & Estrella 2014), and 'positive emotional design' (Schneider et al. 2016; Um et al. 2012).

In the present experiment, the lesson was about radiation therapy, where the decorative graphics included the use of comic-like graphics. We added an element of humour to the graphics and added some sound bubbles. Rey (2012 & 2014) argues that learners view these briefly and that they may have little or no effect on their learning performance. Our experiment tested the hypothesis that decorative graphics contribute to the learning process.

The objective and framework

Earlier work done, mainly in the education and psychology fields, indicates that text-relevant pictures (but not decorative pictures), facilitate the comprehension and recall of information that is presented in printed learning material (Levin & Lesgold 1978; Levin 1981; Levie & Lentz 1982; Digdon, Pressley & Levin 1985; Levin, Anglin & Carney 1987). The educational effect of pictures in explanative picture-text material can be of impressive magnitude. An increase, for example, of more than 50% in problem-solving transfer and retention of concepts is reported by Mayer (1993) when explanative illustrations are used with explanative text, when the learners have low prior knowledge of the material, and when the test criteria measure conceptual retention and problem-solving transfer skills. The work of Mayer is based on 24 published experiments that were completed over a period of twenty years. A moderate facilitating effect of between 11% and 15% is reported by Anglin (1987), who used prose and representational pictures. The facilitating effect is normally higher with explanative pictures than with representational pictures. Levie and Lentz (1982) give a mean improvement of 36% for groups reading text with pictures when compared to groups that read text alone. They based their results on a review of 23 studies that produced 46 comparisons. A frequently quoted review by Levin and Lesgold (1978, p. 233) found that pictures produce a consistent increase in comprehension during prose learning. Pictures are beneficial if the subjects are children; if they listen to a narrative prose passage; when the pictures overlap the prose content, and when testing is on factual content. Later studies looked at multimedia and animation as agents to learning reported similar facilitating effects. Two good examples are the work of Höffler and Leutner (2007), as well as Bello-Bravo, Olana and Pittendrigh (2015). The meta-analysis of a series of 26 studies by Höffler and Leutner have shown that instructional animations are more effective when they are representational, highly realistic and when the material to be learned relates to the motion, trajectory or change over time depicted by the animation.

Decorative pictures (text-irrelevant imagery) in learning material are graphics that prettify the text material. Researchers have described decorative pictures in different ways. Decorative pictures are non-instructional but aesthetically pleasing. They are used to appeal to one's emotions, whereas instructional pictures are informative in nature, relate to the text and exemplify the learning material. Schneider et al. (2016) place decorative graphics in two separate categories, namely seductive decorative pictures and conducive decorative pictures. Seductive decorative pictures consist of irrelevant but interesting learning material, while conducive decorative pictures may increase learning through mediating factors like positive emotions or interest.

Several authors have reported that decorative material, and in particular pictures and graphic decorations that are not relevant to the learning material, do not contribute to an increase in comprehension or recall (Levin 1981; Levie & Lentz 1982; Levin et al. 1987; Mayer 1993). Later work by Sung and Mayer (2012) has also shown that decorative graphics that are added to text do not add to the learning process. A shortcoming of a number of the earlier studies cited above, at least from a graphic designer's perspective, is that the pictures that the scholars used in the experiments were mostly without imagination and in monochrome. Even though later multimedia and animation experiments contain colour, the pictures and graphic were at a basic level in terms of artistic impression.

Pictures and emotions

Scholars have also reported that illustrations can foster learning through an effective process (Lowe 2004; Schnotz & Rasch 2005). Illustrations can have an emotional function whereby they have the power to engage, attract attention and motivate a learner. This function is similar to

that of animations produced for the advertising and entertainment industries. Illustrations with an emotional function, and that do not relate to the textual learning material would typically fall in the decorative picture typology of Levin (1981; 1989).

Um et al. (2012) posed the question of whether one can structure a multimedia learning environment in such a manner that it fosters positive emotions and whether such positive emotions can improve learning. They used 118 American college students and randomly assigned them to four treatment conditions in a 2x2 factorial design. The variables consisted of an external induction to create positive or neutral emotions with the learners, and an internal induction of emotions through what they describe as positive or neutral emotional graphics. The terms positive and neutral emotional graphics require some explanation at this point. Both the positive and neutral 'emotional' graphics are, from a designer's perspective, merely decorative material. The graphics do not contain learning content but are graphics that supplement the learning material through decorative means. The positive graphics are in colour with smiling faces, while the neutral graphics are monochrome without smiling faces. The work of Um et al. (2012) has shown that the graphics designed to create positive emotions reduced the perceived difficulty of the learning material. The positive emotional graphics increased learners' comprehension and transfer scores, while the external mood-induction procedure only improved the learners' transfer scores. Plass et al. (2014) sought to replicate Um's results by using a different sample (112 German graduate students) and by using the same experimental material and process. Their results were similar to the study by Um et al. (2012) in that subjects that received the positive emotional learning material performed better with a comprehension test than those that received neutral emotional graphics with their learning material. Their results have shown that both colour and shape contribute to an increase in comprehension.

Mayer and Estrella (2014) investigated whether the inclusion of emotional design features to multimedia improves learning outcomes. They conducted two small experiments (n = 64 in the first, and n = 45 in the second experiment) where the subjects either received learning material with enhanced graphics or neutral (non-enhanced) graphics. Their graphics in their experimental groups were similar to the positive emotional graphics in the studies by Um et al. (2012) and Plass et al. (2014), in that the cells in their lesson are in colour and are given human-like characteristics. Their findings suggest that emotional graphics (colour decorative graphics with smiling faces) do contribute to the success of learning material, particularly if they are relevant and do not include information that might confuse the user. Participants who received positive emotional graphics performed better in the first experiment, as well as the second experiment in terms of their total retention and transfer test scores.

From an illustrator and design perspective, we have to highlight a few issues about the pictures that the above scholars used in their experiments. The pictures in the experiments of Um et al. (2012) and Plass et al. (2014) consisted of graphic shapes that explained how a human being's immune system works. These pictures consisted of either basic geometric outline shapes filled with a grey colour, or the same shape filled with colour, on against a coloured background. The colour graphics are given human-like characteristics in that eyes and mouths were scrawled on the graphics. The pictures in Mayer and Estrella's (2014) work are similar. Their neutral graphics consisted of monochrome graphic shapes, while their positive graphics were the same shape, except that they were in colour and contained a simplified human face. Although Mayer and Estrella (2014) described these images as neutral or positive emotional graphics, they are in essence somewhere in between the interpretive and transformational pictures classification as proposed by Levin (1981; 1989). These graphics will help a learner to associate and visualise technical terms with memorable shapes. The graphics will also help a learner follow the process described with the text and assist with subsequent recall.

The experiment

We questioned the results of Mayer and Estrella (2014), Um et al. (2012) and Plass et al. (2014) because the results are in conflict with the earlier results of Levin (1981), Levie and Lentz (1982), Levin et al. (1987) and Mayer (1993) who reported no learning facilitation for decorative pictures. We tested the hypothesis that decorative pictures may facilitate learning by conducting an experiment aimed to expand the work by Plass et al. (2014), Mayer and Estrella (2014) and Um et al. (2012). The strategy was to induce positive emotions and to increase a motivational aspect with graphics. For this, we used a comic-book approach and as with the above studies, the personification of the graphics for one of the experimental groups. We hypothesised that positive emotional graphics in animated learning material would improve learning more than the animated material with neutral graphics, and more than static material with positive, and static material with neutral graphics. The experiment was similar in design as the one conducted by Mayer and Estrella (2014), except that the graphics formed a larger visual component of the learning material, and we also introduced a higher level of visual aesthetics than the experiments by Um et al. (2012) and Plass et al. (2014).

Participants and design

The participants consisted of 231 secondary school learners in their tenth and eleventh year of schooling. They were recruited from two schools in Bloemfontein in the Free State province of South Africa. One school was situated in a middle-income suburb while the second school was situated in a lower-income suburb. There were 118 boys, and 113 girls and their ages ranged between 14 and 19 years. Of these, 9.4% were in the 14–15 year age group, 74.4% were in the 16–17 year age group and 15% were in the 17–19 year age group. Compulsory schooling in South African consists of seven years in a primary school and five years in a secondary school. Participation was voluntary, and subjects were not promised any reward. The Free State Department of Education and the two schools gave permission to recruit learners for the experiment. Participants who were younger than 18 years old obtained permission from their parents. The research was conducted after receiving ethical approval for the study. The university's Ethics Committee clearance number is SCRE/2014/11/004.

A small pilot study tested the procedure with five subjects prior to commencing with the experiment. There were no noticeable procedural difficulties with the material delivery process and answer collection process. The pilot test subjects did not report any difficulties with the level of the learning material or comprehending the questions.

The experiment consisted of a pre-test, post-test design, with four different treatments in the post-test. Subjects were randomly allocated to one of four treatment groups, and placed in front of a computer workstation in a computer laboratory. A facilitator demonstrated the procedure on a screen after which the learners were instructed to complete the pre-test. Pupils received the learning material via a computer and then completed an on-line questionnaire. The pre-test consisted of a 486-word, seven-slide presentation about keys to safer food. The material came from the World Health Organization (WHO 2014) and explained in five steps what one must do to prevent foodborne diseases. Five graphics next to the text augmented these steps, for example, the process of keeping raw food away from cooked food. Ten multiple-choice questions tested the learners' knowledge of the aforementioned learning material. The pre-test was a self-paced process and learners had control to go back to previous slides. The purpose of the pre-test was to determine if there is a significant difference between the groups in terms of tests score of unrelated learning material delivered through a computerised system and an on-line comprehension questionnaire. A significant difference in the pre-test scores will enable one to control for any difference between the ability of the four groups. Even though a random allocation to different treatment groups should theoretically

provide equivalent groups in terms of ability, there is always the probability that one group by chance may contain a disproportion of subjects with lower or higher ability. This would cause a treatment group to show a higher score, not due to the treatment variable.

The procedure for the post-test was similar to the pre-test except that each group received a different treatment. The material for the first group, the Animation Positive (AP) was multimedia learning material in an animated format, designed to induce positive emotions. The material consisted of the learning material in text format and included comic-like motion graphics and characters, sound bubbles, and anthropomorphic images of cancer cells. The second group, the Animation Neutral (AN) group received the same material in the same format, except that the images of the cancer cells were no longer anthropomorphic but consisted of graphic shapes. The material for the third and fourth group, the Static Positive (SP) and the Static Neutral (SN) groups were the same as for the animated groups, except that the multimedia material was static and consisted of six still pages. The material for all four groups was self-paced, and students could go back or forward at their own will. All the learners completed the experiment in 45 minutes. Each student received a small fruit juice after completion of the experiment.

The instructional material

The text material for the post-test consisted of 410 words about radiation therapy and its treatment for cancer compiled from information available from the National Breast Cancer Foundation, Inc. (2012) and the National Cancer Institute at the National Institutes of Health (2009). The reason for choosing radiation therapy as a topic is that it is not a common subject at school. Using this topic for the learning material would eliminate prior knowledge, as learners are not likely to have prior knowledge about this topic. Prior knowledge is a variable that would have unduly influenced the post-test scores of the learners.

A section of the post-test learning material and the associated multiple-choice question is provided below.

Radiation therapy, sometimes called radiotherapy, is a procedure that treats certain forms of cancer to kill cancer cells or control their growth. A doctor called a radiation oncologist oversees radiation therapy, which usually consists of a specific number of treatments given over a specific time.

Question: What is the role of radiation oncologist?

- a) The doctor who will oversee the care of each person undergoing radiation treatment.*
- b) The doctor who typically create the radiation beam during radiation therapy treatments.*
- c) A medical specialist who practices surgery.*
- d) None of the above*

Data analysis

The independent variables under investigation were the subjects' comprehension of the learning material while the dependent variables were positive graphic elements in an animated and in a static format, aimed to elicit a positive emotional response. We determined whether the data was normally distributed by using the Levene Statistic to check the variability, the Welsch ANOVA and the Games-Howell post-hoc test to determine if one treatment is better than another, to establish if positive graphic elements in learning material could contribute to better learning.

The results

The results of the pre-test and the post-test for the four treatment groups are provided below.

The pre-test results

A Normal Q-Q plot of the pre-test scores indicated that the scores were approximately normally distributed. However, the Levene F-test indicated that the post-test variances were not equal, $F(3, 224) = 10.24, p = .000$. It is because of the lack of homogeneity of variances that we used the Welch ANOVA to test if there was a difference between the means of the four pre-test scores. The results indicate that there were no significant statistical differences between the group means, $F(3, 123.33) = 1.97, p = .122$. There would thus not be a rationale for controlling the pre-test scores in the analyses of the post-test scores.

The post-test results

A Normal Q-Q plot of the post-test scores indicated that the scores were approximately normally distributed. As with the pre-test results, a Levene's F-test showed that the post-test variances were also not equal, $F(3, 227) = 2.86, p = .038$. A Welch ANOVA indicated that there was a difference between the means of the four post-test scores, $F(3, 124.76) = 11.69, p = .000$. Since the assumption of homogeneity of variances was violated, the Games-Howell post-hoc test was used to determine which post-test scores were significantly different between the treatment groups.

There was a significant difference ($p = .024, d = .538$) between the mean of the Positive Animation (PA) group ($M = 3.65, SD = 1.06$) and the mean of the Neutral Animation (NA) group ($M = 3.16, SD = .727$). Students in the Positive Static group ($M = 4.11, SD = .976$) also scored significantly better ($p = .000, d = 1.099$) than the Neutral Animation (NA) group ($M = 3.16, SD = .727$) and significantly better ($p = .006, d = .626$) than the Neutral Static (NS) group ($M = 3.53, SD = .873$). The descriptive statistics for the post-test are provided in Table 1, and the results of the Games-Howell post-hoc test are provided in Table 2.

Table 1. The Means and Standard Deviations for each group on comprehension

	<i>n</i>	<i>M</i>	<i>SD</i>
Animation (Positive)	57	3.65	1.06
Animation (Neutral)	57	3.16	.73
Static (Positive)	57	4.11	.98
Static (Neutral)	60	3.53	.87

Table 2. The results of the Games-Howell Post-Hoc Test by treatment

Treatment groups	<i>M</i>	Mean differences			
		Animation (Positive)	Animation (Neutral)	Static (Positive)	Static (Neutral)
Animation (Positive)	3.65	--			
Animation (Neutral)	3.16	.491* (<i>d</i> = .538)	--		

Static (Positive)	4.11	-.456	-0.947** (<i>d</i> = 1.099)	--	
Static (Neutral)	3.53	.116	-.375	.571* (<i>d</i> = .626)	--

p* < .05; *p* < .001

Influence of school and level of the learners

We further analysed the data to determine if the school (one from a middle-income, the other a lower-income environment), or if the level of schooling (Grade 10 and Grade 11) influenced the results.

In terms of the different schools, a Normal Q-Q plot indicated that the data for the participants who were in the animation groups from the two schools were normally distributed. There was homogeneity of variance, as assessed by Levene's test for equality of variances, $F(7, 223) = 2.00$, $p = 0.056$. A two-way ANOVA showed that there was no statistically significant interaction between the animation groups of the two schools for the post-test scores, $F(3, 231) = 1.081$, $p = .358$, partial $\eta^2 = .014$.

In terms of the different school grades, a Normal Q-Q plot indicated that the data for the participants that were in the animation groups and in the two different grade levels were normally distributed. There was also homogeneity of variance, $F(7, 223) = 1.43$, $p = .195$. A two-way ANOVA showed that there was a statistically significant interaction between the animation groups and grade levels for the post-test scores, $F(3, 223) = 3.117$, $p = .027$, partial $\eta^2 = .04$. A univariate test on the influence of animation groups on the post-test scores for students in Grade 10 and Grade 11 indicated that there was not a significant statistical difference in post-test scores between the different animation groups for learners in Grade 10, $F(3, 223) = 2.418$, $p = 0.067$, $\eta^2 = 0.032$. However, there was a significant difference in post-test scores between participants in different animation groups for participants in Grade 11, $F(3, 223) = 11.943$, $p = 0.000$, $\eta^2 = .138$. Pairwise comparison for Grade 11 learners indicated a significant difference in post-test scores for Grade 11 participants in the Animation (Positive) group and participants in the Animation (Neutral) group. Grade 11 participants in the Animation (Positive) group had higher mean post-test scores ($M = 4.04$) than Grade 11 participants in the Animation (Neutral) group ($M = 3.16$). There was also a significant difference in post-test scores between the Animation (Neutral) and Static (Positive) groups for Grade 11 participants, with participants in the Static (Positive) group obtaining higher post-test scores ($M = 4.17$). There was also a significant difference in post-test scores for Grade 11 participants in the Static (Positive) group and Static (Neutral) group. Participants in the Static (Positive) group had higher mean scores than participants in the Static (Neutral) group ($M = 3.31$)

Discussion

Participants who received the multimedia learning material, imbedded with positive graphics (in this case with anthropomorphised characters), performed better in terms of comprehension, than participants who received the same material when the graphics were not given a human-like form. This improvement was evident when the learning material was in an animated format and when it was in a static format. Participants who received the positive static version with the anthropomorphised characters performed better than the neutral static group and better than the neutral animated group. The results have also shown that the participants with animated learning material did not necessarily perform better than participants who learned from the static material. The school environment did not affect the

participants' post-test scores, but their level of schooling did have an effect. Participants in Grade 11 performed better than participants in Grade 10, but only those who received the positive animation learning material when compared to Grade 10 participants who received the same material.

Participants who received the learning material in a positive animated format scored better on comprehension than participants who received the material in a neutral animated format. The positive static format also produced better results than the static neutral and even the animated neutral format.

The positive graphics in both the animation version and in the static version produced better results than their neutral versions, but only when the positive animation was compared to the neutral animation and the positive static as compared to the neutral static and the neutral animation. Plass et al. (2014) had already successfully established the effect of colour and shape, therefore, in our experiment, we explored a combination of design elements such as comic-like animated characters and added some humour to the characters as a strategy to engage the learners and create an emotional connection. Although our instruction is not equivalent to the one that Plass et al. (2014) used in their study, the general application of the design effects in the context of emotion is the same.

Implications of the current study

The studies of Schneider et al. (2016), Mayer and Estrella (2014), Plass et al. (2014) and Um et al. (2012), indicate that positive emotions through an induction process or using positive emotional graphics can facilitate learning. Their work suggests that positive emotions must be viewed as an essential variable that ought to be integrated into instructional design, particularly in multimedia learning situations. The results of this study support the tendency that decorative material, or positive graphics, may play a role in facilitating the learning process. However, the difference between this study and the work by Um et al. (2012) and Plass et al. (2014) is that this study did not use a positive mood-induction process in association with positive graphics. Our experiment also places more emphasis on the aesthetic value of the graphics in the learning material.

Several questions remain, at least from a graphic designer's perspective. Is it possible for decorative elements that aim to induce positive emotions, to improve learning without a positive mood-induction process? Learners normally engage with learning material on their own and do not have the advantage of a facilitator to induce a positive mindset before or during the learning process. Given that there is consensus by earlier scholars that decorative graphic elements do not facilitate learning, we question whether positive graphics, in the absence of a mood-induction process and despite our own positive results, would have the ability to improve learning. In our view, when learners experience positive emotions (which can be induced through positive decorative visual graphics), it can stimulate intrinsic motivation or the aspiration to learn without the introduction of external mood-induction procedure.

Limitations and future considerations

Designing and developing quality animations for teaching and learning can be challenging. Plass et al. (2014) have indicated that there is currently little theory-based, empirically validated guidance for determining how specific visual design elements (for example, shape) influence learners' emotions and foster learning. Studies from the perspective of graphic designers or illustrators could add value to this field of study. The experiment was conducted in a computer laboratory environment. One cannot only accept the results of a classroom

experiment and transfer this to a learning situation where learners are not limited as in the experiment. Future studies could be conducted in a classroom setting or in a more structured programme of learning to better explore the effect of different decorative graphics.

This article illustrates how we, as graphic designers could use the research methods traditionally used by the social and natural sciences.

Acknowledgement

This research was conducted as part of the first author, Ts'ekelo P Moremoholo's, doctoral studies in graphic design with funding from the South African National Research Foundation (NRF), under Grant number: TTK1207163028. We hereby acknowledge and express our appreciation to Lezanne van der Walt, a postgraduate student at the Tshwane University of Technology who created the multimedia application in Flash. A related article (Moremoholo & De Lange 2018), also based on postgraduate work by the first author, reports on a subsequent experiment.

Terms and their meaning in the context of this paper

Aesthetic: Pictures that a viewer experience as pleasing to the eye. A subjective judgment.

Emotional graphics: Decorative elements such as a smiling face, or colour added to a graphic that is used in learning material. This term is somewhat confusing, as an image with a smiling face and in colour will not necessarily evoke an emotion. These are words and terms used by no-design scholars (see the work by Plass et al. 2014).

Decorative: Seductive decorative pictures consist of irrelevant but interesting learning material, while conducive decorative pictures may increase learning through mediating factors like positive emotions or interest (*see Schneider et al. 2016. Conducive pictures are similar to emotional graphics/pictures).

Representational and explanative pictures: Pictures that represent a concrete idea, such as an apple. An explanative picture would explain a process, for example, how the human heart works (see Anglin 1987, and Levie & Lentz 1982).

Anthropomorphic pictures: These are images that are given human-like characters. A good example is Walt Disney's Donald Duck.

Static images: Any of the above items, but in motionless format.

Animated images: Also referred to as dynamic images. The opposite of static, an image of a motion graphics project.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Negotiating Material Design Knowledge: Making through design research

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Abstract

My doctoral research critically explored design education in South African higher education through employing post-qualitative methodology. The research was approached from new materialist, posthuman theoretical perspectives. This implied that I set out to practise design research/education aimed at productive transformation in the institution that I work. I critically negotiated a range of individual experiences of being engaged in design/research/teaching in the Visual Communication Design curriculum at Stellenbosch University. It was found that challenging traditional representational practice through playful experimentation allowed individuals time and space to tune into, recognise and respond to moments of productive future change within their situated present. In this paper, I critically reflect on what – in traditional terms – can be regarded as the formal output of the aforementioned research process, i.e. the academic thesis. As the research process evolved, the ways in which data was collected, worked with/through, and represented were challenged. This became an embodied part of the material form of the thesis in a range of ways, e.g. through the informational structure of the document's content, the narrative structure of the text, the typographic and layout structure of the document, as well as its physical form and format. Bringing the specific example of this thesis in relation to theory concerned with materiality and making (Gürsoy 2016; Ingold 2010), I make an argument for using representational media and skills non-representationally (Thrift 2008) to nurture design's creative capacity to transform the world for the better rather than strengthen its predictable, instrumental abilities. As such, this case provides an example of how design knowledge can be negotiated materially through design research, an integral aspect of design theory within the context of advanced capitalism in contemporary twenty-first-century society.

Keywords: Design, making, materiality, representation, design knowledge, design research

Introduction

Design is generally understood as a process delivering concrete outcomes/products (Brassett & Marenko 2015). This echoes what is referred to as the Aristotelian hylomorphic model of

creation, i.e. that ‘physical matter, or the product, [is] a static and passive outcome of predetermined human thought’ (Gürsoy 2016, p. 851). Such a perspective on design privileges humanist, representational logic, i.e. mind over the body – thinking over doing and making – and is hence limited. Gürsoy (2016 p. 852) proposes ‘making for’ processes:

Design and making, form and its matter, as well as minds and things, are [...] strictly interdependent [...] [the] form of a thing emerges from the making process itself, established through the active engagement of the maker ‘with materials that have their own inclinations and vitality’.

As a consequence, the things we design and make play an active part in designing us in turn. Design, thus, can be described as inherently ontological (Escobar 2012). The world designs us, and we design the world. This implies the entanglement of a range of global, as well as local forces. Anthropocentrism as the supreme power humans hold in shaping the earth (Chakrabarty 2009) – a power characterised by binary thinking (Davis & Turpin 2015) – has had significant global impact and, as Barad (2007, p. 134) has argued, “[r]epresentationalism, metaphysical individualism, and humanism work hand in hand, holding this worldview in place”. Locally such a worldview has been made manifest in our colonial and apartheid history, and this history has demonstrated that dualistic ontology can cause serious sociocultural, political and/or ecological inequalities.

In response, the first part of this paper contextualises design and representation in the specific historical context of South Africa (SA). Theoretical insight is provided into the ambiguous relationship between these concepts from posthuman, new materialist perspectives. The next section provides an overview of research done towards my PhD. I specifically reflect on what – in traditional terms – can be regarded as the formal output of the research, i.e. the academic thesis. As the research process evolved, the ways in which data was collected, worked with/through, and represented was challenged. This became an embodied part of the material form of the thesis, e.g. through the informational structure of the document’s content, the narrative structure of the text, the typographic and layout structure of the document, as well as its physical form and format. Bringing the specific example of this thesis in relation to the posthuman, new materialist thought discussed in the first section, I make an argument for using representational media and skills non-representationally (Thrift 2008).

Contextualising design and representation in South Africa

Colonialism served to bring industrialisation to South Africa. Due to the introduction of printed text and images in 1784 (Pretorius 2015), graphic design as a representational medium of communication speedily became the dominant mode of communication in South Africa. Such communication led to Eurocentric ideology, i.e. humanist, binary logic, becoming strongly engrained in South Africa consciousness.

Binary logic, for example, was even a defining feature of attempts at opposing imperial power through communication design, e.g. *Die Afrikaanse Patriot* was an Afrikaans newspaper that appeared in 1880 in reaction to British imperialism in South Africa. It ironically appropriated the visual style of *The Times* in London, while simultaneously taking a stand against the English language by being printed locally in Afrikaans (Pretorius 2015). It thus “define[d] itself by seizing the language of the centre and re-placing it in a discourse fully adapted to the colonised place” (Ashcroft, Griffiths & Tiffin 2002, p. 37). This example demonstrates a strong allegiance between binary logic and visual representation. It makes evident how dualistic logic can position design as purely capable of representing what is already known to exist (Brassett 2015). One’s understanding of design is thus tied to the formal entities materialising through the larger process of design and is limited to what is already known. What happens between these entities seems to be omitted from this definition of design.

The missing perspective of design mentioned above can be contextualised in terms of Deleuze's philosophy. Design can be described as a continuous process of actualisation (Deleuze 2004). The actual, here, constitutes the realm where latent potential – i.e. possibility for change, or what Deleuze refers to as the virtual (2004) – is momentarily stopped in its tracks, resulting in the materialisation of things that, in turn, become “the object[s] of representational thought [while] occlud[ing] the intensities which gave rise to them” (Bonta & Protevi 2004, p. 101). Actualisation thus constitutes “the (problematic and problematising) relationship between what is and what could be” (Brassett & Marenko 2015, p. 18), while representation, although an active part of the process, keeps us from gaining access to the immanent properties that could result in any form of qualitative change (Bonta & Protevi 2004). Design, understood this way, is ontological – it keeps on designing (Escobar 2012) – as mentioned earlier. Through the process of doing and thinking the unknown, what has not been doable and thinkable before can come into being.

Thinking about design during colonial times in this way, one could argue that colonialists, in bringing the technologies of industrial Europe to Africa, ontologically designed South Africa in their image through processes of actualisation. Given the value tied to concrete form – its embodiment of objectivity and truth – the notion of design, however, came to be strongly associated with the representational field of graphic design. Whereas, as touched on earlier, representation has most certainly formed part of design and design – understood as a process of actualisation – is not wholly representational (Escobar 2012). Taking this aspect of design into consideration, it could be argued that graphic design during colonial times, being a thoroughly Eurocentric endeavour, harnessed the productive capacity of ontological design, through representational communication, to hide possibilities for thinking outside binary logic while promoting a humanist mode of being as the only valued option.

Furthering the above line of thought, it could be argued that the South African apartheid state (1948–1994) seized the potential for the co-existence of difference (the virtual, in this case) through the materialisation of policies and laws that enforced binary logic. As in colonial times, oppression through control of dominant communication media proved effective, e.g. censorship led to the banning of publications deemed threatening to the ruling nationalists. It could again be argued that, just as in colonial times, communication design harnessed the productive capacity of ontological design to hide possibilities for thinking outside binary logic, through a diverse range of representational media, while promoting a modern, humanist mode of being as the only viable option.

The engineering of apartheid society as a premeditated process of design as actualisation clearly sprung from a place privileging one thing over another, the mind at the cost of the body, culture above nature, self above other. Through rational thought, humankind initiated processes that enabled it to assert its supreme position in society and, in the process, the minds and bodies of South Africans were shaped, in turn, along divergent axes. As differences were exacerbated on a material level, they became naturalised, thus fuelling a process of negation. The overbearingly restrictive political power (*potestas*) with which the apartheid state asserted its values and beliefs on the nation, seemed to blind the populace to the underlying productive power (*potentia*) it held for affecting change (Braidotti 2013).

However, the material effects of oppression during apartheid were also a strong force contributing to the resistance movement. It seemed to allow for the emergence of productive power that contributed to positive change. Initiating a process of design for change seemed to be ontologically designed by little material resources and strict censorship, e.g. these restrictive forces resulted in the production of protest posters beyond South African borders. The Medu Art Ensemble consisted of a group of activist South African exiles in Botswana (SAHO 2016). During 1979–1985, they produced posters, smuggled them over the border and put them up in South African streets at night, just to be destroyed by apartheid police soon after

(SAHO 2016). Mnye, one of their members, described the organisation's role as follows, "[T]he act of [designing] should complement the act of creating shelter for my family or liberating the country for my people. This is culture" (SAHO 2016). Meaning did not lie in the semiotic value of the posters alone, but in the sensitive processes involved in moving between concept and practice (Brassett 2015). Hence, design could be described as "teasing out a form from the material" as opposed to 'imposing a shape' (DeLanda cited in Gürsoy 2016, p. 852) upon pre-existing ideas. "Conceptualisation does not [...] precede materialisation, but instead evolves through [...] interactions with [...] materials" (Gürsoy 2016, p. 855).

Whereas communication design during apartheid could be regarded predominantly as a workmanship of certainty operating within ontological dualisms, the design of resistance to apartheid could be seen as workmanship of risk (Crawford 2015). Thinking about design as risky, one does not reject binary logic completely – one just aims to escape its restrictive power (Escobar 2012). This can be done through taking on relational, flat ontologies. In such ontologies, the focus is shifted away from the objects constituting dualisms. Escobar (2012, p. 31) explains it as the belief that "nothing pre-exists the relations that constitute it", what we *are* is a product of what we *do* is a product of what we *know* – without any one of these aspects overshadowing another (my emphasis). Ingold, similarly, articulates it as "assign[ing] primacy to the processes of formation as against their final products, and to the flows and transformations of materials as against states of matter" (cited in Gürsoy 2016, p. 855). Thus, emphasising "thinking through and with the matter" (Gürsoy 2016, p. 855). It is in this sense that design can be regarded as new materialist that can "create concepts that traverse the fluxes of matter and mind, body and soul, nature and culture" (Dolphijn & Van der Tuin 2012, p. 86).

Having gained insight into the productive change, a Deleuzian notion of design offers, one would expect it to be active in the post-apartheid era. The twenty-first century, however, brought its own contradictions to the already complex task of negotiating South Africa's troubled past with the eye on a more just and sustainable future. Advanced capitalism is contributing to the destructive power of the Anthropocene while simultaneously accommodating a more posthuman¹ sensibility.

There is no doubt that design, in a variety of forms, has contributed to the contradicting forces active in contemporary society, e.g. whereas a strong desire for rekindling just social relations has been driving design practice in the post-apartheid era (Simanowitz 2015). These noble intentions are easily hijacked by capitalistic forces, thus resulting in design initiatives aimed at productive change being limited to perpetuate what already exists, i.e. social difference. The complexity of design has become a matter extending beyond design for societal good (or its detriment), and rather seems to involve careful experimentation with positive and negative potential in relation to capitalistic forces.

The initiative Wola Nani is a prime example. They have been using craft since 1994 to support those left vulnerable due to HIV in South Africa (Wola Nani 2017). They provide HIV-related counselling and health education, while also affording opportunities to earn a livelihood to those who, under apartheid rule, were not allowed access to equal education, and due to additional compromising factors like poverty, cannot provide for their families (Simanowitz 2015). The organisation's income-generation programme provides training in craft skills to produce a range of consumer goods (Figure 1) that are sold locally and internationally, online and at selected retail outlets. It so effectively "envisage[s] new forms of alliance between tradition and the most advanced technologies, and [...] between manual and artisanal expertise and the virtualities opened up by the new technological devices" (Antonioli 2015, p. 61).

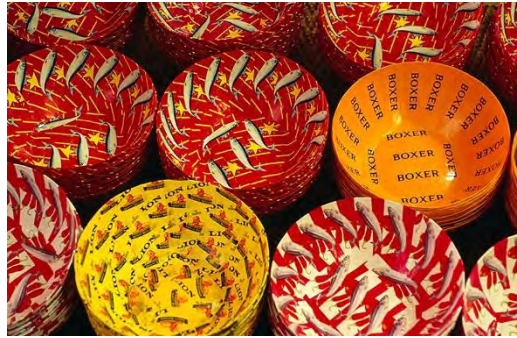


Figure 1: Wola Nani papier-mâché bowls, Pan African Market (Lonely Planet 2019)

When critically considering Wola Nani, it is clear that the organisation capitalises on modern technology and concomitant capitalism to serve its purposes. Without securing financial income through participation in the dominant global economy, it would not be possible to affect local individual lives positively. Its own aim is thus not generating profit for spending, but generating profit to enable ‘resistance to the present’ (Deleuze & Guattari 1994, p. 108). Wola Nani has, through design, strategically positioned itself amid restrictive capitalistic forces in ways that resist those very forces and opens up productive potential.

Deleuze and Guattari equate the workings of capitalism to a machine that constantly “frees-up and constrains, dissolves and freezes” (Brassett 2015, p. 46). Communication design can be seen as a similar machine that functions as a cog in the capitalist machine. Just as representation is an integral part of design without design being representational, communication design can be in service of capitalism without it being an essentially capitalistic endeavour (Brassett 2015). The relationship between capitalism and design – as between representation and design – is consequently such that both “are products of, co-produce, and at times intensively resist” (Brassett 2015, p. 229) themselves, as well as each other. Critically thinking about communication design in this context thus implies focusing our attention on the ambiguous interplay of all involved processes and what transpires as a result.

Negotiating material design knowledge through making

Research towards my PhD aimed to do exactly that. I wanted to explore the interplay of all processes involved in design education in the context of South African higher education, particularly at Stellenbosch University. I aimed to do this through following a post-qualitative² approach, i.e. through becoming the change I wanted to make rather than studying it at a distance. I endeavoured to practise design education as research (and design research as education) all the while aiming to affect productive transformation within and as part of the institution. I worked with a specific case of design/research/teaching in the Visual Communication Design (VCD) curriculum at Stellenbosch University and particularly negotiated individual processes of subjectification³ that transpired throughout the experience. I designed and facilitated three Visual Communication Design projects with a specific student group while collecting data through observation, written reflection, informal interviews, and visual documentation of Visual Communication Design processes. This data was then critically engaged with since, as St Pierre (2014, p. 4-5) has argued,

[C]ritique does not begin with the assumption that what exists is wrong or in error; rather, critique examines the assumptions that structure the discursive and the nondiscursive, the linguistic and the material, words and things, the epistemological and the ontological to foreground the historicity and, so, the unnatural nature of what exists.

Ethical and institutional clearance to conduct the research was obtained, and all participants provided informed consent to partake.⁴

In the first project, students had to design a digital brochure for an NPO that strove to “creat[e] income and economic growth through crafts in the [local] region” (Perold 2015). I was aware that community interaction projects held potential to highlight inequalities within a varied participant group, but was of the opinion that the benefit of having to negotiate design/research/education actively in a real-life context outweighed the risk it carried.

During this project, student participants did not seem to engage in ‘making for’ processes (Gürsoy 2016, p. 852). This could be due to the perception that the brochures as concrete, representational end products were the ‘things’ that had to make a positive contribution to society. Representation was used to serve an external purpose, rather than allowing for a process of connection to emerge through making. I was reminded of the example of Wola Nani. Antonioli’s (2015, p. 62) claim that the ‘forms’ worked with include “essential components of the production of subjectivity”, rather than formal representational forms typical of Visual Communication Design (e.g. line, colour, among others) is crucial. It seems that Visual Communication Design, being an inherent representational practice, can focus undue attention on representational end products *and* be geared towards experimentation through its negotiation of representational media. By using representational form to challenge the existing world order, Visual Communication Design practice holds the power to function non-representationally.⁵ To use this power effectively, however, designers have to be critically conscious of *how* they are using representation so that they are enabled to actively resist the perpetuation of dominant discourses through their practice. Making through representational media needs to “invite the viewer to join the [designer] as a fellow traveller, to look with it as it unfolds in the world, rather than behind it to an originating intention of which it is the final product” (Ingold 2010, p. 96).

In reaction, Project 2 facilitated processes of making while keeping open what the end product would/should be. It concerned the theme of identity, and students mapped this concept by playful experimentation with text and image. Directed visual exploration exercises were included to help resist students’ conception of what a map *should* be. Students had to represent identity simply through, for example, folding, tearing and/or moulding a sheet of paper (Figure 2.1).

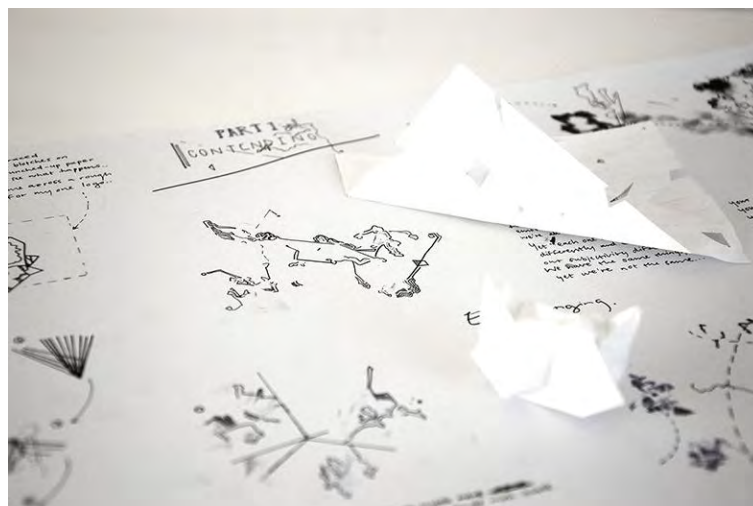


Figure 2.1: Project 2. Process development (Julie 2015)

They then used their paper sculptures as drawing tools to produce a range of abstract visual marks (Figure 2.2). These marks were consequently used to construct a map representing identity.



Figure 2.2: Project 2. Process development (Hannah & Julie 2015)

It was found that making allows the representational nature of design to be used to blur the boundaries between the poles of existing binaries. This was evident in how Emma came to think about the mind/body relationship throughout the project. She simultaneously experienced how, on the one hand, one can make without thinking – “you already have a visual representation of something without really thinking about it” (2015) – *and* how making can facilitate the evolution of new thought – “you just make something and then all of a sudden you start thinking about it in a different way” (2015) (Figures 3.1-3.3). This demonstrates how making can allow Visual Communication Design to be a powerful force in negotiating representation non-representationally.

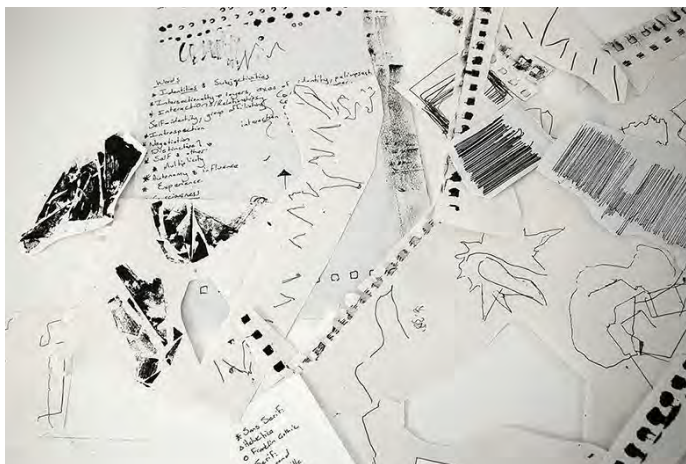


Figure 3.1: Project 2. Process development (Emma 2015)

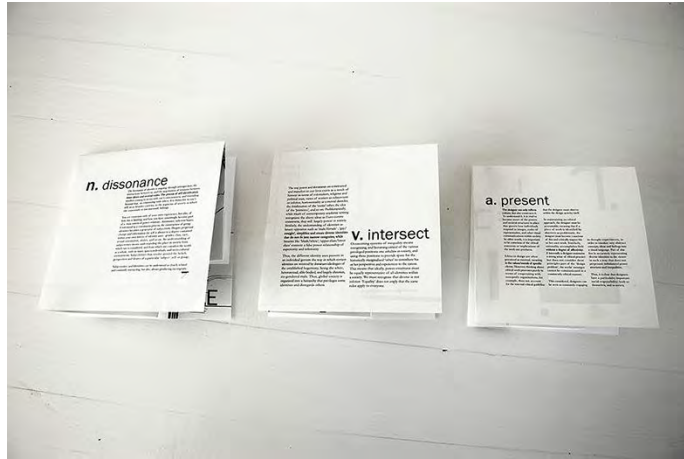


Figure 3.2: Project 2. Maps: Front (Emma 2015)

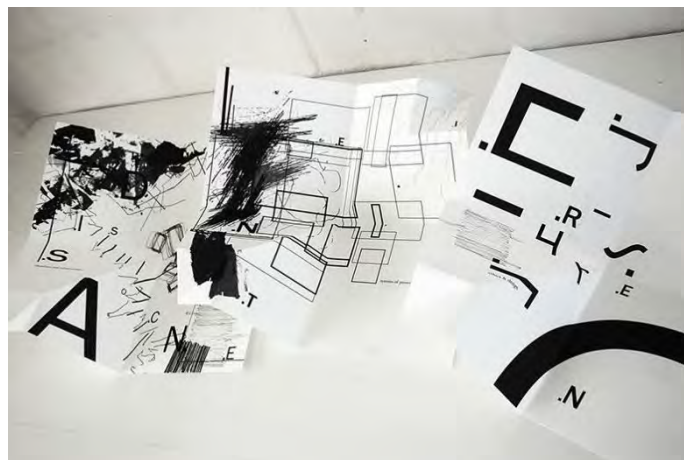


Figure 3.3: Project 2. Maps: Inside (Emma 2015)

At this stage, a rich range of forces constituted the research process. The 2015/2016 student protests⁶ contributed political force to the mix. In Project 3, students were challenged to step out of their comfort zone on campus by interacting with someone with whom they shared any key difference. Through participatory design⁷ processes, they jointly had to consider the editorial design of a specific text distributed in the institutional community. Mandy commented that experimental play with typographic layout and composition allowed her to “f[i]nd a way to work with the disunity and chaos of it all. I think the disunity in all the students’ statements made the message stronger than if I had to [have] use[d] one person’s opinion” (Mandy 2016). A shared sense of vulnerability became tangible and, through negotiating it representationally, strength seemed to be found to claim difference affirmatively (Figure 4).



Figure 4: Project 3. Experimental layout (Mandy 2016)

Throughout the unfolding research process, I tried to resist the stronghold of dualistic, representational logic through allowing my own design – a practice focused on materiality and making – to shape and direct the process actively. Having to represent such a process in the form of an academic thesis, i.e. a comprehensive and logically structured document, was difficult. Jackson and Mazzei’s (2012)⁸ methodological tool of plugging-in was helpful. It helped me realise that – in staying true to what I set out to do – I could not merely reflect on and describe what transpired throughout the research in linear form. I had to try and make the complex, relational nature of the process manifest in how I was writing, how I was structuring the text in the space I was working, and how I designed the reading experiences for readers.

I consequently decided to dedicate a separate section to each of the four participants with whom I worked. Each section came to embody plugging-into the processes of subjectification of a respective participant’s learning experiences. Ultimately, each of these sections came to exist as two separate, albeit inherently related texts. The first part of each section (reading on the left side of each designated spread) came to be after I went through a first round of plugging the data produced during the participant’s learning experiences into relevant theory. The second part of each sub-section (reading on the right of each spread of the document) became in plugging what I had written back into each respective participant’s then lived experience. I shared my writing with participants by making it available to them to read, but also through mapping it out visually (Figure 5) while engaging with them in conversation regarding how I came to do, think and write what I did.

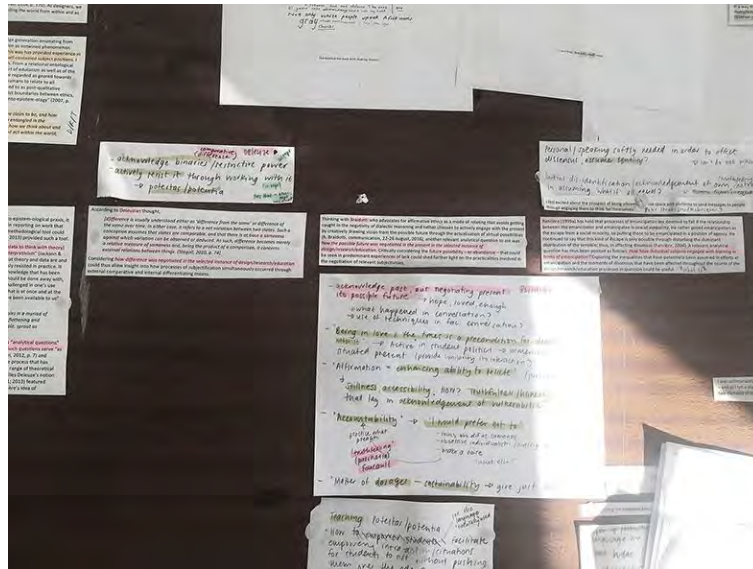


Figure 5: Excerpt from follow-up discussion map (Perold-Bull 2017)

Consequently, I contrasted aspects of the ensuing dialogue with the original text written so that new meaning could become in-between. Ultimately, two independent (and interwoven) narratives came to be. Each could be comprehended when read independently in vertical fashion, but both could also be read simultaneously across facing pages (Figure 6). This, I believe, mimicked a making for process through representational form and thus allows for new narratives to emerge from between.

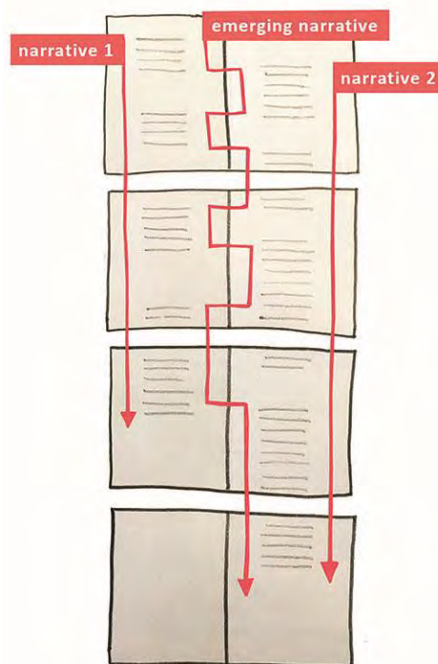


Figure 6: Structure of emerging narratives (Perold-Bull 2018)

The creative process of writing a second narrative to function alongside and with the first did not merely involve putting words on paper but invited an explorative process of critically considering how the words I wrote could relate to the parameters of the space on the pages they sat and to the already present text. Through creative play, I came to notice individual

moments of active resistance to binary, representational logic and realised that I could represent these fleeting moments without spelling them out in words. The transformative moments that emerged in the relations between what was actually said and what was interpreted could be allowed to emerge non-representationally in between the two narratives that were present explicitly. Representational design practice allowed me, to quote MacLure (2013, p. 666), to “engage [more] fully with the materiality of language and its challenge to the workings of representation”. I realised that, through making, I could affect productive change, “not through the application of exterior force to inert substance, but through intervening in a play of forces and relations both internal and external to the things under production” (Ingold & Hallam cited in Gürsoy 2016, p. 855) (Figures 7.1-7.2).



Figure 7.1-7.2: Final thesis (Perold-Bull 2018)

Basic elements of design, such as colour and composition, were used to structure the text to assist readers’ navigation thereof. While Narrative 1 embodies how difficult it was to resist extractive logic despite trying to, reading it together with Narrative 2 demonstrates how transformative moments can become in-between. I hoped that the engagement in diverse reading patterns when exploring the text would allow readers to become actively involved in a process of resisting the easy extraction of meaning from data, to become a dynamic part of the research process, and to share in the transformative change that design as ‘making for’ could hence afford.

Conclusion

This paper has critically reflected on the processes of ‘making for’ involved in an instance of design/research/education within the context of the Visual Communication Design curriculum at Stellenbosch University. It has demonstrated that incorporating experimental play with traditional representational media (e.g. typography, maps, documents, books, among others) as part of a design/research/education process can allow individuals time and space to tune into, recognise and respond to moments of productive future change within their situated present. For example, the process of making the thesis this research culminated in opened a range of opportunities for the research participants to resist and challenge their own preconceived ideas and behaviours, and as such, they came to know and be differently. Making facilitated the use of representational media and skills in non-representational (Thrift 2008) ways, and this held power to transform the world for the better rather than strengthen its predictable, instrumental abilities. Accordingly, this research has demonstrated how design knowledge can be negotiated materially through design research, which is an integral aspect of design theory within the context of advanced capitalism in contemporary twenty-first-century society.

Notes

1. Posthumanism recognises the mutual dependence of all beings on one another – human, animal, and earth – and believes this can allow resistance to the dominance of human agency in shaping lived reality (Braidotti 2013).
2. Post-qualitative methodology investigates “the impossibility of an intersection between conventional humanist qualitative methodology and ‘the posts’ [...] [e.g.] postmodernism, poststructuralism, posthumanism” (St. Pierre 2014, p. 2-3). It moves from a “logics of extraction to more relational means of identification” (Kuntz 2015, p. 51).
3. Subjectification entails the process of becoming a posthuman, and not a traditional humanist, subject. Posthuman subjects are “relational subject[s] constituted in and by multiplicity [...] subject[s] that work across differences and [are] also internally differentiated, but still grounded and accountable” (Braidotti 2013, p. 49).
4. Participant identities have been protected using pseudonyms.
5. Non-representational theory originated in the field of human geography (Thrift 2008). It proposes, “not prioritising representations as the primary epistemological vehicles through which knowledge is extracted from the world”, and understands representational practice as “active and affective interventions in a world of relations and movements” (McCormack 2005, p. 122).
6. The #RhodesMustFall movement rallied against institutional white supremacy at the University of Cape Town during 2015 and sparked related activist movements at South Africa’s other institutions of higher education throughout 2015-2016 (Langa 2017).
7. Participatory design constitutes mutual “investigat[ion], reflect[ion] upon, understand[ing], establish[ment], develop[ment], and support [of] mutual learning processes as they unfold between participants in collective ‘reflection-in-action’ during the design process” (Robertson & Simonsen 2012, p. 5).
8. According to Jackson and Mazzei, plugging-in involves “us[ing] theory to think with [...] data (and us[ing] data to think with theory) to accomplish a reading of data that is both within and against interpretivism” (2013, p. 261). This implies that traditional qualitative research methods and practices should not be used uncritically. Researchers should actively resist these methods and practices through its very use (Jackson & Mazzei 2012).

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

The Imperative for Developing Critical and Creative Thinking Competencies in Postgraduate Design Education

Mary-Anne Potter: Inscape Education Group

Heather Goode: The Da Vinci Institute

Abstract

Design education has an integral association with engaging both critical and creative thinking. While the previous critical cross-field outcomes explicitly fostered both critical and creative development (SAQA 2000), the newer level descriptors (SAQA 2012) focus almost exclusively on critical thinking. This could be because critical and creative thinking are often regarded as synonymous. Authors like Macat International Limited (2017) support this understanding by including creative thinking as a component of critical thinking, while other authors differentiate between the two concepts. For example, the World Economic Forum 'Future of Jobs' Report (2016), clearly distinguishes critical from creative thinking and includes both as separate yet integral to future employability and emerging jobs, and the twenty-first-century framework includes critical thinking and creativity as part of its four Cs of interrelated competencies. These frameworks also position design education as highly relevant to future workplaces.

This paper argues that both critical and creative thinking are imperative to academic and future workplace success, particularly in relation to postgraduate studies in design. The revision of Bloom's taxonomy of learning objectives has acknowledged the cognitive complexity of creating (Anderson et al. 2001), but many design educators are ill-equipped to teach critical and creative competencies in tandem. The focus of the NQF level descriptors and assessment criteria are perceived as largely ignoring creative thinking as intrinsic to learning development. Creativity is, therefore, relegated as being part of the hidden rather than explicit curriculum. Though not necessarily specific to postgraduate studies, because the research and professional experience is more developed of the lecturers and supervisors, students often inherit a lack of confidence in engaging these competencies in tandem from their undergraduate learning experience. A less linear hierarchical framework that democratises critical and creative thinking is, therefore, required for the design education context: one that explicitly acknowledges the critical and creative thinking competencies in relation to each other and to design education; and one that is similar to the rhizomatic model proposed by Deleuze and Guattari (1980).

Keywords: Postgraduate studies, creative education, design education, academic integrity, design research

Introduction

Educational research, like all research activity, has been delineated by a specific process, and articulated through the inclusion of verbs such as ‘review’, ‘collect’, ‘analyse’, ‘interpret’ and ‘disseminate’. While educational research holds an important position in promoting evolutionary teaching and learning practices, the relationship that critical and creative thinking has within the scope of teaching and learning has been carefully regulated so as to prioritise critical thinking and use it as a means of objectively regulating creativity. Certainly, this is what is preferred within the undergraduate teaching and learning landscape. Much of this approach then filter into how educators develop their own teaching and learning practices within design education. This approach to objectively measuring achievement of learning outcomes is entrenched in the criteria used to measure development within the National Qualifications Framework (NQF), and was, until recently, also found to be reinforced in the traditional Bloom’s taxonomic model (1956).

Úlger (2016) concluded that there is a relationship between creative and critical thinking of students pursuing degrees within design education that originates from the tendency of these students to use non-routine problem-solving processes to achieve learning outcomes. In addition to this, Ingalls Vanada (2015, p. 22) observes that there is a deficit in research concerning “the development of a balance of creative, critical, and social/emotional thinking skills in the visual arts, with concern that fostering students’ creative thinking alongside their problem solving competencies has suffered neglect”.

Postgraduate design education is not exempt from this critical-over-creative preference. The significance of contribution in the measurement of postgraduate research output certainly emphasises design thinking, as encompassing both critical and creative thinking (Ingall Vanada 2015), as a means problem-solving. However, something of the essence of what design education should achieve is lost in prioritising critical thinking as existing separately from the creative initiative needed to identify and interact with the task or problem at hand. Design education, as functioning within this academic paradigm, has long been associated with the development of creative potential: where creativity has held an integral value within the discipline that has not been fully supported by the academic framework. Therefore, this deficit does present with an opportunity to recalibrate how we see the critical-creative thinking relationship playing out in design education. With the revised Bloom’s taxonomic model reprioritising the act of creating, there is now a greater opportunity for a critical-creative thinking ‘entanglement’ (Barad 2007) that is essential to develop in postgraduate design students: engaging in both creative and critical processes, and carrying this skill into the workplace as part of a critical-creative best practice approach.

This paper argues that there is an intrinsic relationship between critical and creative thinking that is integral to the professional development of the South African postgraduate design student. Based on the analysis of these competencies, the paper proposes a revised educational taxonomic model that better aligns to the needs of design education, and dissolves the linear, hierarchical model previously used to allow creativity the scope it needs to challenge boundaries. This less linear hierarchical framework that democratises critical and creative thinking is similar to the rhizomatic model proposed by Deleuze and Guattari (1980). In so doing, this fosters the development of critical and creative thinking within a more self-directed outcome-based postgraduate teaching and learning context.

Positioning critical and creative thinking within postgraduate design education

Postgraduate education is synonymous with the academic development of professional expertise. Though this definition is simplistic, what is interesting to note is the way in which the Council of Higher Education (CHE) identifies the particular skill-set required by postgraduate students. In their 2009 report 'Postgraduate Studies in South Africa: A Statistical Profile', the CHE indicate the following:

The production of university graduates – and especially postgraduate students – is an essential component of the *national system of innovation* of modern industrialised societies. Such graduates have acquired the necessary knowledge and skills that underpin the modern knowledge economy and are able to *produce new knowledge* (2009, p. 1, own emphasis).

In the context of an outcomes-based approach, which requires an evidence-based assessment process, defining and measuring creativity has been considered problematic because of its inherently subjective nature. And yet, the imperative by the CHE to produce postgraduates that demonstrate 'innovation' and 'new knowledge' production (2009, p. 1) requires creativity but finds difficulty in promoting the objective measurement thereof. This difficulty presented as early as the 1950s, where American Psychologist JP Guilford, in his essay 'Creativity', avers that measuring creativity is dependent on other factors inherent in the creative's personality. He writes:

Creative abilities determine whether the individual has the power to exhibit creative behaviour to a noteworthy degree. Whether or not the individual who has the requisite abilities will actually produce results of a creative nature will depend upon his motivational and temperamental traits (1950, p. 444).

What Guilford suggests is that the ability to determine the merit of creativity relies on a relational paradigm that is derived from and feeds back into the creative personality. As a discipline, design has been characterised by a practical, cognitive and creative engagement in problem solving. Indeed, this is what sets the design profession apart from the other disciplines within art, science, business and technology. This traditional archetype of designer as creative in their capacity to engage with and transform the world they encounter has had to insert itself into an educational landscape that has traditionally fostered a reverence for the critical over the creative. And so, in relation to this need, the process of developing the design student as professionally capable has, more often than not, had to compromise and silence aspects of creativity to receive accreditation. Design education has suffered the hierarchies of this higher education paradigm in which boundaries of what is and is not considered academic are exclusively entrenched by the critical. Therefore, the relationship between critical thinking may be simplistically represented in Figure 1 taken from Australian Curriculum, Assessment and Reporting Authority (ACARA 2019), shows creative thinking working with critical thinking as central to meeting learning outcomes in the postgraduate design education growth path. In the past, this has allowed for creativity to be measured through the critical lens.

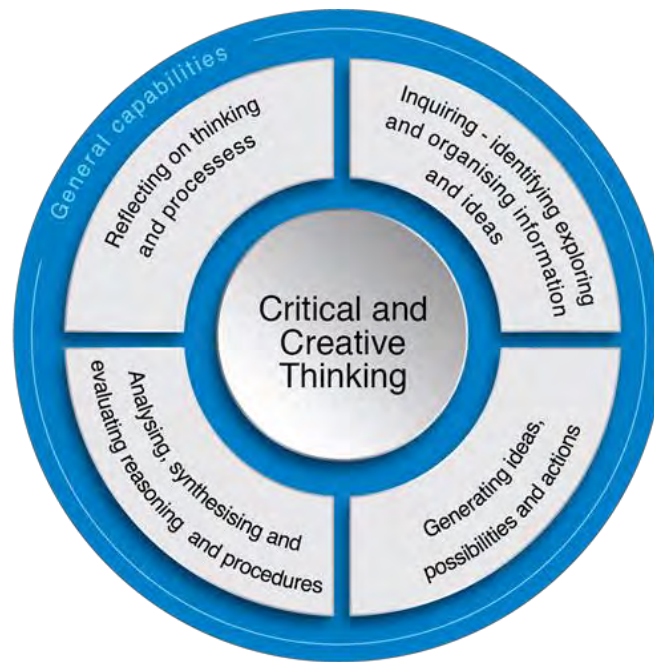
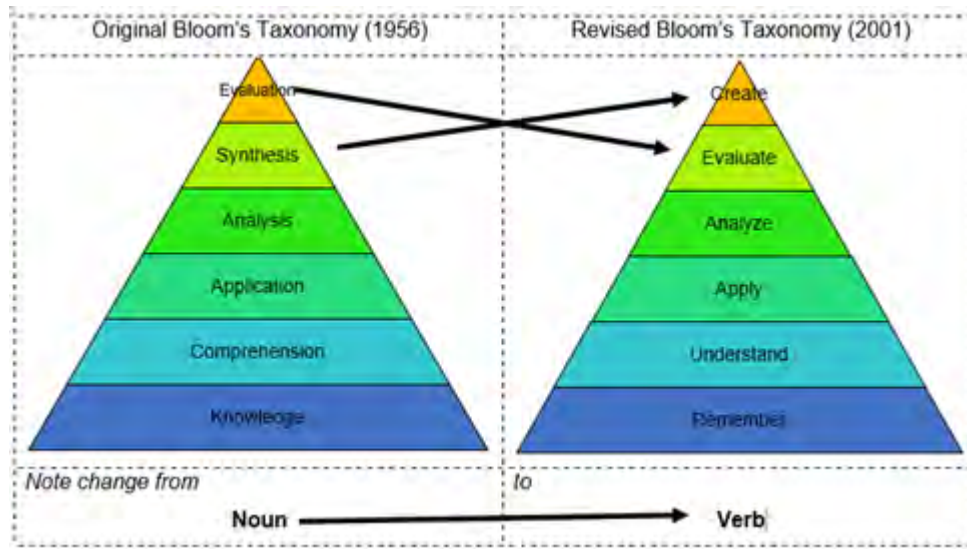


Figure 1: Organising elements for critical and creative thinking (ACARA 2019)

Developing a discipline-centred body of knowledge is emphasised to align design education within mainstream academic curricula. The context of the twenty-first century requires an acknowledgement of the more subtle negotiations between cognitive and experiential aspects that inform professional design practice which incorporate learning from experiential, iterative and reflective practice. This further informs how a postgraduate design student encounters and develops their creative practice within their professional context. In *21st Century Skills Development Through Inquiry-Based Learning: from Theory to Practice*, Chu et al. (2017) observe that subject knowledge cannot be prioritised as constituting the learned curricula. While they refer to a more universal educational context, the intrinsic, implied aspect of critical-creative engagement that marks design education is finding acknowledgement more and more within all educational contexts. Chu et al. (2017, p. 22) writes that soft skills “[including] critical thinking and problem-solving skills, communication, and collaboration skills, and creativity and innovation” are important in fostering connectedness to the world and to the pace of technological advancements, and they promote this as an essential part of learning. Chu et al. (2017, p. 22) zoom in on ‘creativity and innovation’ as skills that extend beyond learned curricula and align to the CHE’s description of postgraduate competencies that will allow South African graduates to become globally relevant.

Given that assessment is an attempt to measure, or measure proxies of, competencies, knowledge and aptitudes, how these competencies are described and articulated in a hierarchical taxonomy is constrained by the intended purpose of measuring. Within the field of education, Lai (2011, p. 8) refers to Bloom (1956) and his taxonomy of cognitive competencies as the most widely cited sources for educational practitioners when it comes to teaching and assessing higher-order thinking competencies. Bloom’s taxonomy was revised to place ‘create’ at the highest level. The figure below gives a brief overview of the levels in the original taxonomy (Bloom 1956) and that of the revision (Anderson et al. 2001).

Table 1: Comparing Bloom’s taxonomy (Bloom 1956) to the revised Bloom’s taxonomy (Anderson et al. 2001), adapted from Wilson (2016) by Goode (2019)



In their revision of Bloom’s taxonomy, Anderson et al. (2001, p. 30) define create as “putting elements together to form a coherent or functional whole; reorganise elements into a new pattern or structure”. When Anderson et al. (2001, p. 84) analyse learning objectives that are classified as ‘create’, they describe that students would have to make a new artefact by mentally reorganising some elements or parts into a pattern or structure not present previously. Furthermore, Anderson et al. (2001, p. 270) describe that ‘problem solving’ and ‘critical thinking’ are perceived as requiring cognitive processes in several categories of the taxonomy and therefore cannot be confined to one level. However, while the student’s ability to create is encouraged during the learning process, the measurement thereof is often shrouded in notions that assessing creativity relies on a more subjective framework, guided by the assessor’s own experience, sometimes, but not always, seconded by the moderator. The critical capacity of the student is more confidently assessed in an aligned manner against the NQF level descriptors.

At a postgraduate level, the NQF level descriptors (SAQA 2012, pp. 10-12) for levels 8 (honours), 9 (Master’s) and level 10 (doctorate) apply. At level 8, Critical thinking and Creativity are embedded in the descriptors for knowledge literacy, problem solving, ethics and professional practice; accessing, processing and managing information; producing and communicating information, and management of learning.

In a review of the literature, Lai (2011, p. 4) asserts that much of the literature on critical thinking is rooted in two academic disciplines: philosophy and psychology. There is correspondingly associated literature within the fields of educational philosophy and psychology. Authors like Bonnefon (2018, p. 113) contend that critical thinking is hard to define, but that this makes it easier for many to agree that critical thinking is an essential skill.

Macat International (2017) simplifies most definitions to state that “[c]ritical thinking is the ability to think clearly and rationally, understanding the logical connection between ideas”. They further clarify this by describing critical thinkers as those who seldom accept ideas and assumptions, rigorously question premises, seeking to determine whether the conclusions represent fact or opinion. In their discussion, Macat International (2017) points out that critical thinking should not be confused with ‘being critical’, as these competencies are about more than finding flaws in arguments.

When considering assessing critical thinking, Lai (2011, p. 2, 36) recommends using open-ended tasks, real-world or authentic problem contexts and ill-structured problems that require students to go beyond recall or restating prior knowledge. Lai (2011, p. 2, 40) further recommends that assessment tasks which have more than one solution and require using collateral materials to develop multiple perspectives are more successful. Such assessment tasks may be most useful to assess critical reasoning competencies where these make student reasoning visible in requiring the provision of evidence or logical arguments to support conclusions, judgements, choices or assertions (Lai 2011, p. 2, 40).

Authors like Macat International Limited (2017) support this understanding by including creative thinking as a component of critical thinking, while other authors differentiate between the two concepts. For example, the World Economic Forum Future of Jobs Report (2016) clearly distinguishes critical from creative thinking and includes both as separate yet integral to future employability and emerging jobs. Similarly, the twenty-first-century framework includes critical thinking and creativity as part of its four Cs of competencies.

Re-positioning the relationship between critical and creative thinking within postgraduate design education

In the last 20 years, many scholars have articulated the terms ‘twenty-first-century skills’ to describe competencies believed to be critical for success. Authors such as Drake and Reid (2018, p. 31), Chu et al. (2017, p. 18) and Silva (2009, p. 631) have described these competencies as vital capabilities and while these are not new concepts, the relative importance of these capabilities has been growing which has resulted in increased inclusion in educational curricula. Organisations like Partnership for 21st Century Skills (2009) describe, “a focus on creativity, critical thinking, communication and collaboration is essential to prepare students for the future”. In this framework, learning and innovation competencies are seen as essential for preparing students for increasingly complex living and working environments of the twenty-first century. These competencies include creativity and innovation; critical thinking and problem solving; communication; and collaboration. The alignment between these four ‘Cs’ can be seen in findings like Chu et al. (2017, p. 164) who comment on research that shows a correlation between strong reading ability and more advanced critical thinking. Here critical thinking and creativity are described separately in that creativity is described as thinking creatively, working creatively with others and implementing innovations. However, critical thinking and problem solving are described as reasoning effectively, using systems thinking, making judgements and decisions and solving problems (Chu et al. 2017).

Developing these competencies in postgraduate students is not without its challenges. Consensus over the components of critical thinking and creativity, how they develop, and how a lecturer can contribute to developing these competencies, is lacking. While many lecturers agree that critical thinking and creativity are core to academic success (Goode 2019) and that these are developed during undergraduate studies, the practices of academic staff in postgraduate contexts often reveal an implied approach to teaching these aspects or reveal that academic staff assume these competencies are in place. While there are recommended practices to develop critical thinking, for example, Chu et al. (2017, p. 146) describe using inquiry-based learning or implementing peer evaluation. Furthermore, postgraduate studies are characterised by increased levels of self-directed learning, as described by Knowles (1970) in relation to adult learning, balanced against achieving qualification-learning outcomes, as required by the postgraduate NQF level descriptors.

Though critical thinking is more entrenched within the NQF level descriptors, there is a significant disjoint between the theoretical measurement of this skill, and the practical ability

of educators to articulate what critical thinking encompasses or how to describe the measurable attributes thereof, as confirmed by recent research undertaken by Goode (2019).

In discussing the merits or modes of engagement of creative and critical thinking, what is evident is that they demonstrate their agency within the system of teaching and learning, but are approached quite differently in terms of measuring their influence on the teaching and learning process. It is easy to offer critique of the systems that measure creativity and criticism as separate entities. However, it is worth noting both their potential to co-exist as agentially distinct from one another, but perpetually influencing one another in an entangled state akin to quantum entanglement. And so, in considering how to best approach developing the postgraduate design student's critical-creative competencies, we must explore a new taxonomic approach that is aware of the deficits evident in systems where objective measurement is applied to subjective, intangible qualities. In relation to the field of science, and particularly quantum physics, Rouse offers a particularly relevant point of enquiry, when he writes:

Why presume in advance that the bounds of the human organism are ultimately the boundaries of the scientific measuring system [...] rather than insisting that those boundaries should be specified from within the scientific practices of measurement interactions themselves? (2002, p. 273)

Like Cameron (1963, p. 13), who said that “[n]ot everything that counts can be counted, and not everything that can be counted counts”, what Rouse is proposing is that human capability is constrained by the systems that attempt to objectively measure, and thus describe it. Rouse is sceptical of this approach to analysis. For the purpose of our inquiry, this systematic, empirical approach would seek to keep creative and critical thinking as separate in their measurement, and to ‘hierarchise’ critical as being over creative thinking processes. However, Barad refutes this approach to scientific method by reformulating its relevance through a posthumanist lens and identifying the above as scientific fallacy when she writes that “we [must] understand ourselves as part of nature” (2007, p. 341). Barad is demonstrating an intrinsic connectivity between two entities often separated from each other for empirical purposes. Yet, they are intertwined, and to use Barad's own term, ‘entangled’ (2007). Adopting a more holistic approach proposes that creativity and criticism are perpetually influencing each other within what Deleuze and Guattari identify as rhizomatic: “open and connectable in all of its dimensions” (2004, p. 13). Experience within the design education context would seem to affirm this notion that a more holistic approach is needed, certainly within the context of postgraduate studies, where more organic systems of problem solving are required. Critical thinking cannot be prioritised within this new proposed paradigm, neither can a pendulum swing direct education towards prioritising creativity. However, what is required is the prioritisation of a clear understanding of what each constitutes both by educator and by the student. Old hierarchies should not be replaced with new ones. Instead, creativity and critical thinking should possess their own unique agency, engaged in dialogue with each other as promoting student competency. Rather than conceptualising competency progression as solely hierarchical, that it also takes its cue from the rhizomatic taxonomic model. Deleuze and Guattari explain this as follows:

A rhizome ceaselessly establishes connections between semiotic chains, organisations of power and circumstances relative to the arts, sciences and social struggles. A semiotic chain is like a tuber agglomerating very diverse acts, not only linguistic, but also perceptive, mimetic, gestural, and cognitive (2004, p. 8).

In contrast to this, Deleuze and Guattari oppose the arborescent hierarchical conception of knowledge to allow for multiple non-hierarchical interpretations of knowledge that favours a

planar approach, allowing for a nomadic system of growth. Though they do prefer the rhizomatic conception, as opposed to the arborescent, what they also acknowledge is an inherent interdependence between these: an entanglement, to use Barad's term (2007), of experience, feedback, context and knowledge. Deleuze and Guattari express this interdependence as follows:

The important point is that the root-tree and canal-rhizome are not two opposed models: the first operates as a transcendent model and tracing, even if it engenders its own escapes; the second operates as an immanent process that overturns the model and outlines a map, even if it constitutes its own hierarchies, even if it gives rise to a despotic channel. It is [...] a question of a model that is perpetually in construction or collapsing, and of a process that is perpetually prolonging itself, breaking off and starting up again (2004, p. 20).

Deleuze and Guattari propose that hierarchical (arborescent) and non-hierarchical (rhizomatic) taxonomic models can complement each other. Therefore, the interdependence can accommodate greater critical and creative thinking co-development. The impact of this allows postgraduate students the spaces to construct their own competencies and knowledge maps to achieve the learning outcomes through solving the required research and design problems. This approach positions design educators as space holders and facilitators, not as designated hierarchical instructors and assessors, and empowers them to collaborate democratically within these revised roles.

Conclusion

Though there is something to be gained from organising the measurement of these learning competencies in a hierarchical way, as evidenced in Blooms and the NQF descriptors, there is a loss in failing to acknowledge the entangled nature of the co-development of creative and critical thinking. This paper has argued that both critical and creative thinking are imperative to academic and future workplace success, particularly in postgraduate design studies. The revision of Bloom's taxonomy of learning objectives has acknowledged the cognitive complexity of creating (Anderson et al. 2001). While the focus of the NQF level descriptors and assessment criteria relegated creative thinking as being part of the hidden rather than explicit curriculum. A less linear hierarchical framework that democratises critical and creative thinking is required for the design education context: one that explicitly acknowledges the entanglement of critical and creative thinking competencies that coincides with the rhizomatic model proposed by Deleuze and Guattari (1980). This allows design educators to encourage the development of both sets of competencies explicitly in a more self-directed outcome-based learning approach aligned to the maturity required for postgraduate design studies.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Designing Social Value: Informed Programme Development for Future-Focused Social Entrepreneurship in Africa

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Abstract

The emergence of young African social entrepreneurs who design social change could translate to significant social value design that, in turn, could improve the future of several communities. Nevertheless, the designed value will only benefit the continent if it is substantial and sustainable. The problem is that many social entrepreneurial endeavours are implemented without a long-term future focus or an understanding of how social value is conceptualised. For this reason, tertiary institutions in Africa should consider presenting training or education related to sustainable social value design.

Social value design, taught in institutions in South Africa, is often linked to programmes in social entrepreneurship, but it could benefit other programmes as well. However, the educators who develop these programmes take on the role of a social sustainability designer when they respond creatively with relevant programme designs that address prevailing social, economic, educational, health and environmental problems. In addition, these educators have to be future-focused and have insight into what the end result (in this instance, the programme or module) should include. Those who enrol for these programmes or modules similarly have to design their projects to add intended social value, and they need a full understanding of what social value specifically entails. The relevant outcomes of these programmes should ideally be informed by practitioners who are currently engaged in the field and who are future-focused.

This paper reports on research done to inform programme design at a university in South Africa with a particular focus on social value design. The research design was a multiple case study, and future-focused social entrepreneurs in practice were interviewed. A purposive sample of nine cases was selected from various countries on the African continent with one of the criteria being that the endeavours were sustainable for more than two years and reflected a particular interest in the future of those for whom they created social value. The objectives for this research focused on 1) how participants define social value within their context, and 2) why they see this as sustainable for the future.

The paper makes recommendations relevant to programme design for future-fit social entrepreneurs. It has a particular focus on how to incorporate the various dimensions of social value for Africa into designing a training programme or modules that incorporate social value.

Keywords: Design for social sustainability, education, programme design, social entrepreneurship, social value

Introduction

It is known that the African continent is plagued with countless social ills having a negative effect on the countries' socioeconomic status. These include challenges such as poverty, poor education, ill health, food insecurity, youth bulge and greater dependence on government (United Nations World Youth Report, 2019; Millennium Development Goals (MDG) Report of Africa 2015; Karanda & Toledano 2012, pp. 205-206). Social value creation is an active means of social entrepreneurs designing value to address such issues in a sustainable way (Mulgan 2010, p. 41). Value design is a concept that has been interrelated with social entrepreneurship and is one of the measures used to determine social entrepreneurs' level of success (Mulgan 2010, p. 38; Kroeger & Weber 2014, p. 43). Similarly, social value is also relevant to the design disciplines. In this regard, future-focused young social entrepreneurs, also known as designers of social change, have started rising up as change-agents to solve some of these social challenges by establishing social enterprises as vehicles using various business models to drive social change (Di Domenico, Haugh & Tracey 2010, p. 682; Pirson 2015, p. 261; Claeys 2017, p. 429).

The social entrepreneur may be viewed as the driver or a 'social value designer' willing to solve complex social problems to meet pressing environmental or societal needs (Di Domenico et al. 2010, p. 262; Pirson 2015, p. 263). Societal needs are often addressed in sustainable social enterprises through value design (Korsgaard & Anderson 2011, p. 22). A social enterprise can be defined as "an enterprise that has a social purpose, run on business principles, democratically controlled and that reinvests 'profits' or surpluses into the businesses' social purposes" (ILO 2011, p. 2). However, a social enterprise has a dual mission that includes both social and economic objectives (Di Zhang & Swanson 2013, p. 106; Bhattarai, Kwong & Tasavori 2019, p. 47). Social value is prioritised above economic value by most social entrepreneurs, even though they actively seek commercial incomes (Dees 1998 cited by Hlady-Rispal & Servantie 2018, p. 62). The balancing act of managing the two-fold mission of adding social value while also being financially sustainable has proven to be challenging for socially-oriented entrepreneurs (Lumpkin, Moss, Gras, Kato & Amezcuca 2013; GIBS 2018, p. 17, 23). This has resulted in an unusually high mortality rate among many social enterprises. Whether the social value design is completely lost is a question that can only be answered if one is able to define the dimensions of social value design.

Social value design, taught in institutions in South Africa, is interdisciplinary but traditionally situated within the management sciences (UJ Centre for Entrepreneurship 2019; UCT Bertha Foundation 2019). The outcome of entrepreneurship education research (including education for social entrepreneurship) demonstrated that there is still a need for more creative curriculum design, including interdisciplinary factors (Aldianto, Anggadwita & Umbara 2018, p. 297). There is thus an opportunity for educators to play an active role in social value design and take on the approach of being future-focused, provided that they understand the concept and the various dimensions it may hold.

The challenge is to gain a clearer understanding of social value before it can be included in modules for several programmes. Enabling educators to design programmes that promote social value design, while at the same time allowing participants in such programmes to design their own social value is an additional strategy for social sustainability. In this paper, the

researcher, therefore, aims to conceptualise the construct ‘social value design’ by referring to the experience and expertise of future-focused social entrepreneurs and practitioners. The purpose is to inform programmes or modules that build capacity for the benefit of social value designers.

The literature review on social value creation will be defined, describing how social value manifests in the African context, and how academic programmes in the design arena can be creatively used to support social value design.

Literature review

Social value normally has a positive connotation, generally described as “something of value for society” (Dietz & Porter 2012, p. 23). Sustainable value design is part of strategies designed to create value for the future, promoting an interdependence of social, economic and environmental systems (Stankeviciene & Nikonorova 2013, p. 1198). In this regard, understanding social value may allow better programme design for social sustainability, which acts as a critical design element for an educational programme for social entrepreneurship and interdisciplinary courses such as design programmes.

Social value design – principles from the social entrepreneurial realm

Social entrepreneurs are leaders aiming to find solutions to societal problems using alternative business models to help alleviate inequity and environmental challenges, therefore creating sustainable social value (Pirson 2015, p. 261; Sinkovics, Sinkovics, Hoque & Czaban 2015, p. 3, 43). The creation of social value in the case of a social enterprise is achieved by meeting organisations’ social mission in a deliberate and structured manner (Katre & Salipante 2012, p. 987). As a result, social value creation meets the social needs of both the stakeholders and beneficiaries through the social mission at various levels of the enterprise, including contributing toward economic inclusion and growth (Corner & Ho 2010, p. 635; Cornforth 2014, pp. 10-11; Ngonini 2014, p. 406).

Social value is also used to assess the social impact made by social enterprises over time within a certain context or community (Lautermann 2013, p. 198). However, there is not much consensus among academics in terms of how social value should be measured, the general use of the term, or at which point social value has met the social need (Lautermann 2013, p. 187). Moreover, the understanding of social value is not easily generalised, actualised and quantified, making the evaluation of social value complex (Kokko, 2018, p. 424).

Academic programme designs that incorporate social value

The empirical evidence indicates that social value design goals are more easily achieved when entrepreneurs with more education and a stronger social network are aware and strategic in realising social goals through their businesses or projects (Brieger & De Clercq 2019, p. 195). The role played by higher education, therefore, is important in fostering [socio and] economic growth and creating awareness among students that enable the design of sustainable social values (Aldianto et al. 2018, p. 303).

The main aim of an academic would be to design future-focused programmes creatively that enable students [potential social value designers] to engage in a long-term problem-solving approach, focused on sustainability (Moore, Mascarenhas, Bain & Straus 2017, p. 2–3). As an example, the Education for Sustainable Development (ESD) was given prominence at the 1992 United Nations Conference on Environment and Development in Rio de Janeiro (International Institute for Sustainable Development 2005). Universities have realised the importance of influence on future leaders, designers, change-makers and academics and the positive impact

they can have on the sustainability and future of society (Harpe & Thomas 2009, p. 71). The academic programme, learning outcomes and competencies created through future-focused programme designs can be used to assess student learning and observe evidence of the knowledge and skills profile of students portrayed as being solution-focused and 'problem solvers' (McArthur & Sachs 2009, p. A64). At a university in Scotland, for example, students were included as co-creators as part of the pedagogical process, and they collaborated in the programme design (Bovill, Cook-Sather & Felten, 2011, p. 1). For the purpose of this research, the social value designers and practitioners in the social enterprise environment could be viewed as partners and co-creators of programmes or modules that promote social value.

The dimensions of social value

Social value design is evolving. Therefore, the dimensions are fluid based on the context in which it is being addressed. However, from an academic programme design perspective, in revisiting the teaching and learning outcomes and defining key competencies, several assessment methods are important and often start with good conceptualisation of constructs (Baartman, Bastiaens, Kirschner & Van der Vleuten 2007, p. 10; Hidalgo & Fuentes 2013, p. 450). The identification of these key dimensions of social value could inform outcomes and in this way, influence well trained *socially responsible* graduates.

Research problem

The challenge is that social value design within the African context has not been captured formally. This implies that an understanding of this concept in the African context is needed. This will create opportunities for educators to design programmes that promote social value design and simultaneously allow participants in such programmes to design their own social value as a strategy for social sustainability. Only after the concept 'social value design' is understood can one start to set outcomes for education and training purposes.

Methodology

'Social value' is an emerging concept. Hence, an exploratory approach was used (Myers 2010, p. 258; Saunders, Lewis & Thornhill 2012, p. 146) to understand how social value is perceived in the social entrepreneurship context. Nine social businesses were included from across the African continent as case studies, and thus the multi-case study research method was employed (Yin 2009; Ghauri & Gronhaug 2005, p. 171). The countries included in the study were South Africa, Zimbabwe, Nigeria, Kenya, Zambia, Tanzania, Rwanda, Uganda and Tanzania. The selection criteria included:

- Participants had to be involved in endeavours that were sustainable for more than two years in Africa;
- Participants had to communicate a particular interest in the future of those for whom they designed social value; and
- Participants had to have a formally registered organisation as a vehicle through which to provide the solution.

The objectives relevant to this paper include 1) how participants define social value within their context (to deduce the dimensions of social value add), and 2) why they see this as being sustainable for the future (to ensure that all the definitions with dimensions are sustainable).

The researcher approached the executive director of an organisation known as Shared Value Africa Initiative (SVAI). Shared Value Africa Initiative manages a business network across the

African continent which attracts innovative social entrepreneurs both nationally and internationally who are interested in partnering with the private sector. The purposive sampling method was considered appropriate (Saunders et al. 2012, p. 160), and allowed direct access to specific social entrepreneurs to be selected from an available database. The selection of cases was limited to social enterprises applying innovative methods to meet social or environmental needs in a sustainable manner as these could be paralleled to strategic thinking, which is also considered a design act.

Since the participants were geographically far apart and expressed time constraints, the best means of gathering the data was using email as an online electronic tool. An email interview sheet, including a consent letter, was created. This was emailed to each of the social entrepreneurs to update and provide feedback. Once the data were returned, the researcher checked for completeness and followed up for clarity where necessary. Using email as a research tool created efficiency in tracking and keeping a log of all communication. In addition, basic desktop research was conducted on each case study to find available empirical secondary data to validate the primary data.

Findings

A detailed analysis was conducted on the nine cases. First, to analyse how social entrepreneurs defined social value, and second, to determine how social value was strategically created by each social enterprise.

In the first objective, an analysis was conducted on the description each social entrepreneur provided to define social value. It was found that the definitions provided by most of the social value designers were aligned to the social value created through the social enterprise, as well as taking the local context into consideration. Therefore, the solution designed to address the social challenge resulted in the social value being created. Each intervention directly aligned with the context of the local socio-economic and environmental challenges as uniquely presented in each case study.

The keywords and phrases that emerged, as reflected in bold in Table 1, is significant in that it describes the ‘practice lead’ definition of social value implemented by each individual social value designer.

Table 1. Social value in African social enterprises (self-compiled)

Organisation	Dimension of social value	Value added	Social value creation as defined by social entrepreneur	Social value design future-focus
<ul style="list-style-type: none"> – Code4 Change – South Africa (National) – (nine years) 	<ul style="list-style-type: none"> – Facilitate a culture of sharing (resources) 	<ul style="list-style-type: none"> – Education: FREE, scalable, affordable coding education – student-run clubs 	<ul style="list-style-type: none"> – ‘Social value is over-rated and observed as an anomaly. Social value should fundamentally be created by all registered entities. For example, we’ve found tech giants, who promote the 	<ul style="list-style-type: none"> – ‘Student-run clubs, Competitive club model, leveraging third party resources, government collaborations, direct social and long-term educational policy impact.’

			image of being social, impactful and responsive, to being manipulative, greedy and monopolising. Liberate the market and restore justice and competition to the sector.’	
<ul style="list-style-type: none"> – BIC Farming – Nigeria (National) – (12 years) 	<ul style="list-style-type: none"> – Design innovative infrastructure 	<ul style="list-style-type: none"> – Agriculture: vegetable production, aquaculture, livestock, and hydroponics technology – soilless farming 	<ul style="list-style-type: none"> – “Social value creation to me ...is the power to create a major paradigm shift So, social value is created when the impact of such pioneering, inventing, or innovation work has created or influenced the status quo in a particular culture. The value creator must have a strong vision and determination to see it through, else the process will not be completed.” 	<ul style="list-style-type: none"> – “The fact that we don’t use soil for our vegetables like tomatoes while producing commercial quantity (soilless farming).”
<ul style="list-style-type: none"> – Mina Cup – South Africa (National & Spain) – (three years) 	<ul style="list-style-type: none"> – Products designed to empower users 	<ul style="list-style-type: none"> – Female reproductive health and hygiene – menstrual cups 	<ul style="list-style-type: none"> – “Creating social value for me means finding a way to change the lives of those in vulnerable situations. Uplifting others and helping them raise their standard of living and way of life in a sustainable way. Thus creating 	<ul style="list-style-type: none"> – “Mina is sustainable, Proudly South African, a friend of the Environment, and a Role Model. Her circumstances do not define who she is – [reduces the number of days girls stay out of school]. Mina is Girl’s best

			social value.”	friend, an African Leader and Global Ambassador.”
<ul style="list-style-type: none"> – B2B Hub – Kenya (National) – (nine months but piloted for more than two years) 	<ul style="list-style-type: none"> – Facilitate access (to resources) 	<ul style="list-style-type: none"> – Wholesale, retail industry and financial sector through technology 	<ul style="list-style-type: none"> – No comment 	<ul style="list-style-type: none"> – “Stolink is a Mobile application that connects last-mile distributors to small scale retailers. We also aim at providing affordable credit facility to our mobile application users ...We plan to connect millions of Businesses by offering a direct link from one business to another with very much ease.”
<ul style="list-style-type: none"> – The Social Project – South Africa (National & Zambia) – (three years) 	<ul style="list-style-type: none"> – Educational tools 	<ul style="list-style-type: none"> – Education: school in a box and Imbeko 	<ul style="list-style-type: none"> – “Social value, to me, refers to the value created for individuals and communities that improves their quality of life and access to opportunity, whether or not this is financially evident.” 	<ul style="list-style-type: none"> – “Speaking specifically about School in a Box, the product is unique in its design and usage scenarios, providing academic content and lessons using technology that is all contained in a simple trunk, with tablets and a server, and not relying on the internet at all.”
<ul style="list-style-type: none"> – Oxygen Africa – Zimbabwe (National) – (three years) 	<ul style="list-style-type: none"> – Facilitate a culture of sharing (resources and opportunities) 	<ul style="list-style-type: none"> – Renewable energy – rooftop solar 	<ul style="list-style-type: none"> – “Creating wealth and new entrepreneurs in the communities businesses operate in.” 	<ul style="list-style-type: none"> – “Commercial rooftop solar. Unique[ness] about our model is the financing whereby the off

				taker (client) makes money from the electricity.”
<ul style="list-style-type: none"> – Placet Enterprises – Tanzania (National) – (five years) 	<ul style="list-style-type: none"> – Facilitate access (to infrastructure and opportunities) 	<ul style="list-style-type: none"> – Agriculture: farming sunflower, piggery project and general trade 	<ul style="list-style-type: none"> – “Briefly, this is creation of mutual relationship with the society in which the business operates for competitiveness and health of the society in general [using their land]. This helps to reduce social challenges which the business might encounter in the course of trading.” 	<ul style="list-style-type: none"> – “This [farming] is necessary because it will allow the social entrepreneur continue exist and add value to society surrounding.”
<ul style="list-style-type: none"> – Water Access Rwanda – Rwanda (National & DRC) – (four years) 	<ul style="list-style-type: none"> – Facilitate access (to infrastructure and opportunities and resources) 	<ul style="list-style-type: none"> – Water collection, treatment and supply – clean water as a product and service. 	<ul style="list-style-type: none"> – “Creating social value deals with using resources of a certain community in such a way that gives back to that same community, allowing for growth in more aspects than what one project was dealing with ... re-invest their profits into the community to provide better living conditions for the residents and in return get more motivated and experienced workers ...” 	<ul style="list-style-type: none"> – “Our company, through our public water points and mini-grids extracts water, purifies it and collects money from the users. Running these water points, means more employment for the community, better water routine that reduces the burden on women and children. Additionally, water committees established around these water points ensure that young people and women are represented, thus achieving

				gender equality goals in the process. A portion of profits from the water sales is re-investing in maintaining and growing the water system.”
<ul style="list-style-type: none"> – Bakula Power – Uganda (National) – (two years) 	<ul style="list-style-type: none"> – Design Innovative infrastructure 	<ul style="list-style-type: none"> – Renewable energy – infrastructure development, utility 	<ul style="list-style-type: none"> – “Creating social value is to create social benefits while creating financial benefits. Social benefits are pretty much all of the SDGs. I believe this philosophy is different because it believes that a company can do this while creating sustainable financial gains. It is not a philosophy of charity. I personally believe that adding social benefits to projects actually makes them sustainable, which in turn increases your likelihood of financial success.” 	<ul style="list-style-type: none"> – We are providing electricity, clean water and sanitation to areas that do not have any. We are also investing in a business that directly supports the local economy.

A summary of the definitions for social value demonstrated a variety of views as represented by each social entrepreneur. From Table 1 the definitions of social value can be summarised as follows: Code4 Change (South Africa) – “liberate the market and restore justice and competition”; BIC Farming (Zimbabwe) – “power to create a major paradigm shift ... to influenced the status quo in a particular culture”; Mina Cup (South Africa) – “changing lives”; B2B HUB (Kenya) – “no comment”; the Social Project (SA & Zambia) – “access to opportunity”; the Oxygen Africa project – “creating wealth and new entrepreneurs”; Placet Enterprise (Tanzania) – “is the creation of mutual relationship with the society in which the business operates for competitiveness and health of the society”.; Water Access Rwanda (Rwanda) –

“using resources of a certain community in such a way that gives back to that same community”; and lastly, Bakula Power – “creating social value is to create social benefits while creating financial benefits”. After analysing the data, it became evident that each social entrepreneur’s perception of social value creation as a starting point for the design of the solutions created for each of the social challenges considering the local context. The dimensions of the created social value may be viewed in categories, namely 1) facilitating a culture of sharing, 2) facilitating access (for instance, to resources or opportunities), 3) designing infrastructure, and 4) designing products and services. The main dimensions of social value design are what the participants viewed as sustainable across the nine cases. In summary, the categorised dimensions form part of the sustainability required for high social impact in each social enterprise.

In the second objective, the analysis focused on the creation of sustained social value through each social enterprise. As observed in each case study, social value creation seems to have many layers. Considering some of the cases, although the main focus might be, for example, the design and production of menstrual cups – as in the Mina case – there is also an element of empowering women and creating an awareness of personal hygiene and increasing the rate of school attendance. Another example is the use of hybrid business models, for instance, Code4Change and Mina Cup that offer products or services, as well as a sharing culture, to empower all stakeholders. In other instances, the sharing culture results in a mutually beneficial situation, such as Placet Enterprises using community land for farming, and Oxygen Africa is using rooftops for solar installation with an income generation opportunity. In addition, technology is used to improve access, such as the B2B Hub to connect more small retailers, or BIC Farming using agri-technology to produce larger commercial-sized crops with soilless farming. In the education space, providing offline access to academic content is valuable in Africa, as it is experiencing a limitation of infrastructure. In the case of Bakula Power, infrastructure is built to allow access to an energy source. In all these social value designs, there is a common element of long-lasting solutions focused on increasing social impact at a local level.

Implications of the findings for programme design

The social value dimensions which emerged from this research could, for instance, be used for programme or module design. The programme design can be co-created between the academic programme designer and the social value designer, which will result in a joint effort toward enhanced social value design in theory and practice.

One of the key outcomes of such new programmes or modules could be to facilitate opportunities for emerging social designers to incorporate social value objectives relating to social value design into the social enterprises’ long-term strategy. In addition, the most ideal situation would be to involve experienced local social value designers and practitioners to co-create and collaboratively provide input. Indicating what would be beneficial for the capacity building of social designers in adopting future-focused sustainable business models should result in long-term social impact. In Figure 1, a recommendation is made for a more interactive, participatory programme design model that facilitates a process where all the relevant actors. In this illustration, academics, social designers and practitioners, all have an opportunity to influence the content input and programme design, as well as desired outcomes.



Figure 1: Programme design model (self-compiled)

Conclusion

Design for social sustainability in Africa is a phenomenon that still needs to be further explored. There is an opportunity for the knowledge gap to be narrowed when academics collaborate and co-create with both experienced social value designers and practitioners to gain a deeper understanding of how social value is created. This co-creation is a principle of design thinking (Brown & Katz 2011, p. 382). Furthermore, this information should then be drawn from, using a participatory approach to develop new curricula incorporating the four broad dimensions of social value creation that can be aligned to specific outcomes. Social value and social entrepreneurship can also be included in design curricula in modules linking to the professional practice of students.

Ultimately, there will have to be a shift for academics to adopt a future-focused approach. The new approach should ideally influence emerging social entrepreneurs through the newly developed programmes to ensure sustainable interventions for the upliftment of society with the ultimate aim of social value creation. There is also an opportunity for these social entrepreneurs to draw from design practice principles to enhance their social value creation.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Hacking the Taste Cycle: A process-oriented view for sustainable interior fit-out

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Abstract

Interior design is a discipline concerned with human inhabitation. It provides the capacity for inhabitant identities to inform and be informed by the interior. Interiors are cultural products, reflective of societal identity and taste (König & Khan 2015). Following Bourdieu (1979 [1984]), tastemaking is a repeated, cyclic process. As tastemakers, interior designers are responsible for deciding how selected goods are made desirable through responding to, interpreting and shaping the tastes of society. The cyclic nature of interiors is prevalent in the commercial realm. The conventional fit-out lifecycle is governed by lease periods of five years and the physical deterioration of shopfitted elements after ten years of use. This results in the recurring disposal and generation of interior fit-outs within each decade. From the perspective of environmental sustainability, this repeated cycle of production to consumption to disposal is problematic in its contribution to wasteful practice.

In a conscious movement towards sustainability, we recognise the role of interior design as providing an opportunity to influence inhabitants' tastes for environmental awareness. Since interior design is a reflection of societal taste and acts to re-inform taste, we suggest that this consciousness be integrated within designing itself with a re-defined concept for the production of interior fit-outs.

The aim of this paper is to address the wasteful aspects of cyclic interiors through a process-oriented-view, a philosophy of the food cycle (Meisner-Jensen 2011), interpreted as an approach for interior design. It shifts tastemaking in and for interiors from a product-driven to a holistic, process-oriented approach, emphasising the lifecycle of space and its artefacts.

Following this holistic view, the paper suggests a set of guidelines based on the application of process-oriented-thinking within conceptual design phases. It asserts for multi-dimensional approaches in which all aspects of the lifecycle are considered from the onset of the design process. The intention is to contribute towards developing sustainable practices for interior design while promoting 'a taste' for sustainable consumption to inhabitants.

Keywords: Environmental sustainability, interior design, lifecycle, process-oriented view, tastemaking

Cyclic taste and the disposal of out-dated interiors

Interior design is concerned with human inhabitation (Clemons & Eckman 2011). As cultural products (Königk 2015), interiors inform and are informed by inhabitant identities. This occurs through tastemaking in which interior designers work with the production and consumption of taste (Königk & Khan 2015). Interior designers are cultural intermediaries or tastemakers (Königk & Khan 2015). Through tastemaking, designers investigate, interpret and reflect the tastes of inhabitants through the design of interiors (Dennington 2017; Khan & Königk 2018). This is consistent with the notion that interior design centres the user as an explicit informant to the design product (Clemons & Eckman 2011; Khan & Königk 2018).

Interiors are reflective of societal identity and taste, with interior designers acting as agents in shaping and defining culture through design (Dennington 2017; Julier 2014; Königk 2015; Sparke 2012). Through cultural production, interiors are inhabited by users, through which their status is defined and affirmed (Bourdieu 1979 [1984]; Dennington 2017; Königk & Khan 2015; Khan & Königk 2018). Acts of inhabitation are acts of consumption in which the user's expression of identity may be attributed to their conspicuous association with one interior over another (Douglas 1996; Königk & Khan 2015).

Following Khan & Königk (2018), tastemaking entails the circulation of cultural products within society. Taste-makers activate this process through the interpretation of cultural capital of the social groups for whom products are intended and produce new, desirable products. These cultural products satisfy the desire of users who wish to stay at the forefront of popular culture (Dennington 2017; Julier 2014; Khan & Königk 2018). Interiors operate similarly. The interior design industry is subject to the taste cycle, in which interiors are produced, consumed and re-produced according to societal taste (Königk & Khan 2015).



Figure 1: The taste-cycle

Interior design is primarily concerned with commercial expression, in the form of corporate offices, retail, hospitality and leisure (Khan & Königk 2018). In commercial environments, clients appoint interior designers to create identifiable spaces that reflect their unique corporate characteristics (Bitner 1992; Kent & Stone 2007) and distinguish them from competitors. As consumer interest is subject to the needs and desires of society, taste becomes an informant to commercial endeavours. Taste is temporal (Königk & Khan 2015). The dynamic nature of societal taste is reflected in changes to interior design. These function as commercial contributors beyond functional spatial use (Khan & Königk 2018). In order for a commercial client to remain relevant with target markets and retain their interest, commercial interiors must keep up with the times through adaptation in their identities. Mesher (2010) affirms the need for cyclic updates to interior design, particularly in the retail industry. The conventional commercial lease duration of five years and the physical deterioration of interior fit-outs after a period of five to ten years provide functional parameters that motivate the cyclic re-design of interiors. Therefore, the industry norm of five-to-ten year interior replacements serves both pragmatic and cultural roles. From the perspective of taste, should commercial clients resist replacement of their interiors, they risk survival due to loss of user interest and the high saturation of commercial competitors willing to invest in interior revamps.

Although adaptation to interiors provides opportunities for renewed societal expression and affords the interior designer, the creative opportunity of cultural production, the negative impacts of the recurring replacement of interiors must be interrogated. When new cultural products are placed at the forefront of the taste cycle for consumption, the disregard for the treatment of displaced cultural products is problematic. When obsolete interiors are discarded, the impact on environmental systems is critical (Königk & Khan 2015).

Although the act of interior design implies efforts towards environmental sustainability through the re-use of existing buildings in favour of their demolition (Bullen 2007), engagement is required surrounding the unique issues of fit-out (following Forsythe & Wilkinson 2015). This is pertinent in the commercial realm, in which the adaptation versus demolition of architecture becomes a non-argument for projects in which the design project scope concerns an individual commercial client leasing a segment of a larger scale building (such as a retail store in a shopping centre or a corporate office in a building occupied by multiple tenants).

The destiny of obsolete interiors as disposed waste is a crude response to environmental concerns and one that requires the attention of interior designers. Given the cyclic nature of commercial interiors as commodities subject to shift in societal taste, the question arises: how can interior designers satisfy the cyclic nature of tastemaking while striving towards environmentally sustainable interior design? The aim of this paper is to address the wasteful nature of recurring replacements of commercial interiors, by introducing a re-defined concept for the production of interiors that facilitates the creation of taste towards more sustainable interiors.

Creating a taste for sustainable consumption

Consumers are becoming increasingly aware of the social impacts of their consumption choices (Kaufmann, Panni & Orphanidou 2012). By associating with products and service-providers who portray social responsibility, consumers are displaying a desire to assert a taste for more ethical and sustainable consumption choices (Mohr, Webb & Harris 2001). 'Green'

or sustainable consumption is a particular area in which consumers strive to assert their social values (Lin & Niu 2018).

Sustainable consumption refers to policies, processes and spaces that promote and encourage pro-environmental consumer behaviours (Jackson 2005). This aims to minimise negative impacts on the environment and users while maximising the positive impacts on the environment, economic and social systems. In the report, 'Motivating Sustainable Consumption', Tim Jackson states that user behaviour, specifically when consuming, has an indirect and direct impact on the environment. This is based on the user's actions and choices towards living (Jackson 2005). It affirms that what users consume can positively contribute to improving environmental sustainability. It can be argued that interiors, as cultural products designed for consumption, can offer users the opportunity to embrace sustainable behaviour through reflecting environmental values.

As acts of spatial inhabitation are choices of consumption, it is notable that interior selections are a reflection of the inhabitant's identity (Douglas 1996; Khan & Königk 2018). The inhabitant's choice of the interior is reflective of the social ideals, status, identity and affiliations with which the inhabitant subscribes (Douglas 1996 in Khan & Königk 2018). In the spatial realm, sustainable interiors indicate an integrated approach to systems and materials. Lifecycles are a pertinent area for consideration (Stieg 2006). Interior designers may use tastemaking as an opportunity to produce space that influences inhabitants to strive for sustainable qualities in their desired identities and the cultural products they consume.

Based on the shifting awareness of users towards ecological concerns (Kaufmann, Panni & Orphanidou 2012), there is a growing taste for sustainable consumption within society. However, environmentally sustainable products and spaces only hold a marginal share of the market due to affordability (Lin & Niu 2018). Further, users do not always know or understand the constitution of a sustainable product, nor do they always prioritise its consumption (Murto, Person & Ahola 2014). Although users may be behaviourally inspired to act with sustainable consciousness through their exposure to 'green design', the creation of sustainable interiors are not always holistic or transparent, nor is the perception of interiors linked to consumption behaviour.

For the design of sustainable interiors, a range of tools is available. This can occur through testing the design through professionally recognised rating systems developed by authorities such as the Green Building Council of South Africa (GBCSA). Although the GBCSA has developed a specialised rating system for interior fit-out, called the Interiors V1 Rating Tool (Di Monte-Milner 2017), the tool focuses on the interior as a product. The value of a sustainably designed interior is attributed to its existence as a solved product, rather than the process by which it is made and the lifecycle it fulfils.

Although rating tools act as viable informants to sustainable design, there is a need for engagement with sustainability that encompasses the role of taste in interior design (Khan & Königk 2018). Further, in an ecologically depleted context, interior designers have the responsibility to consider environmentally sustainable design as a form of social good (Anderson, Honey & Dudek 2007; Clemons & Eckman 2011; Khan & Königk 2018). By regarding interior fit-out as a unique area posing environmental problems related to lifecycles and recurring waste, interior designers may engage with sustainability in design as a social contribution. By re-shaping taste, the interior designer who engages critically with sustainable interior design practice can inspire users to interact discerningly with sustainable consumption.

It is here that we propose *hacking the taste-cycle* by interrupting the disposal of interiors in favour of environmentally sustainable alternatives. We argue that sustainable interior design requires re-thinking the status quo from the perspective of taste by mediating the tensions between cyclic fashion-responsive interiors and the reduction of waste. We emphasise that sustainable interior design should be process-oriented, placing importance on the lifecycle of the interior (McLennan 2004). Since interior design is a reflection of societal taste and acts to re-inform taste, it is suggested that the notion of how we design shifts, with a re-defined concept for the production of taste in interiors. We investigate the process-oriented view as a model that can inspire a new sustainable direction in interior design.

The process-oriented view

The conventional food cycle implies that when food is placed on a table, the diner's knowledge of these foods is limited to their exposure to the supermarket as the origin of this food. Similarly, interiors are experienced by users with limits to an explanation as to how the interior came-to-be (where it originates from, how waste disposal is managed, and how the obsolete interior is dealt with).

With consumers evaluating consumption choices according to the congruence between their values and those of service and product providers, product-only knowledge is no longer sufficient to motivate consumption (Kaufmann, Panni & Orphanidou 2012). The lifecycle of a product, namely, how it came to be and how it will terminate is integral to the value that consumers associate with products. It is here that the lifecycle of a product becomes critical to consumer decision-making (Niva & Timonen 2008).

Meisner-Jensen (Schhröder 2016) proposes addressing the problems of product-only knowledge in the food cycle through a philosophy called a process-oriented view. This approach aims to address the limitations of product knowledge in the food system through an emphasis on the lifecycle of food (Meisner-Jensen 2011). This is linked to the *cradle-to-cradle* principle, where the consumer's viewpoint is from the production of food (grown from the land), to where it is eaten, to how waste is dealt with (whether the cut-offs are recycled or composted). This approach affords consumers more knowledge, equipping them to consume more responsibly. The process-oriented view is illustrated using a tomato in Figure 2.

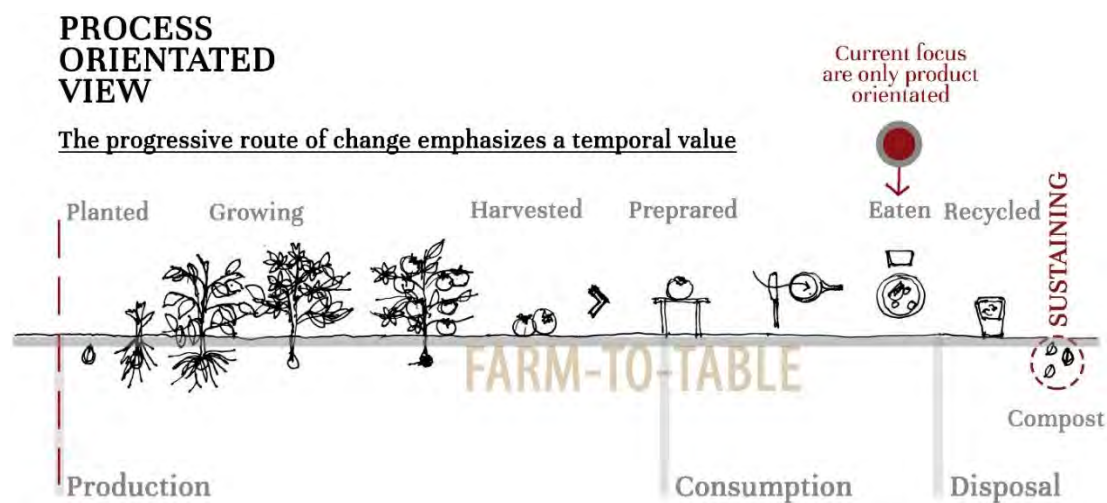


Figure 2: An illustration of a process-oriented view of a tomato

The motivation for consumers to pursue environmentally conscious eating can be applied to interiors. As consumers express their taste for sustainable eating practices through their desire for knowledge into the process (how food is made and where it comes from), the desire for sustainability of users of interior spaces may also be answered through interiors designed using the process-oriented approach.

The process-oriented view is a stance that considers each singular moment and part of a lifecycle as an incremental and important aspect in the making and understanding of a product (Meisner-Jensen 2011). An object, such as an interior space, does not exist without a history of becoming and an after-life once it is used. This process-oriented view of interior design advocates that the 'being' of an interior as a product be closely interlinked to its process of becoming (Meisner-Jensen 2011).

The process-oriented view offers opportunities to enhance the design of interior fit-outs. Since the process-oriented view implies a focus on the process of design, this approach requires the interior designer to consider the lifecycle of the fit-out throughout the design process (from conceptual phases through to spatial inhabitation and spatial disposal). Using the five-to-ten-year lifecycle of a commercial interior, interior designers can holistically consider the generation and dismantling of the interior fit-out using the process-oriented view.

The process-oriented view emphasises the production process as a means to address the disposal process. It shifts interior design from a product-driven approach to a holistic, process-oriented approach. Following holistic thinking (McLennan 2004), the aim is to define broadly the connections between the design process and the physical built environment using interior design. A multi-functional side table and chair (as an example of interior elements) are used to illustrate the process-oriented view in Figure 3.

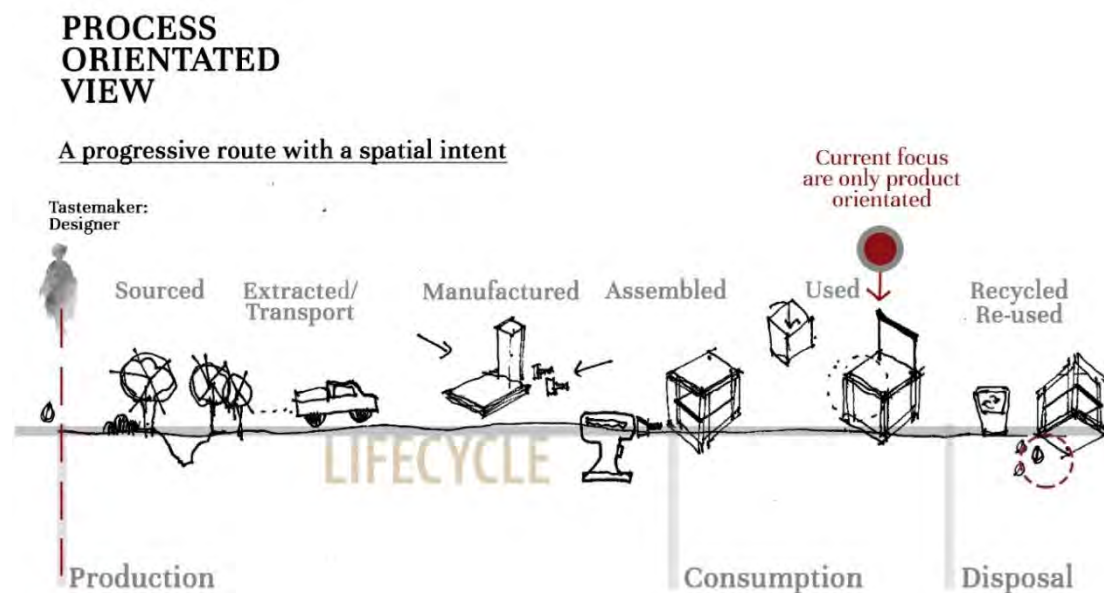


Figure 3: An illustration of a process-oriented view of a side-table

Guidelines for a process-oriented view of interior design

To implement the process-oriented view, interior designers should consider the lifecycle of a space. The lifecycle may be broken down into three phases:

- **Production** considers the design process through to construction of the interior;
- **Consumption** considers the operation of the interior and its inhabitation by users; and
- **Disposal** considers the point at which the interior is no longer relevant due to the end of its cycle.

Through the process-oriented view, the lifecycle of the interior is intentionally affected to prevent or postpone the disposal of an obsolete interior through early measures in the design process (production). The disposal of interiors is also addressed as a fate for obsolete interiors once they have experienced their lifecycle. Through consideration of the lifecycle, the interior designer may implement the process-oriented view through one or more of the following means (Figure 4):

GUIDELINES for a PROCESS-ORIENTATED VIEW of interior design

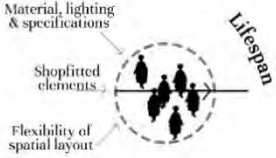
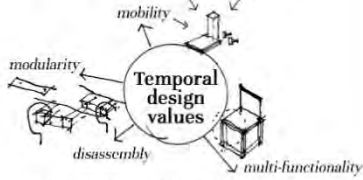

	Production	Consumption	Disposal
1. Prolong the lifecycle 	X	X	
2. Design for adaptability during the lifecycle 	X	X	
3. Design for disposal at the end of the lifecycle 	X		X

Figure 4: Guidelines for a process-oriented view of interior design

The process-oriented view guidelines may have implications for the consumption or disposal phases of the interior’s lifecycle. These are indicated in Figure 4.

The interior designer should evaluate the viability of each guideline according to the commercial client, the spatial typology for the fit-out (corporate office, retail, hospitality, among others), the proprietor and the user. As each design scenario is unique, the process-oriented view may require a selective or combined application of one or more of the guidelines.

Prolong the lifecycle

The prolonged lifespan entails evaluating the lifecycle of the interior fit-out and considering ways in which the fit-out may last longer than the conventional lifespan of five-to-ten years. The following considerations apply to extending the lifespan of the interior:

Durability of specified materials, lighting and product specifications

The specification of longer-lasting, durable and high-quality materials, fixtures, fittings and products can extend the life of an interior. This includes lighting, furniture, sanitaryware, floor and wall finishes.

- Specification processes should entail enquiry into the lifecycle of these products.
- Designers should interrogate the quality, embodied energy, manufacturing methods, material potential (such as recycling, waste management and new innovative construction materials), functionality and aesthetic features of considered products (Ayalp 2013).
- Designers can seek to ease this task by using materials known to be biocompatible, abundant, non-toxic and recyclable (Vezzoli & Manzini 2008; Máté 2007).

The design of flexible shopfitted elements

The approach to the design of shopfitted elements as custom, built-in and fixed components may be reviewed:

- Shopfitted elements could be designed to be mobile to enable changes in layout and various configurations.
- They can be designed as multifunctional, with multiple uses to enhance versatility.
- They can be designed with surfaces that may be re-branded to allow the application of various corporate identities and allow a change in 'look' that can respond to current taste.
- The design of shopfitted elements that display the process of making is also valuable. Since shopfitting has a history in handcrafting (originating in woodwork and cabinetry), it is suggested that the quality of making that is inherent to the handcrafted object, be used as a way to approach shopfitted elements. This should not be at the expense of technology, which can enhance the durability and performance of shopfitted items. Therefore, using the merged qualities of handcrafted and manufactured approaches to the design of the shopfitted item; interior designers could communicate the life story of the component (the process of how it came to be) without compromising on technological advances.

The flexibility of a spatial layout

The design of spaces and elements that may allow multiple scenarios in spatial layout can enable an extended lifecycle. This may be achieved through the design of adaptable and flexible systems and elements described in the next section: Design for adaptability during the lifecycle.

It is worth noting that should interior designers attempt to extend the lifespan of existing fit-outs (designed without the process-oriented view), the embodied energy involved in re-manufacture may mitigate the perceived environmental benefits of re-use. This should be investigated prior to decision making.

In the case of the commercial interior lifecycle, a change in tenancy may occur after a five-year lease period (Máté 2007). This has a unique impact on the lifespan of the previous interior and could be addressed through one of two means, a) The design of the fit-out could allow for adaptability (Ramani et al. 2010) in identity for a new commercial client, or b) the design of the fit-out could allow for the removal of fit-out elements from one space and re-installation in another space for the same commercial client.

Both approaches require consideration of the interior lifespan from the onset of the design process. They also require the consideration of an alternative leasing model in which fit-outs passed between tenants may become economically viable for both the proprietor and commercial tenant. This adaptable model may pose limitations or opportunities for design innovation, depending on the interior designer, the spatial typology (corporate office, retail or hospitality) and the commercial client.

Design for adaptability during the lifecycle

Designing for adaptability during a lifecycle involves considerations in which the interior fit-out may become more resilient to the changing needs of commercial tenants. This may be achieved through temporal design values that enable the adaptability of a layout and/or the adaptability of the interior elements themselves. Design principles that enable adaptability include mobility, design for disassembly, modularity and multi-functionality:

Mobility

This involves the design of elements that can be physically rearranged according to the changing needs of the commercial client. This can enable changes in layout, therefore prolonging the lifespan of an interior (Calamari & Hyllegard 2015; Máté 2007). This should also enable the removal of elements and their re-installation in new sites. Mobility may be achieved through:

- Freestanding elements instead of built-in elements (these may be on castors, designed for handling, and be lightweight);
- Large-scale elements can be designed for disassembly (see below) to enable mobility;
- Modular elements (see modularity below) which enable visual coherency when rearranged;
- Design of layout according to a grid system (this lends itself to modularity);
- Impermanent installation of interior elements (they may be easily removable, replaced, reapplied or reused in new sites); and
- Frame and infill systems for flexibility of a space. This includes track systems for elements such as wall divisions and lighting.

Design for disassembly

Design for disassembly requires the creation of elements that can be disassembled quickly in order for materials to be reused or replaced. This minimises waste and enhances the possibility for prolonging material lifecycles (Calamari & Hyllegard 2015; Máté 2007). Re-use of materials may address changes in taste by allowing new ways of applying the same materials. The following considerations can assist in disassembly:

- Elements should be regarded as independent components that constitute a whole;

- Components within one element could be designed to be compatible for use in other elements. This can become possible through modularity;
- Minimal processing of materials within design elements allow them to be more reusable in other applications; and
- Frame and infill systems enable the disassembly of elements through standardisation in sizes, modules and fixings.

Modularity

This entails the design of elements in which consistent forms, dimensions and design features can enable a collection of elements to be aesthetically coherent and re-configured in multiple ways (Calamari & Hyllegard 2015; Máté 2007). In interior fit-outs, modularity can be approached through elements and the ways in which they are fixed and arranged in space. This may be achieved through:

- Consistent sizes and modules of sizes;
- Consistent or compatible forms;
- Informed by a grid system; and
- Informed by material choice: The design of modular elements is informed by materials. The standard sizes and qualities of a material are considered as an informant to the eventually designed element. This reduces waste from off-cuts and ensures an economical manufacturing process in which a consistent approach is taken each time an element is produced.

Multi-functionality

The design of objects that may have multiple functions can enhance the versatility of the interior element (Calamari & Hyllegard 2015; Máté 2007).

- A single element may have multiple functions for use at the same time (for example, furniture elements that can act as storage and seating at the same time).
- A single element could also have different functions at differing times (for example, a sales counter in the day is a shelf in the night).

Design for disposal at the end of the lifecycle

The disposal of interior fit-outs provides a significant area of consideration from the design process. Even with prolonged lifecycles and adaptations through-out spatial consumption, the obsolescence of the interior fit-out should be addressed whether this is due to change in tenancy, taste or design for disposal considers strategies for designing towards ecologically compassionate means of discarding of the interior and minimising waste. This includes decomposition, recycling and repurposing:

Decomposition

Decomposition involves the discarding of biological material waste. Designers should be discerning in the way the materials have been made, how they are processed through design decisions, and the energy required for facilitating their decomposition. To mitigate the negative impacts of waste on the environment, the following considerations can be made during the design process:

- Prioritising biodegradable material specifications. Biodegradable materials naturally decompose into the environment once disposed. As a material selection criterion, biodegradability can provide opportunities for interiors to be renewed more frequently while allowing responsible waste decomposition (McDonough & Braungart 2002).
- This would require consideration into joinery, and finishes to materials. Should bio-hazardous sealants or adhesives be used on a raw timber, the efforts towards decomposition may be hindered, resulting in environmental harm (Máté 2007).

Recycling

Recycling of the interior fit-out can be achieved through the consideration of recyclability of materials and components during the design process. This can include:

- The specification of materials that are easily incorporated into existing recycling systems;
- The specification of materials that do not require multiple processes before recycling (for example excessive water use for cleaning or hazardous chemical use for stripping); and
- The specification of materials that have already undergone recycling and have experienced an extended lifecycle.

Re-purposing

Re-purposing involves recreating existing elements of a fit-out (or parts of these) in ways that they may be re-used for another function after its primary function was achieved (called reversed logistics) (Máté 2007). This can be realised through:

- The specification of raw materials that can be re-formed for re-use (example steel may be melted and re-shaped);
- The use of components in minimally processed formats (where they are not repetitively cut, finished or fixed), so that substantial portions can be salvaged; and
- The ease of reversibility of processing in which the finishing or fixing methods of fit-out components may be reversed with minimised impacts to the environment (for example, the stripping of adhesives versus the removal of clamps on timber).

Conclusion

Commercial interiors are replaced at a frequency of five-to-ten years due to the termination of a lease cycle, the physical deterioration of existing interior fit-out and changes in societal taste. The repeated disposal of interior fit-out needs to be addressed due to the negative environmental impact of recurring waste created from obsolete interiors.

Interior designers, as tastemakers, have the ability to interrupt this cyclic pattern of disposal. If tastemaking is the act of interpreting societal values and redefining these in the design of interiors, then there is opportunity to leverage the growing taste for green consumption prevalent in society and reflect this through interior design that can re-inform sustainable consciousness. The process-oriented approach is a conceptual theory that may provide such opportunity. When applied to interior design, it brings emphasis to the lifecycle of interior spaces, from production to consumption to disposal. The proposed guidelines of the process-oriented view (namely, prolong the lifecycle, design for adaptability during the lifecycle, and design for disposal at the end of the lifecycle) provide a starting point for interior designers to engage with sustainable design principles during the design process. These guidelines may be

practised independently or in combination with each other depending on the nature of the interior project at hand.

By implementing a process-oriented view, interior designers can cultivate a taste for sustainable consciousness among spatial users.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Fashion, Frugal Futures: how informal micro-businesses design and develop apparel

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Abstract

The high failure rate of small and micro businesses together with limited information about the operations of informal fashion micro-businesses and necessitated a study about the apparel product design and development process applied by custom-made apparel manufacturing micro enterprises (CMMEs). These micro-enterprises have an important role to play in poverty alleviation in South Africa despite implementing survivalist strategies, and they also provide a sense of self-worth and dignity to people who would otherwise depend on welfare (Grant 2013; Phakathi 2013; Campaniaris et al. 2011). According to Burke (2011), knowledge of design enables creativity and innovation and therefore to prosper, informal CMME owners need to be competent, as well as innovative (SME Reports 2014). Frugal innovation refers to a response to severe resource constraints with 'good-enough' products that meet basic needs at a low cost and thus provide high value (Zeschky, Widenmayer & Gassmann 2011). The purpose of this paper is to demonstrate how informal fashion micro-businesses apply frugal innovation to design custom-made apparel and improve their futures.

Following a qualitative approach, a multiple case study research design was applied in this study. Thirteen informal CMME owners located at a business incubator in Johannesburg were interviewed using an interview guide. Observations, garment analysis and documents contributed to data collection from participating businesses. The data from interview transcripts and field notes, including photographs, garment analysis and relevant documents from participating CMMEs, was analysed through content analysis.

The study revealed how the participants overcome resource constraints by applying social and cultural capital as tools in the apparel product design and development process. Innovation and creativity were demonstrated by the participating fashion micro-businesses in providing customers with garments that were not available in mainstream clothing retail stores. The study contributed to identifying specific areas for future training to enable the mastery of knowledge and skills. The study further contributes to the body of knowledge about informal enterprises and apparel product design and development in emerging economies.

Keywords: Apparel product development, apparel product design, micro business, frugal innovation, sustainable entrepreneurship

Introduction and problem statement

Informal micro businesses are often run from homes, backyards, converted buildings or on pavements, rather than from formally zoned business locations (Grant 2010). Home-based enterprises typically involve small-scale production and service enterprises, for example, making clothes (Henning & Akoob 2017). Owner-managed businesses such as these are headed by survivalist entrepreneurs, who embark on the entrepreneurship journey out of a need to survive (Phakathi 2013). These owners are mostly women (Grant 2013), often ill-equipped to manage the intricacies of a business (Henning & Akoob 2017), resulting in the high failure rate of small and micro-businesses including custom-made apparel manufacturing micro-enterprise (CMMEs) (Brink, Cant & Ligthelm 2003). The small size and the owner being responsible for **all** design, development and management activities of the informal CMME, impacts on the owner's ability to perform functions such as purchasing, production, human resources, sales, marketing and financial management effectively (Makhitha 2017).

Most informal micro-businesses, are survivalist with little possibility of growth and employing other people, playing an important role in poverty alleviation (Phakathi 2013). With a mean monthly income is more than the average minimum wage rate stipulated in the Basic Conditions of Employment Act No. 11 of 2002 (Ranyane 2015), informal businesses become both income and job-generating alternatives for unemployed people, giving a sense of self-worth and dignity to people who would otherwise be jobless and in need of welfare (Grant 2013). It is, therefore, important to understand the business dynamics of informal micro-businesses like CMMEs, as it holds the key to a better future for the unemployed.

Limited information is available on manufacturing in the informal economy in South Africa (Grant 2013), subsequently limiting an understanding of the way the CMME operates when designing and developing apparel products. A lack of understanding limits constructive improvement of the unique operations and effectiveness of apparel product design and development to ensure business survival. The aim of this study was to explore how apparel product design and development is done within the limitations of the informal CMME.

Literature review

A formal, or informal micro-business such as a CMME has a maximum of five full-time employees, the total turnover per annum does not exceed R0.20m, and the total gross asset value does not exceed R0.10m (Mahembe 2011). The owners of informal CMMEs use their skills to create individually designed, custom-made apparel for individual customers (Tselepis 2013). The adoption of custom-made apparel has resulted from customers' desire to personalise the style, fit and colour of their clothes (Lim, Istook & Cassill 2009). To obtain a custom-made garment requires the commission of a CMME (Adelaja, Salusso & Black 2016) who caters for a variety of local customer needs, from casual to career wear to special occasion custom-fitted garments of high-quality, that are uniquely individual and unavailable in retail stores (Bye 2010).

Innovativeness can increase the likelihood that a business can succeed (Leadbetter 2014). Informal micro-businesses in an emerging market find themselves responsive to extremely limited resources with products that have great cost advantages compared to available products, defined as frugal innovation (Zeschky, Widenmayer & Gassmann 2011). The informal micro-business reverts to developing products that may look substandard to available products because they provide limited functionality and are often produced from basic,

inexpensive materials. Frugal innovators are not restricted to technologies, products and services, but have a fresh approach to using resources and ideas, thus making the most of what is already available (Leadbeater 2014). The limited resources available to informal CMMEs can serve a process of creative innovation.

Leadbeater's (2014) view that frugal innovators excel at do-it-together (DIT) as opposed to do-it-yourself (DIY), corresponds with Grant's (2013) view of social capital or social networks and aligns with the principles of ubuntu. The ubuntu philosophy found in African communities, advocates 'helping others to help yourself' (Letseka 2013). Ubuntu is about advancing oneself in a way that uplifts neighbours and peers at the same time (Thompson 2017). The practice by small apparel businesses to use social networks, which refers to businesses' reliance on friends, family or neighbours, or collaboration with other businesses in a cooperative, to bring in more business (Hodges et al. 2017) was found to be mostly neighbourhood-based, especially for women-owned informal businesses (Grant 2013). This is referred to as social capital in Bourdieu's habitus theory (Bourdieu 1986). Cultural capital, entailing self-improvement by acquiring knowledge and skills through investment in terms of time (Bourdieu 1986), also contributes to innovativeness.

In emerging markets, customer needs are fragmented, and consumer-spending power is low (Amankwah-Amoah, Boso & Debrah 2017). With unemployment in South Africa at 27,6% (StatsSA 2019), the CMME is forced to adopt frugal innovation to satisfy a financially resource-constrained customer's needs. Producing a custom-made garment is very much a hands-on process with a unique kind of creative and critical thinking (Bye & Sohn 2010). Customers of the CMME remain value-conscious, expecting superior performance from custom-made apparel products (Makopo, De Klerk & Donoghue 2016) irrespective of financial constraints.

Western context custom-made garments are exclusive, luxury fashion items that can only be afforded by high-income consumers (Frings 2014). In the South African emerging market context, the exclusivity of the custom-made garment does not automatically involve a high price. In the luxury fashion market, high prices are related to the exclusivity and status of luxury products and brand names (Donvito 2018). Designers can have distinctive fabrics exclusively made for them by fabric mills (Frings 2014), while the informal CMME is restricted to the fabrics that are available in the local fabric retail stores. Contrary to this, the informal CMME creates an exclusive, once-off, custom-made garment with limited resources for a customer with a limited budget, from local fabric creatively sourced within their means.

Innovation is driven by entrepreneurship (Muñoz-Bullón 2016) as small businesses, such as the frugal survivalist CMME, show a remarkable capacity to innovate (Phaho 2008), which is what fashion is known for (Malem 2008). Innovation is found in the potential opportunity that informal CMMEs see in each customer that approaches them for a garment, as well as in the value that is added by creating a garment where there was just a customer's idea. Borrowing or renewing a product resulting from an already existing design brought to the CMME to duplicate within the customers' means and CMMEs' resources is indicative of the informal CMMEs business. March and Simon (cited in Maes & Sels 2014), state that "most innovations result from borrowing rather than invention". It is not unusual in the fashion context to conceptualise and manufacture new products based on past products and experiences (Moeran 2015), emphasising the importance of knowledge and experience for creative and innovative apparel designs. Therefore, product renewal adopted by the CMME is the least risky category of product design and development (Cross 2011). The purpose of this paper is, therefore, to demonstrate how informal fashion micro-businesses apply frugal innovation to design and develop custom-made apparel and improve their futures.

Methodology

A qualitative case study design was followed to determine how informal CMMEs design and develop custom-made apparel within an emerging market context. A private sector business incubation hub in Johannesburg was chosen to gain access to informal CMME owners. A purposeful convenient sample of 13 owners of informal CMMEs participated in the study. Ethical clearance was obtained for the study and participants gave written consent for the data collection methods used. A semi-structured interview schedule with questions about how custom-made garments were designed and developed was used to collect digitally recorded data through face-to-face interviews, assisted by an intern from the incubation hub as translator. Data collection was enriched by participant observations on how the owners designed and developed custom-made garments at the workshops of five of the thirteen CMMEs, as the other eight owners no longer operated their businesses from the incubation hub when observations commenced. These methods resulted in an insider's approach to view the practices and processes of the participating CMMEs. Transcriptions of interviews and fieldnotes of observations during site-visits, which included photographs, were analysed through content analysis. Coding, categorising and sorting were applied to analyse qualitative data from the transcriptions and fieldnotes (Flynn & Foster 2009), resulting in a thematic analysis to identify patterns and themes emerging from the data (Wahyuni 2012).

Findings and discussion

The business operations of the CMME was indicative of a **survivalist** approach as recognised through these claims "I would actually sew because I wanted an income at the end of the day" or "I want to make money" and "I want to sew different things so I can make more money to support my family" and "I want to start a business to reduce poverty in the community". These individual motivations for starting a CMME not only confirm the need for survival but encompass a much broader approach of empowerment and upliftment for participants themselves, families and communities. This suggests the existence of the principle of ubuntu, where the upliftment of the CMME owner would cascade down to the community. Destitute conditions, which relate to insufficient family income and difficulty finding a job, are motivating factors and reasons to start an informal micro-business (Henning & Akoob 2017), such as a CMME.

To sustain the CMME's business, **resourcefulness** emerged in the way in which key resources were sourced. Resourcefulness is considered part of any problem-solving approach through means of creativity (DeLong 2010). The access to sewing machines through which the required custom-made garments could be produced was evident as these participants indicate "Now I don't have a machine ... I always used borrowed machines" and "I don't have a machine, I borrow some machine". Participants were willing to plan to reach their goal(s), demonstrating a strong will to act but also strongly reliant on social networks to achieve these goals.

The initiation of the CMME's business is in part dependent on the exposure of the owner to sewing technique and equipment training. The value of this **training** was expressed in these statements "you know, school sometimes helps [...] It [school] gives you a light [...] So, I know from then [school], I've got that experience" and "If you know how, how to do, hai it's not difficult". The incubation hub's website confirmed that these participants had been exposed to industrial machines since joining the incubation hub with their sewing skills improving during training to sew different types of bags from recycled materials, gaining cultural capital.

The strength of the CMME's business is also enforced through the owner's sewing **experience** gained over time, for example since childhood, as mentioned by these owners "I like sewing

since I was young I used to sew” and “I was a little girl from school, I was just like to sew” or a natural ability or gift for sewing as expressed by this owner “it’s just a talent, I just know”.

Participants also mentioned that their customers preferred the quality of the garments they produced for example they mentioned, “the quality of my clothes”; “I’m just going to, for quality”; and “she says her sewing is nicer than ‘retailer A’”, emphasising why customers ordered custom-made garments and confirming Makopo et al.’s (2016) finding that customers expect exceptional quality from custom-made garments.

Fundamental to the continuation of the CMME is general apparel construction experience, such as sourcing fabrics that results in owner confidence in garment construction. Participants expressed **confidence** in their ability to select appropriate fabrics for their customers when they mentioned, “so now I’ve learned, what they [customers] want that’s what goes ” and “you can tell, the other one you know, it’s experience neh [...] It’s a lot of experience”, as well as “it’s the knowledge of material, you need to know your fabrics ... it comes with experience”. Confidence also manifests itself in continuous practice through which knowledge and skills are obtained as this participant indicates, “when you sew something, you get more pro uhm creative, and you want to do another”. Subsequently, knowledge and experience are gained over time (Hardaker & Fozzard 1997).

A **lack of confidence** emerged to stifle the attempt of more complicated garments as expressed by some participants who said “No, I don’t know how to make [wedding dresses] ...” and “She doesn’t know how to [...] she can only do the traditional wear and church”. These participants had the ability to sew, but at the same time were not confident to apply their existing knowledge and skills to new or unknown fabrics or garment styles. Pattern design uncertainty also prevailed, as this participant mentioned, “I do [would] like to learn how to draft because from the school I didn’t know, I didn’t understand it, drafting patterns”. This lack of confidence may be linked to the level of competence of these participants (Dorst & Reymen 2004). As with any practical skill, such as sewing, the physically doing and repeating a task will improve a person’s ability to execute the task, thereby increasing experience, expertise and confidence.

Radical product innovation transpires when technology is established to meet or create new markets and may include new product types or new production systems (Cross 2011). Innovation in the CMME emerged through the way in which tools and technologies were used, fabrics sourced, and the relationship between a customer’s ideas and the CMME owner’s own style or identity. A lack of access to ‘new’ manufacturing systems is observed through **sourcing sewing machines** as one of the most innovative activities performed by the CMME and the most important resource in producing custom-made apparel. Various options of obtaining a sewing machine emerged, which was personally owning sewing machine as this participant indicates, “domestic machine at home [...] Yes, I’ve got a overlock [...] overlocks [domestic] from my mom”, or borrowing a sewing machine as discussed earlier to demonstrate resourcefulness. Another option was access to industrial lockstitch, zig-zag and overlock machines at the incubation hub, as these owners indicate “domestic machine [...] here at the project ... industrial machine” and “And now I’m using these ones” confirming learned skills and experience obtained through the incubation hub, adding to their cultural capital (Bourdieu 1986).

This also reveals the importance of social networks and social capital (Grant 2013, 2010; Bourdieu 1986), as well as the principles of ubuntu. The lack of access to ‘new’ manufacturing systems is also evident in the absence of computer software to create sketches or prototypes to make garment patterns. Innovative ways were found to substitute technology by using inexpensive old-fashion methods to test a new idea, as this owner indicated when trying out a new idea for a bag, “I take a paper, and a scissor and I do it before”. **Manual sketches** and

patternmaking were also observed as part of the design and development process for custom-made apparel, as well as **manual cutting** of fabrics. Seven of the owners mentioned that they cut out garment pattern pieces with scissors as indicated by their response, “I cut with scissors”. This was confirmed through observations that revealed no electric or automated cutters, even for small orders pattern pieces were individually hand-cut, with scissors.

CMME owners are expected to create novel products through manufacturing systems that may be regarded as obsolete, thus radical innovation is not present in their manufacturing process. Limited access to advanced technologies did not stifle creative design and innovation as the willingness to adopt old-fashioned ways to deliver to customers’ needs resolved the limitations.

Innovative use of mobile phones emerged as the CMME’s answer to cutting-edge manufacturing solutions. The mobile phone was both a recording device of inspirational ideas as these participants indicate, “So I was taking photo [...] then I come do it”, and “If I see a nice bag, I take a photo sometimes”, or an information source for new ideas as these participants mentioned “I also go to the Internet to look at patterns [...] No, I'm using my phone [...] I google”, and “we are aware of trends [...] I think Instagram is it now [...] I like Pinterest as well”. Observations confirmed that participants used their mobile phones to access the Internet and applications such as WhatsApp. The camera function of a mobile phone was used by customers and CMME owners to capture and send photos of preferred garment styles and available fabrics through WhatsApp or the mobile phone email function. The mobile phone is, therefore, an important tool to facilitate CMME innovativeness. Application of mobile phone features was aptly illustrated by a participant who said “to choose fabric [...] go to the shop and shoot, WhatsApp me I'll tell you what I want” and “Ja, we send the pictures of this” [fabrics]. CMME owners also used their mobile phones to send quotes, inform the customer when the ordered garment was ready for collection and the amount due via WhatsApp.

Innovation in CMMEs manifests through the creative ways in which fabric is used, resulting in a competitive advantage in the products they deliver. The combination of the well-known shweshwe fabric with other fabrics such as leather and lace illustrates the creative visualisation of products that are different while exemplifying the true nature of the African context in which the products are produced (Figure 1).



Figure 1: Combination of traditional African fabric and lace

However, delivering on such creativity results in finding innovative solutions to enable the successful combination of these different fabrics through inexpensive reuse of PVC banners to support the fabric combinations, which is illustrated through this participant who says *“actually I'm mixing leather and shweshwe ... if I saw the leather is too soft ... PVC just to support leather”*. PVC banners were combined with shweshwe fabric to make different bags, and sometimes PVC banners were used to make pattern pieces before cutting the garment fabric (Figure 2).



Figure 2: PVC used for pattern pieces

The CMME is challenged to produce innovatively unique garments which cannot be found in retail stores, as illustrated in these quotes *“They [customers] can't find in the shops ...”*; *“Some of them [customers] they said they, they want to wear their own clothes”*; *“Like the old people didn't like the dress for the shop because sometimes it's open, the skirt is open ... And then also my church didn't like the dress like this ... They need a normal dress”*; and *“I believe everybody now wants something that will like suit their style. Everybody wants to be exclusive. Nobody wants to wear what another person is wearing. They all want to be like different in their own different way”*.

Innovation expands to CMMEs expressing their **own style** or **identity** as designers, especially when given free rein to design a custom-made garment as this offers the CMME owner the opportunity to express their creativity, skills and how they envisage the design, as this owner explains *“Yes, that is the more exciting client because then you, it's you, it reflects you”*. The interpreter also pointed out *“She's doing her own thing, that are very unique ...”* Although the uniqueness is not found in a ‘first-ever’ design it rather emerges through renewing an already existing design by creatively expressing their own design identity, as these participants indicate *“I'm not exactly going to copy their style. I'm going to like bring my own creativity in to the table”* and *“She's doing her own thing, that are very unique ...”* and *“... so now she takes those ideas [from fashion design school] and change them to something different”*.

Various designers, as mentioned in Dieffenbacher (2013), state the importance of identity or self-expression in fashion design, for example: *“it's all about your own identity”* (Farmer, cited in Dieffenbacher 2013, p. 74); *“the identity is maybe the most important aspect”* (Im, cited in Dieffenbacher 2013, p. 75), and *“for me, the most important starting point is my own identity as a designer”* (Cornejo, cited in Dieffenbacher 2013, p. 141). Although the CMME owner capitalises on the opportunity to express their design identity they are also creatively stifled when required to follow the customer's ideas and inputs, which may inhibit their innovative creativity, eloquently expressed by this owner when she says *“so now I've learned, what they [customers] want that's what goes [...] We just do replicas of what they [customers] want”*. Therefore, the CMME owners find themselves in a situation where they exchange their innovative creativity for the opportunity to earn an income.

Innovation is muted by a lack of research on the part of the CMME owner to determine design gaps and ideas. Timo Tissanen states in an interview with Dieffenbacher (2013) that “without thorough research, there can be no innovation”. The CMME owner acknowledges that they are unable to research the current fashion market to find the gap that their product range can fill, as these owners mention “But I never do my research [...] it's because I haven't started doing my own range” and “most research you probably put it if you want to do your own product [range] [...] we haven't really gotten time”. This does not stop the CMME owners from keeping up with apparel design trends as this owner indicates, “we are aware of trends”.

Research may contribute to a comprehensive body of knowledge, diverse experiences and the openness for ideas, which are essential for somebody to be creative (Pederson & Burton 2009), as creativity is essential for apparel designers to provide for innovation (Malem 2008). The informal CMME owner's creativity is jeopardised by the urgency to survive through custom-made apparel orders resulting in a lack of free time to spend on creative development of ideas and a design style, as this participant points out “So we're not creative right now at all [...] We're just not creative [...] We just want to get the orders out [...] It's hectic”.

To survive, the CMME owners neglect their own creative identity and focus on what the customer prefers, confirming the ‘creative-business tension’ observed by Mills (2011), and the ‘hectic’ workstyle of an SMME, found by MacDonald, Assimakopoulos and Anderson (2007). Bye and Sohn (2010) found that it was important for their sample of designers to find a balance between the pressures of deadlines at work and time for fun and discovery, which nurture the generation of new ideas. A lack of exploration, as witnessed during observations and mentioned by some participants, seems to affect their creativity. This supports MacDonald et al.'s (2007) conclusion that the real obstacles to informal CMME innovation are the lack of resources, especially the time and energy to do more than just survive.

Conclusion

The study indicated that frugal innovation is part of the survivalist approach of CMMEs. The CMME not only provides a service of custom-made apparel within the emerging economy, and applies the principles of ubuntu in doing so, by alleviating poverty through self-employment and indirectly empowering the community through their success. Innovation and creativity are the fundamental principles on which the CMMEs success is based, founded in the resourcefulness of sourcing the equipment and material they need to produce custom-made apparel for the cash-strapped customer while relying on social capital. Although new sewing technologies might not be at the forefront of the CMME business, the mobile phone is relied upon to provide services to and from the customer.

The sewing experience laid down through schooling, self-taught skills or inherent ability to modify already existing apparel products creatively into custom-made one-of-a-kind designs, supports the meagre success of the CMME. The informal CMME has found creative ways to design and develop custom-made apparel with limited resources, and that suits the financially constrained customer. The CMME is adequately skilled to manage the design and development of custom-made apparel but lacks the confidence to master unknown styles and fabrics. Advanced sewing skills training, and specifically pattern design, were identified as future training areas which will enhance their cultural capital.

Confidence in their ability may improve the business sustainability of these businesses and increase the potential to address poverty in South Africa. Future research is also needed to determine the business skills required by the CMMEs and the impact of such training on the success of these businesses. As South Africa is stepping forward in addressing poverty and job creation, the importance of the informal CMME cannot be overlooked.

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DESIGNED FUTURES

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Curriculum Development for Fashion Product Development in an ODeL Context

Lorna Christie: UNISA
Mariette Strydom: UNISA

Abstract

Appropriate pedagogies for the development of an online (distance education) clothing and textile product development module presented at NQF level 8 is paramount. The curriculum and the pedagogical perspective of students enrolled at Unisa are affected by student diversity; locality of students; separation from the institution, lecturing staff and fellow students. Cognisance should be taken regarding the proliferation of the internet, changing student profile and adoption of various teaching methods, which all have an impact on the learning process and should form the theoretical underpinning of a design of a course/module (Ertmer & Newby 2013).

Online communication allows for the acknowledgment of separation of space and time but creates an ongoing dialogue between the educator and the student. This approach to teaching encompasses both the traditional face-to-face and distance education mode of teaching, which manifests in a fully online module. The current role of the educator and student has changed into a shared responsibility of the generation and acquisition of knowledge (Palaiologos 2011). Some of the resulting learning methodologies that came to the fore are connectivism, paralogy and rhizomatic learning. Pedagogies that ensure students are active participants in the learning process are imperative, and thus the current module has been developed from a heutagogical perspective, fostering co-creation of knowledge (Chetty 2013).

The economic and social climate demands that students have the ability to adapt to changes in the real-world context. Self-directed learning is, therefore, crucial in forming a holistic approach to life-long learning, reiterating the importance of heutagogy. The module, Clothing and Textiles Product Development, is aimed at addressing important concepts including writing a business plan for a product line in Africa; developing and complete specifications for the product line in terms of product design; costing, quality specifications; production planning; distribution; critically evaluating a business plan in terms of relevance, feasibility and innovativeness from self-evaluations and peer evaluations. The contributions to the field of Consumer Sciences are therefore theoretical in terms of learning methodologies, but also practical in terms of student (self) employability.

Keywords: Heutagogy, open distance learning, consumer science, fashion product development, fashion design curriculum

Introduction

Online course development and delivery are becoming more commonplace in the tertiary education landscape (Chao, Saj & Hamilton 2010). To develop an online course or module, several aspects need to be taken into consideration to ensure that the quality of the online course is of good standard. This paper proposes the development of a new module, namely Clothing and Textile Product Development (CTP4801), as part of the Bachelor of Consumer Science Honours Degree at the University of South Africa (UNISA). The honours qualification offers Consumer Science students the possibility to specialise in a specific field of interest, among others Clothing and Textiles. The need for the honours program to cater to various fields of interest together with industry requirements as stipulated by the changing social, political and economic environments led to the development of an additional elective module, namely Clothing and Textile Product Development.

The purpose of this paper is to consider the appropriate design for a postgraduate module as part of a qualification for a Distance Education (DE) environment. This will allow the students to acquire the relevant skills set and thereby preparing them for the working environment. The aim of the project is to achieve this via the development of Clothing and Textile Product Development, presented through a distance education approach. The following objectives were, therefore formulated:

- To investigate appropriate pedagogies for the development of an online module at NQF level 8; and
- To investigate appropriate technologies that will facilitate the delivery of the Clothing and Textile Product Development course content.

Literature review

The University of South Africa as a distance education institution

Unisa was founded in 1873, as the University of the Cape of Good Hope (Boucher, cited in Holmberg 2005, p. 30; Unisa 2016a). The vision of the university as 'The African University shaping futures in the service of humanity' (Unisa 2016a) reiterates the institution's aims to serve the African continent and thereby including their commitment to the communities and the individuals that they serve.

The university as an Open Distance Learning (ODL) institution is determined to provide admission to traditionally disadvantaged students (Unisa 2016b). The student population was initially the landless farmers from British India, the rapidly expanding mining community, the British and Boer soldiers that were involved in the Anglo Boer War, and prisoners (famously including Nelson Mandela), indicating that the institution aimed to provide opportunities to students who may not have attended a conventional tertiary institution. Currently, the university still provides access to previously disadvantaged communities within the historical context of South Africa, women and working individuals. However, a large portion of the university's current student population is first-time university entrants where Unisa is their first choice of study (Unisa 2016a). Consideration must be given to the diversity of the student population and the various levels of competencies of such students and provide support accordingly. Furthermore, these aspects should be considered along with Unisa as an institution of distance education and that the student and lecturer are separated from one another in time and space.

The model of teaching and learning has largely remained unchanged at Unisa as the university still focuses on independent correspondence study. However, recently, a 'blended mode of teaching' is being promoted. This means the use of mixed media as teaching methods, focusing on various modes of learning development, facilitation, as well as support through print and electronic media and additional face-to-face support opportunities. Unisa traditionally provided students with a study guide for a qualification, along with formal and informal printed materials in the study packages along with several brochures. This was supported by answering questions in an online manner, via e-mail and face-to-face advice in regional centres (Daniel, cited in Peters 2010, p. 57). However, the recent change to a 'blended' mode of teaching incorporates online learning in a more prominent manner. Some courses, including all postgraduate courses, are now offered in a fully online manner (Unisa 2016a).

Unisa now positions itself as an Open Distance e-Learning institute (ODEL) institute. As such, technology is seen as an essential part of supporting teaching, learning and assessment at a distance. Using technology, Unisa aims to add to the skills base of students who need to compete in a knowledge-driven global society. Furthermore, technological advancements allow for online communications that acknowledge the separation of space and time, while allowing for an ongoing dialogue between the educator and the student. This is a very important concept because it does not follow the traditional face-to-face mode of teaching, neither the traditional distance education mode of teaching, but rather fosters a new approach to teaching encompassing both dimensions (DHET 2012).

The Unisa 2030 mission statement prioritises technological infrastructure in the university's service offering, by aiming to be a leading student-centred ODeL institution through providing cutting-edge IT applications and platforms. The incorporation of technology should promote a service offering to the students that will allow for optimal learning experiences. Furthermore, by including such services, students are exposed to the workplace environment and the 'real world context' that may serve to enhance their employability. Thus, the ODeL approach reflects fundamental care for the student's experience during and after they have graduated.

Generations of technology

According to Heydenrych and Prinsloo (2010), there are various classifications of the number of generations associated with distance education. However, these models are all based in correspondence education in the early 1900s with the advent of the printing press. Subsequently, the different technological advancements relate to the various generations, along with the developments in pedagogy and the broader educational context.

Heydenrych and Prinsloo (2010) state that focusing exclusively on technology in the delivery of study material in the distance education context is severely limiting. The authors mention that while technology and the delivery mode of study material are important aspects, the role of pedagogies with the associated learning theories, the ownership of content, the type of interaction, the mediums available for institutions and students alike, how learning experiences are developed and produced, as well as how interactions take place is of paramount consideration. This then calls for a multidimensional perspective of the generations of distance education.

Unisa finds itself as an institution where the technology implemented for teaching and learning is that of Web 2.0 technologies. Educational technology is moving towards more personalised educational experiences built on the seamless integration of technology into the core curriculum. Furthermore, the digital products are becoming low cost and therefore, more attractive as options for inclusion, and lastly, higher education institutions should develop key digital learning strategies that prioritise the future (Abel 2017). Kirby (2016) states that the core principles of basic education have remained unchanged, but the delivery mode changes

to accommodate the needs and employability of the student. Pedagogies that ensure that students are active participants in the learning process are imperative for this to occur. The course design, the social context and the verification of technologies used for educational purposes illustrate a social constructivist perspective. This also reiterates that technology should be developed through design teams and in collaboration with an entire classroom environment to promote lifelong learning (Williams 2016). The next generation of digital learning environments must be a dynamic, interconnected environment that is ever-evolving within the community of learners, instructors, tools and content (Feldstein 2017). Unisa's students have various backgrounds in terms of access to and use of such technologies. The university should take cognisance of students' technologies while simultaneously implementing these practices when designing and developing course content because facilitation of the use of these technologies is paramount in the curriculum.

Defining the curriculum in an ODeL context

At the most fundamental level, the curriculum can be defined as a plan for learning (Van den Akker 2004) and constitutes prescriptive and descriptive curricula. According to Glatthorn et al. (2009), the prescriptive curriculum is the actual content planned for an intended program, whereas the descriptive curriculum is the actual experience encountered in the classroom. The authors conclude that curriculum is the plans made to guide learning, as well as the actualisation of the plans as experienced by learners as recorded by an observer. The components that constitute the curriculum consist of a set of planning documents to guide instruction which includes aims, objectives and content for achieving the objectives, instructional methods, learning materials, resources, and assessment methods. Mischke (2010) states that while academics enjoyed anonymity in terms of the curriculums they offered in the past, regulatory bodies such as the South African Qualifications' Authority (SAQA, n.d.), the National Qualifications' Framework (NQF levels), market demands, internationalisation of tertiary education and the changing student profile should all be considered when developing curriculum and that the process now requires accountability. Yang and Tian (2017) state that for distance education the teaching quality has become higher and therefore, the development of appropriate curriculum is crucial. The course construction should focus on the student as the centre of the activity, and the function of mobile learning should be maximised.

The Council on Higher Education highlights the following principles that must be met in terms of curriculum design, applicable to both contact, as well as distance education institutions, namely,

- that the curriculum must be fit for purpose in terms of mastery of curriculum and learning experience;
- that it must be flexible, i.e. the curriculum must be able to accommodate the diversity of educational context;
- there must be a diversity of pathways and duration which will be specific to undergraduate and postgraduate qualifications in terms of the duration of academic years;
- that the design of the curriculum must be based on the needs of the majority of the students;
- that the curriculum must accommodate the students' different level of preparedness;
- there needs to be flexibility in institutional implementation within the common adoption of the proposal;
- the curriculum needs to offer additional space which must be used for augmentation and not increasing the volume of the content;
- that provision should be made for curriculum enhancement; and
- that the curriculum must put student learning first (Ramdass 2016).

The process of curriculum development can, therefore, technically, only be cyclical in nature and can either focus on a very narrow scope or a broader level and encompass various stakeholders (Van den Akker 2004).

Unisa has a fundamental focus on the use of technology in their daily operations (Unisa 2015). As such, technology is seen as an essential part of the institution that is used in delivering and supporting teaching, learning and assessment at a distance (DHET 2012). This implies that curriculum in an ODeL context is the planned and experienced learning outcomes designed (intentionally and unintentionally). This should facilitate teaching and learn via electronic means at relevant taxonomy levels where the student and the lecturer are separated from one another, but this does not apply in the traditional sense of space and or time, rather in a new online ODeL experience.

A theoretical approach to curriculum development

The recent and ongoing technological advancements in the information and communication technology sectors specifically resulted in a change in the education sphere (Chetty 2013). The traditional structures of top-down pedagogies in distance education, especially, where students are expected to learn independently, can no longer be seen exclusively as the way in which learning occurs (Ashton & Elliot 2007). The initial approach to learning was that of pedagogy, i.e. the instruction of children where learning was standardised and arranged by an educator, the instructor also developed the curriculum on behalf of the learner where discipline and literacy were seen as preceding knowledge acquisition. A key concern regarding this approach for tertiary education is that it was developed from child education and the successful application thereof to adult learners is doubtful (Palaiologos 2011). Thus, andragogy developed from this criticism to focus specifically on adult education, characterised by learner control and a students' self-responsibility. The role of the educator is seen as a facilitator of learning by supporting the learner in the development of capacity building that is then related to self-directed learning (Palaiologos 2011; Hase & Kenyon 2000). However, this approach, as well as behaviourism, cognitivism and constructivism have also been extensively criticised in the design and implementation of the twenty-first-century student (Chetty 2013).

Educators need to (re)evaluate their traditional mode of delivery and consider how students think, gauge and solve problems, as well as how they communicate and manage their time (Ashton & Elliot 2007). Educators also need to be aware that within a global world, access to information depends upon transferable general skills as opposed to subject-related specific knowledge (Bright et al., cited in Ashton & Elliot 2007). Accompanying this concern is also the consideration of the changing global economic climate. Universities must re-think how quality tuition is provided in a manner that is affordable to students, yet remain profitable institutions (Ashton & Elliot 2007).

The roles of the educator and the student are now termed as 'double loop communication' with shared responsibilities of knowledge generation and acquisition between the educator and the student (Palaiologos 2011). Resulting learning methodologies that emerge are, firstly, that of connectivism, suggesting that knowledge is distributed across networks; and, secondly, paralogy, illustrating peer-to-peer collaborative learning; and, lastly, rhizomatic learning, describing multiple paths of learning and varying context of learning (Chetty 2013). While community-based learning involves a significant socially negotiated and integrated form of learning that promotes learner autonomy and self-directed participation where connections are built and grown between participants and relevant resources (Anders 2015). As an emerging approach to learning, heutagogy will be discussed as the basis for curriculum design, as it is deemed acceptable for the NQF-level outcomes associated with an honours level qualification.

Heutagogy

Hase and Kenyon (2000) define heutagogy as the study of self-determined learning, where the responsibility of the learning itself, rests on the learner. The learner is the person who determines what will be learned and how to learn. In other words, heutagogy is a process of self-directed learning that places emphasis on self-efficacy in a collaborative context, promoting problem solving (Anders 2015; Blaschke 2012). Heutagogy, therefore, developed from the initial pedagogy of instructor mediated learning to andragogy where the instructor takes the role as mediator of ultimately self-directed and self-determined learning (Blaschke 2012; Beacen et al. 2014, cited in Anders 2015). Hase and Kenyon (2000) state that it is important not to view heutagogy as a departure of andragogy, but rather an extension thereof, incorporating self-directed learning. Ashton and Elliott (2007) state that when students take responsibility for their own learning, it is more closely associated with how knowledge is adopted in a 'real-world' context and is therefore crucial for modern students. This may even be more so for students studying an applied science like Consumer Science, specialising in clothing and textiles.

According to Palaiologos (2011), with the change in roles of knowledge generation and acquisition, distance education is closer to achieving such a shift in learning than a traditional contact university. The proximity is due to emphasis on existing individual student participation and 'flexible learning', the main advantage of distance education. Rogers (cited in Hase & Kenyon 2000) states that there is a relationship that emanates from teaching and that a person cannot be taught directly, but the process of teaching may merely be facilitated. He continues to state a person will only truly learn what they perceive as the maintenance or enhancing of the self; that learning only occurs once the self is in a relaxed environment and the perception of the field of experience is differentiated from learning, where the threat to the self is minimised. This, therefore, means that people are encouraged and expected to acquire a complex set of attributes over and above skills and knowledge, the process and capabilities of self-directed learning is crucial, once again reiterating heutagogy as an important approach to learning (Ashton & Elliott 2007).

Even though the benefits of heutagogy promote lifelong learning and independent, problem-solving students in the real-world context, it requires a student to take responsibility for their own learning and thus needs mature, self-motivated students to learn and to receive a qualification (Ashton & Elliott 2007). What differentiates heutagogy from other learning methodologies in an ODeL environment is the development of confidence and competence in students to challenge interpretations of reality that may be in opposition to their views (Ashton & Elliott 2007). Heutagogy also fosters students an ability to know how to learn (Ashton & Elliott 2007) through self-directed, computer-based learning (Palaiologos 2011). Heutagogy, therefore, transcends mere problem solving through enabling proactivity (Hase & Kenyon 2000). This learning does not take place in isolation but includes the production of knowledge through collaboration within a social environment through networks (Singh, cited in Ashton & Elliott 2007). Ashton and Elliott (2007) reiterate that social environments are 'conducive to stimulating learning' and are crucial where knowledge generation and acquisition is shared by the educator and students.

Therefore, it is envisioned that to promote self-directed learning in terms of the qualification as a whole, the course content must be developed in relation to the Bachelor of Consumer Science Honours Stream qualification. Therefore, each individual module should be treated as a part of the curriculum that aims to satisfy the outcomes of the qualification. The modules should be developed in terms of clearly specified objectives that should be met to achieve the module-specific outcomes. The modules should be divided into units, each with its associated outcomes for the modules, but the manner in which the students should reach these objectives should be left to them to determine and to achieve, while the lecturer should

merely act as a facilitator in this process. Therefore, the students must assume the responsibility of self-directed learning to become co-creators of knowledge instead of being 'taught' a specific aspect of the curriculum in a certain way. If the students then become these co-creators of the course curriculum, then it is assumed that they will reach the competencies associated with the relevant qualification. Therefore, Clothing and Textile Product Development should enable the student to complete the module as per the specified module-related outcomes, but should further enhance self-directed learning and the ability of the students to adapt and apply this ability to other 'real-world' and or work-related scenarios as well.

Considering technologies

A debate within academia exists regarding whether media influences learning or whether media serves only as a mere mode of delivery. Richard E Clark is of the opinion that media will not influence learning, while Robert B Kozma is of the opinion that media does indeed influence learning. It is assumed that media acts as a mere mode of delivery and does not influence the student's achievement in terms of learning per se (Clark 1983). The basic premise of this argument is that if learning can be achieved through the delivery of various modes of media, then the media in itself is not responsible for the learning process (Clark 1983; Clark 1994). Kulik, Kulik and Cohen (Clark 1983) conducted a study and came to the conclusion that if the same instructor designed the same course, but changed the mode of delivery, the positive effect that media has on the outcome is almost negated. Clark (1983) states that it is, therefore, the ability of the instructor to present a well-designed and structured course that results in the learning of students and not the media that is used.

With this in mind, Clark (1983) very importantly states that certain elements of different media may serve as conditions to facilitate the learning process of students lacking in skills being modelled. This should not be misinterpreted in deeming that media will influence learning, but rather that systems of symbols that correlate to familiar media may serve as sufficient conditions for learning from instruction. These systems operate as vehicles for methods that reflect cognitive processes that are deemed necessary for sufficient completion of a learning task. As some form of media is required in the instructional process, so too must some symbol system be present in the learning process. Clark (1983) asserts, "Neither the medium nor the symbolic elements are chosen in the process influences the learning, but rather the critical features of the necessary cognitive processes that underlie the construction that is responsible for learning".

Based on this, incorporating technologies into the mode of delivery should serve to enhance the conditions of learning for the students and should not merely be introduced for the sake of the use of technologies. Schmidt (2018) states that lecturers must assess the advantages and disadvantages of technology tools before choosing the specific tool for incorporation into the course curriculum. Effective online distance education requires that the tools assist the outcomes of the qualification.

Since 2000, the world has changed radically, and new developments occur at an unprecedented pace with social networks, mobile platforms, apps, advanced analytics and big data, clouds and artificial intelligence all coming together. This can be labelled as the fourth industrial revolution. The revolution represents a paradigm shift where the manufacturing world is converging with the digital world enabling organisations such as higher education institutions to plan and produce their products and production facilities digitally (Bloem et al. 2014). According to Baird and Fisher (2006) students who were raised in the 'always on' world of interactive media, the internet and digital messaging technologies, resulted in various expectations of learning styles for this generation of student. This generation of net-centric students places great value on using the web to create a customised learning experience that

is self-paced and instant, through multiple forms of interactive, social and self-publishing media tools. The proliferation of the online social environment has resulted in challenges for teaching practitioners in terms of lesson planning, structure and content, which may be mediated through enabling a heutagogical approach (De Freitas & Neumann 2009).

For students to stay actively involved in the teaching and learning process, there should be adequate opportunities for engagement in terms of assessment opportunities and activities by the students. This can be achieved through scaffolding the structure of the online teaching and learning environment, namely procedural scaffolding (the navigation of the course in the online environment), metacognitive scaffolding (tools in assisting students in planning, monitoring and evaluating their work and progress), conceptual scaffolding (strategies that assist students with the understanding of the course content) and lastly, strategic scaffolding (instructional support from the lecturer, timely and ongoing student support) (Stavredes 2011).

For Clothing and Textile Product Development, the scaffolding approach thus requires that the module should be developed in a manner that is easily navigated in the online environment. The students must be guided through the online environment. For students that have been studying at Unisa, this orientation might not be necessary, but the Consumer Science Honours qualification admits students from traditional contact institutions as well, and therefore this orientation is crucial. Because the course content in the online environment is available from registration of the module, the online environment might seem overwhelming to the students. Clothing and Textile Product Development should include a time schedule and an explanation of the expectations of the students in terms of the teaching and learning environment and assessment opportunities. The second component is concerned with the metacognitive aspect. Clothing and Textile Product Development should have a detailed schedule of due dates, assessments, and what is expected of the student to assist them with time management and planning activities for the module. Students will be monitored in the module in terms of their progress. The online nature of the module requires online discussion and collaborations, which must be monitored to encourage student participation and assist in the learning process. Marks awarded for assessment opportunities will serve as a guide to measure formal progress. Struggling students will be identified, and relevant mediating strategies will be employed, such as contact sessions, phone conferences, additional notes, support, among others. Because the module will be designed based on heutagogy, it is imperative that students also evaluate themselves to determine their progress, and, thus, self-reflection and self-evaluation will be incorporated into the module to achieve this.

Conclusion

The current economic and social climate in which students (people) find themselves, therefore, requires the ability of self-directed learning. The acquisition of the ability to learn and the fostering of proactivity may be deemed more important than relevant subject-specific knowledge, in some instances, but will be necessary for all instances to negotiate the ever-changing real-world landscape successfully. Students need to have the ability to adapt to changing demands in the real-world context, and therefore the development of self-directed learning is crucial in forming a holistic approach to life-long learning. This renders heutagogy imperative as a learning methodology regarding a postgraduate qualification.

When developing a course or a module, the capacity of modern technologies and the needs of the students are key considerations for development (Chen 2007). To accommodate the honours student, technologies must provide relevant exposure to the online environment that an advanced degree requires. Clothing and Textile Product Development does require a physical production of garments, but taking into cognisance the module outcomes, attending

a practical session in one designated location may not be optimum. Therefore, technologies should be used to mediate this concern. Students can produce their garments and create visual evidence that can then be sent to the lecturer and fellow students for assessment opportunities using various technologies.

A contribution can be made towards the social environment of South Africa and that of the economy of the country by equipping students with the ability to acquire new knowledge, to learn various skills pertaining to contextual factors through means of self-directed learning and associated competencies. All of these aspects should result in equipping students with the relevant competencies to become active participants in the country.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Student Photography and Ethical Clearance: Do we need a tailored code for research ethics?

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Abstract

In an earlier paper presented at a DEFSA conference, Munro called for a debate on and the development of a research ethics code tailored specifically for design – as opposed to simply importing, applying or borrowing ethical principles applicable (and as such possibly more suitable) to the medical and scientific disciplines.

The aim of this paper is to advocate likewise for a tailored research ethics code, but, more comprehensively, aimed at researchers working in the fields of art, design, as well as photography.

Informed consent, participant anonymity and non-maleficence are well-established ethical requirements in the medical and scientific research environments. These requirements have likewise become mandatory for postgraduate art, design and photography students at some South African local universities.

The South African Constitution and the Press Code provide a valuable reference for change, as well as creating and upholding relevant ethical, societal conditions for its people. With reference to these, we support our arguments for a tailored research ethics code by indicating how the needs of a documentary photography research project, conflict with the research ethics requirements of a university research ethics committee (REC). We further illustrate this conflict by debating a photographic documentary case study on religious doctrine and liberal society.

We conclude by arguing against the strict application of medical ethical requirements to research projects in art, design, and photography research projects. We should consider moving towards a tailored ethical code, influenced by Hutton's Radical Moralism, and ideals enshrined in the Press Code.

Keywords: Ethics, freedom of expression, controversial subjects, research ethics, ethical clearance

Introduction

Allan Munro (2011) presented a paper on ethics and design research at the 2011 DEFSa conference. In his paper, he lists and discusses universally ethical principles and highlights that research ethics are not strictly regulated – unlike various other areas that are methodically controlled and directed by means of the promulgation and enforcement of legislation, codes of conduct, and regulations. He further indicates how research ethics are nonetheless fundamental in the morality of research practice. His paper highlights that research ethics is well established in the natural and social sciences, but that research ethics is still in its ‘infancy’ in the arts and design. He conveys a concern that institutions may or sometimes do elect to impose ethical requirements and practices on art, design and photography borrowed from other domains. He further argues that the ethical requirements of the natural sciences may have principles that may or may not be applicable to design. Munro concludes by calling for a debate on, and the development of, a research ethics code tailored specifically for design.

This paper aims to contribute to this debate on a research ethics code tailored for design but includes art and photography in the discussion as well. We argue that research practice in art, design, and photography may indeed require a code of ethics tailored specifically with our disciplines in mind. Both the South African Constitution (1996) and the Press Code of Ethics and Conduct for South African Print and Online Media (2019) (hereafter referred to as the Press Code) provide a valuable reference for change. We illustrate our arguments by discussing how the needs of a documentary-photography research project conflict with the research ethics requirements set by a university research ethics committee (REC). Researchers must obtain permission from participants, must guarantee their anonymity to the extent necessitated by the research, must aim to do good, and must avoid harm. Documentary photography and design activism, e.g. Dean Hutton’s *Radical Moralism* (Cockerill 2017), are, for example, two practices that appear as opposing ideas to research ethics. Documentary photography does not necessarily obtain informed consent, and design activism (i.e. *Radical Moralism*) does not shy away from potential harm.

We will first comment on the ethical principles of informed consent and non-maleficence and then reflect on Hutton’s *Radical Moralism* before arguing why we need a tailored code for research ethics in art, design and photography.

The Belmont Report (1978) and the Nuremberg Code (1949) were seminal in the establishment of moral and ethical guidelines in medical research. Today, independent evaluation and ethical approval of medical research projects is standard practice. Ethical standards in medical research must further conform to the zeitgeist of a human rights-centred, liberal society. Referring to the protection of patients in medical procedures, Capron summarised medical consent aptly when he stated, “That cause of action embodies the precept that, just as a man’s home is his castle, his body is his temple, and no one – not even a priest of medicine – may enter without his consent” (2018, p. 15). The foundations of research ethics that involve human subjects are found in the medical milieu. Informed consent, non-maleficence, considering the potential harm and benefit ratio and protecting the rights of participants – such as their right to withdraw, as well as their anonymity and/or the non-disclosure of their identities – are some of these key ethical medical principles.

Importing principles from the field of medical ethics – as an expeditious recourse, certainly – nonetheless begs the following important question: Is medical ethics really relevant and appropriate to research projects in art, design, and photography? And if so, to what extent? Are the consequences, the maleficence of neglecting to obtain informed consent or gatekeeper permission when, for example, visualising conflict between religious doctrine and liberal society, the same as maleficence in medical malpractice? It may be obvious that the

answer is no. It follows logically then to ask if ethical requirements, derived from medical research, are equally applicable to research practice in art, design, and photography.

We will now commence to comment on some ethical principles and reflect on Hutton's *Radical Moralism*, before arguing why we need a tailored code of ethics for art, design and photography.

Ethical principles, Dean Hutton, the Constitution, and the press code

Harmful medical experimentation during and after the Second World War gave rise to several ethical codes, conventions and declarations that now guide research practice that involves human participants. The most prominent are The Belmont Report (1978), the Declaration of Geneva (1948), the Declaration of Helsinki (1964), (1978), the Nuremberg Code (1947), and the United Nations Universal Declaration of Human Rights (1948). A central thread throughout these codes and declarations is the protection of individuals and, among other things, the prevention of abusive practices as regards research participants. Fischer (2006), in this regard, provides an informative background to, and summary of, most of these declarations and codes. In South Africa, the Department of Health's publication titled *Ethics in Health Research* places a strong emphasis on protecting participants (South Africa 2015), while the Human Sciences Research Council's (HSRC) *Code of Research Ethics* promotes the rights and dignity of research participants (HSRC 2006).

Informed consent is a key ethical research principle in all instances where human participants are involved. Consent is only possible if a potential participant received detailed and easy-to-understand information about the project, as well as the potential risks and benefits. Gatekeeper permission, similar to informed consent, is required when a researcher wants to collect data but require permission to access a building, a gathering, or even an open-air venue. It would be unethical from a research ethics perspective, for example, to photograph a religious gathering that takes place in an open-air venue unless the organisers of the activities provide gatekeeper permission. Collecting and publishing data about people without their consent, or without gatekeeper permission, may cause harm by damaging their reputation or stigmatising them. Research must further aim to do good (beneficence) and to avoid harm (non-maleficence). Beneficence is also a deliberate process that "should seek to improve the human condition" and "If the research cannot do this, then it is unlikely to be ethical" (South Africa 2015). University research ethics committees are unlikely to issue an ethics clearance certificate unless participants are adequately informed, participate willingly, can withdraw at any stage from a project and are shielded from unnecessary harm. This does not just apply to medical research, but also to projects that aim to photograph people that participate in closed or even public religious activities.

The conflict between informed consent and non-maleficence becomes obvious if a documentary photography project aims to expose poor labour practices. An employer will not provide consent, nor gatekeeper permission, to a researcher who seeks to record poor labour practices in a factory. The images, when published, will harm the employer. Similarly, photographing people that participate in cultural or religious activities may damage their reputation if such images portray the photographed subjects in a negative light.

A good example of a postgraduate study that caused harm to some is the work by Dean Hutton. The work by Hutton, a master's degree student in fine art from the University of Cape Town, encountered resistance and a legal challenge from the Cape Party, a regional political party. Hutton (n.a.) is a genderqueer, trans, media artist and uses the prefix 'they' or 'their' with reference to the artist. Hutton displayed their work *Fuck White People* in 2016 at the Iziko South African National Gallery. The work of art consisted of a black and white poster in bold, capital letters repeating the potentially sensitive and contentious statement several times

across the poster. A chair and a set of gold-coloured shoes were placed in front of the poster. Hutton's work is not derived from data that they collect from any particular person or persons, so informed consent does not apply. In *Cape Party-Kaapse Party vs. Iziko South African National Gallery* (2017), Chief Magistrate Thulare, who presided over the case, made the following comments:

Hutton is a master's student, and the work is part of their research in fulfilment of a programme for their degree in Fine Arts and was meant to elicit responses, comments and dialogue in furtherance of their research. The work is Hutton's artistic creativity and part of their academic and scientific research. Even if it were to be found to be unfair discrimination, which it is not, it would be saved from prohibition by the proviso to section 12 of the Act.

The work in general and the words 'Fuck White People' in particular as used by Dean Hutton in his protest art is not unfair discrimination on the ground of race as envisaged in section 7 of the Act. It is not hate speech as prohibited by section 10 of the Act, and its dissemination, publication and display by the respondent are not prohibited as envisaged in section 12 of the Act.

Chief Magistrate Thulare found that the 'pain' experienced by a specific homogeneous sub-group of society (white people) is of lesser importance than free speech in a liberal society.

Journalists and artists enjoy the rights and freedoms that the South African Constitution provides in Section 16(1) when it refers to the freedom of expression, a free press, freedom to impart information or ideas, artistic creativity, as well as academic freedom and freedom of scientific research (1996, p. 7).

The Press Code adopted a code for print and online media that gives effect to the Constitution. Per the Constitution and the Press Code and within its restrictions, visual artists are therefore free to comment on social issues even if it is controversial or offensive. Here again, we should nonetheless consider (Constitution, Section 16(2)) that the right of freedom of expression does not extend to propaganda for war; incitement of imminent violence; or advocacy of hatred that is based on race, ethnicity, gender or religion, and that constitutes incitement to cause harm.

The function of universities of technologies (UoTs) is to prepare art, design, and photography students to practice their skills in commerce and society. Is there not a need to align research ethics codes with the ethics of practices in business and society?

Research ethics requirements and its conflict with practice

The arguments presented in this paper are a response to the conditions set by the Tshwane University of Technology Research Ethics Committee (REC) for a qualitative photography research project. The project centred on the visualisation of conflict between religious doctrine and liberal society. The TUT REC required that those that are photographed must provide informed consent and that organisers of events provide gatekeeper permission. Also, the TUT REC prohibited the identification of individuals that appeared in public events. However, the TUT REC did allow the depiction of religious leaders in public. The restrictions are to protect attendees from possible stigmatisations and potential harm.

The TUT REC clearance certificate indicated the following:

- The researcher will duly obtain gatekeeper permission to enter and photograph in places of worship from its owners/custodians;
- Informed consent will be obtained from each individual (i.e. adults) being photographed in the places of worship, especially when such individuals are potentially identifiable;

- Where religious activities are in public and photography is allowed or encouraged, the researcher will take photographs in such a way that private persons are not identifiable; if private persons are identifiable, informed consent will be sought;
- When religious leaders appear in public in their capacity as religious leaders, and the photographing of them is allowed or encouraged, such photographs shall be included in the study; no permission will be sought for such photographs; and
- Children (i.e. legal minors) will not be photographed without parental consent and child assent; photographs of children will be taken in a way that does not render them identifiable.

Although these restrictions are not extraordinary, one may also assume that the sensitive nature of the research (critiquing religious doctrine) and the conflict seeking nature of the project, contributed to the specific restrictions. Research projects of this nature are often from a socially critical perspective. Several authors in the South African design community contributed to the discussion on the social role and function of visual communication research. They refer to the understanding of large-scale societal problems, such as sustainability, economy, politics and culture, in addition to the commercial role of photography and design (Fenn & Hobbs 2015, p. 131); the objectification of women (Economou & De Lange 2015); and the concept of ubuntu (Chmela-Jones 2015). Munro (2011) highlights the responsibility of design to act in a problem-solving capacity, thereby effecting change and improving society, while Cadle and Kuhn (2013) expounded on affirmative design and critical design.

Art, design, and photography departments at universities train students to become social commentators through art, design, and photography. Photojournalists would typically comment on social issues such as religion (see for example Maviya's 2018 article in the *Mail & Guardian*). The principle of professional journalism and photojournalism strives to benefit society by doing the greatest good for the greatest number of people (Kobré 2008, p. 354). Essentially the media exists to serve society by providing and interpreting information that assists in informed decision-making (Retief 2017, p. 5). This information consists of that which is in the public interest because it shapes policy and affects the population to a lesser or greater extent (Retief 2017, p. 5). Importantly, this right to disseminate information is not limited to the media but extends to the whole population (Retief 2017, p. 5). Social comment, therefore, predicated on both the right to freedom of expression and the right of the public to know and to be informed. This entails that conflicts of privacy or sensitivity will arise from time to time. It is even conceivable that student photographers may become part of the paparazzi, that thorn in the side of all celebrities and public figures. Artists such as cartoonist Jonathan Shapiro; painter Ayanda Mabulu; photographer, performance artist and activist Dean Hutton; and activist Sebastião Salgado (2013) contribute to public discourse by depicting topics and subjects that address socially relevant issues. Although constitutional democracies hold freedom of expression in very high regard, it requires balance with other rights such as the right to privacy. The South African Constitution likewise has several limitations built into the Bill of Rights that should be considered when interpreting the fundamental rights enshrined therein.

Photography students who wish to use their photographs and work to reflect critically on society (as Hutton, Mabulu and Shapiro do with their respective creative media) cannot depend on the cooperation of those that they mean to critique. Can we sincerely and honestly be expected to obtain informed consent or gatekeeper permission when the resulting images, designs or works of art are critical of the subject, the topics, and affect the reputation of the subject or organisation?

Depicting the conflict between doctrine and a liberal society

In an attempt to visualise conflict that exists between religious doctrine and liberal society, a photographer must photograph examples that represent this conflict. Homosexuality is such an example. The Bible is critical of homosexuality; some religious people are outspoken against homosexuality and society reflects this homo-aversion in discriminatory laws (scripture + belief + behaviour = doctrine). For the documentary photography student to illustrate this conflict, the hypothetical photograph would need to contain the visual elements that communicate religiosity, homosexuality and conflict. A literal hypothetical photographic example representing this conflict could be a religious official arguing with someone at a Gay Pride parade. The official could be dressed in such a way that it is obvious that they represent a religious order. The collective visual clues at the Gay Pride parade could confirm the sexual orientation of the person the official engages. The photograph would also need to capture emotional facial expressions. Such a photograph could very easily represent the conflict between religious doctrine and liberal society.

However, the ethical restrictions set by the TUT REC problematise the above scenario because the gatekeeper permission restriction may prohibit the photographer from entering the Gay Pride parade (if it takes place on private property). Even if the event takes place on public property where journalists (or anyone) are within their rights to take photographs of anyone, there is still the matter of informed consent.

Informed consent requires everyone who appears in the photograph to give their permission before the photograph may by right be published or otherwise disseminated. If the opinion of our fictional photography student favours the liberal zeitgeist, then the image in the magazine would stigmatise the religious official as homophobic. In contrast, if the image favours the official, then it would convey a message that homosexuality is wrong or repugnant. It is, therefore, unlikely that the photographer will receive the required informed consent of all the parties to publish the photograph. Someone in the photograph risks public stigmatisation or criticism. The professional practice of photojournalism does not require informed consent. The journalist may publish a subjective opinion and be protected by the freedom of speech, freedom of association and other constitutional rights. The general principle of the 'greater good' and 'in the public interest' applies. Johan Retief, a former Press Ombudsman (November 2009 – March 2019), makes it clear in *Decoding the code sentence by sentence. Explaining the code of ethics and conduct for South African print and online media*, that the media exists to serve society (Retief 2017, p. 4). By the standard of serving society, any citizen, with or without photographic training, in or out of academic context, professional or amateur, may produce the same hypothetical photograph and comment on religious doctrine and homosexuality. When private citizens appear in public, the Constitution does not protect them from identification and fair criticism. This is fundamental to a constitutional democracy. Children, however, as a sub-category, are especially vulnerable to undue exposure or exploitation. Stricter ethical principles than informed consent and gatekeeper permission apply. A parent may permit a photographer to depict their child, but how would the child respond to such an image in future – in particular, if the image depicts them contrary to their wishes?

The conflict between the stricter research ethics committees' ethical requirements and the 'allowable' ethics of the Press Code is illustrated below. Figure 1 depicts an attendee of the It's Time event hosted by Angus Buchan in Pretoria on 27 October 2018. Consider the following hypothetical criticism of the person in the photograph as a test of stigmatisation.



Figure 1. Be

Religious fervour overwhelmed the woman in the photograph. She was in a trance-like state and shouted continuously. Although she also spoke in English, she switched to an incomprehensible chanting that sounded like a language. Earlier, before this photograph was taken, she formed part of a group of people that 'healed' a person in a wheelchair by praying for him and speaking in the same strange language (Figure 2). To some attendees of the event, this behaviour may seem normal and illustrate the strength of religious activity in South Africa.



Figure 2. Healing hands

In contrast, a secular perspective may view the behaviour depicted in Figure 2 as irrational or even irresponsible. Would such a criticism stigmatise the people depicted in the images? Although it may seem as if a sceptic criticises the person, it is the idea that receives the criticism. Should the identification of a person that holds an opinion in public be protected, and should such a person provide consent before being photographed? We can counter-argue and conclude that the answer is yes. Did the attendees come to the event to be photographed, to be critiqued and to be stigmatised, or did they come to participate in a religious activity?

Informed consent and public figures

The TUT REC waived the informed consent restriction for religious leaders. It held that:

When religious leaders appear in public in their capacity as religious leaders, and the photographing of them is allowed or encouraged, such photographs shall be included in the study; no permission will be sought for such photographs ...

Research Ethics Committee requirements would thus allow a postgraduate photography student to depict a religious leader without permission and with the potential of stigmatisation. The Press Code, in contrast to research ethics committee requirements, seems to make no distinction between the rights of a public figure and a private citizen. The Press Code, in section 3, specifically addresses Privacy, Dignity and Reputation by categorically stating that: "The right to privacy may be overridden by public interest...".



Figure 3: Angus Buchan and the camera

This provision in the Press Code appears to be vague and in danger of being too liberally interpreted. For instance, section 3.1 of the Press Code seems to imply that it is justified for a photojournalist to walk into a church and start taking photographs (paparazzi style), if in the public interest. Since most churches welcome anyone to attend, the paparazzi photojournalist may not technically transgress the Press Code until the church requests that the photographer desists from taking photographs and leaves. The right of admission is assumedly reserved for religious activities. The conduct of the photographer will clearly interfere with the events and rituals of the service.

The presence of cameras in Figures 1 and 3 adds another dimension to the arguments of this paper. Private citizens could not have a reasonable expectation of anonymity as they are aware, and can see that they are captured on video for public transmission at a later stage or even during a news event. Attendees of religious activities in a building, however, have a reasonable expectation and right to privacy. Conversely, the proliferation of cell phones with cameras and the social media culture and the zeitgeist of image sharing online, suggest that private citizens in public spaces cannot have a reasonable assumption of anonymity. To this end, the presence and the behaviour of private citizens as participants of certain public events could imply consent.

Conclusion

Are the ethical requirements of informed consent, anonymity and non-maleficence for a person in a public event, the same for a participant in a medical research project? These ethical principles are non-negotiable in medical research, but they are not necessarily required in the professional practice of photojournalism. To identify persons, and to provide a valid critique of undesirable practices, are commensurate with constitutional freedoms.

This paper submits that the risk of harm (by way of stigmatisation) of private citizens when their behaviour is critiqued may be justifiable in the context of the Constitution and the Press Code. At the same time, we take cognisance of the fact that a university research ethics

committee has higher standards and may not summarily provide ethical clearance for a project if the outcome would cause undue harm.

We, furthermore, submit that the Acts governing trespassing, consent, harassment, hate speech and slander could be sufficient to protect private citizens. Ethical restriction (informed consent and identification of individual persons) should not apply universally (the blanket approach) to students for 'interpretative social science field research' (Lie & Witteveen 2017, p. 66). To apply this restriction would eliminate the sub-genre of street photography in visual communication studies, which is well suited to make visual and creative comments on social issues. Street photography is candid and impulsive, and there is no engagement between photographer and subject on the street.

Lie, and Witteveen (2017, p. 63) argue, "Appropriate ethical behaviour is thus deemed to have different relevance in social science research practices and development and social change interventions". While they acknowledge that social research affects participants, they contend that the "conceptualisation of 'harm' is unfortunate" (Lie & Witteveen 2017, p. 63). They balance 'no risk of harm' with 'the right to be informed'.

The visual communication student is not just a dispassionate collector of data but also an active participator, an instigator, an activist in critical social discourse. The identification of private citizens for research on social issues balances the right to privacy with the accountability of beliefs and actions. This will necessarily cause a degree of 'harm'.

We conclude by arguing against the strict application of medical ethical requirements to research projects in art, design, and photography research projects. We should consider moving towards a tailored ethical code, influenced by Hutton's *Radical Moralism*, and ideals enshrined in the Press Code.

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Representations of Agency for Female Documentary Subjects in Selected Films on Netflix

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Abstract

Communication design for documentaries is changing with online distribution through global platforms like Netflix. Actuality and entertainment are increasingly often elided in a single program, which confuses the genre categories that tend to underpin the scholarship of documentary as a field of study distinct to that of entertainment. Certain programs are marketed as documentary/docu-series alongside fictional 'based on real events' stories and fiction but are constructed as much through significations used in pure entertainment as through those associated with informational and educational media. The paper explores the relationship between factual information and tools of fictional mediation through an analysis of three Netflix films that use documentary styles and forms to focus on issues of gender, while also creating the narrative tension usually characteristic of fiction films.

'Mercury 13' is about female pilots tested in the 1960s to be astronauts but not sent into space due to political issues. The docu-series 'The Keepers' is about the 1969 unsolved murder of Sister Cathy Cesnik, a Catholic nun and high-school teacher possibly killed by a sexual predator. 'The Staircase' is about the trial of Michael Peterson, an author accused of murdering his wife, Kathleen. The paper interrogates to what extent and in what ways the women around whom the films revolve are signified as active, subjectified agents rather than as passive, objectified victims. 'Agency' is approached from the perspective of psychology: through the lens of 'conation' as mental process, which stands alongside the psychodynamic constructs of 'cognition' (intellectual understanding) and 'affects' (emotion). From this perspective, the paper explores whether and how the docu-subjects are represented through discrete visual and aural significations and narrative construction as people who engage or focus behaviour and action, and exhibit intrinsic motivation, goal-orientation, volition, will, self-direction, and self-regulation in ways that countermand assumptions that the women were merely the passive victims of a sexist society.

Keywords: Interaction design, media, gender, documentary, agency, conation

Introduction: Representations of agency

'Agency' as a political notion plays a central role both in discourse-based scholarship and in media studies curricula, especially in courses that deal with equality. As Cole (2019) asserts, such agency lies in tension with social structures, and healthy social order requires all individuals to co-operate, which in turn gives meaning to all individuals in the social system while still allowing them the ability to make decisions and express themselves in unique ways. Scholars of the politics of media and lecturers of media studies often argue in somewhat skewed terms that circumstances seem irredeemable to deny agency to impoverished and oppressed groups, that may appear forced to submit to the rules of social systems because of lack of access to resources or freedoms known by the more privileged groups. Unfortunately, approaches that focus on the *fact* of social inequality more than on how individuals and groups respond *dialogically* to it fail to acknowledge that agency exists in many forms among disempowered people. These people are not irrevocably enslaved by dominant power dynamics but can continue to either legitimise or deny the existing social system or can create new meaning to the social order and relationships by changing the system for themselves or their group. Examples include civil rights movements all over the world to legitimise and recognise same-sex marriages (Cole 2019) and the rise of the #metoo and #pussyhat movements that demand women's equal place in society.

Agency as the ability of individuals to marshal their thoughts and actions with the intention to shape their own experience and bring meaning to life is aligned with rather than subservient to social change, and depends both on the ability of individuals and groups to 'do' and on the shared understanding of their ability based on public visibility. This visibility is expressed through political rallies reported in the news media and through social media that allows people who feel marginalised to report circumstances and express opinions directly, thereby expressing their views in both political and personal terms. An exclusive scholarly and pedagogical focus on politicised fact-based media, however, ignores how entertainment allows audiences to experience the lives of others, both real and fictional people, vicariously in immersive and potentially powerfully socially transformative ways.

Albeit subject to socio-economic limitations that deny access to the most marginalised groups, global online entertainment platforms like Netflix arguably open a wider range of audiences to a broader range of experiences. By contrast to the more overtly and often militant stories around ethnicity, sexuality, sex and gender found in prescriptive political news media and social media's 'echo chamber', which are often accused of reflecting voices primarily back to their own interest groups without changing the recognition of people's worth in a broader sphere. More focus is necessary by scholars and media studies teachers on the communication design mechanisms through which new entertainment consumption platforms serve up powerful democratising tools for a more systemic naturalising of new and positive norms that influence the constituencies of both those seeking political validation and those unaware of or even antithetical to these goals.

Documentary, media effects and tools of analysis

Documentaries on online distribution channels are offered via an interesting new style of interaction design enabled by how audiences search for material by 'types' of show. Traditional film and television listings specify what type of show is available and when a particular one will air, as per time slots dedicated to either fact-based or fictional content. This framing pigeon-holes documentaries as 'actuality', and by implication, therefore as a form of news. Online distribution platforms like Netflix, however, increasingly list documentaries as part of an 'entertainment' line-up, intermixing fictional 'based on real events' stories with fiction, as well as with traditional documentaries in less easily demarcated story types.

Netflix categories confuse the genre categories that media scholars and teachers rely on and that separate documentary-as-fact from fiction-as-entertainment, which in turn adds a new context for Eitzen's (1995, p. 84) now well-worn problematising of Bill Nichols' (1991, p. 12) framing of documentary as mere reality-made-manifest through "the use of conventional means to refer to, represent, or make claims about historical reality". Such a definition does not sufficiently distinguish non-fiction from fiction films that also make references, representations or assertions about historical fact. It also re-invigorates Eitzen's problematic of the distinction between documentary and fiction that Carl Plantinga's (1989, pp. 25-40) bases on the argument that although both set out a world for audiences to experience, only non-fiction films make assertions about that world. This is inaccurate since, like documentaries, fiction films also represent a fact-value about the 'real' world through representing actual (albeit fictionalised) places and people. As Eitzen (1995, p. 96) argues in ways that are now equally relevant to the new online offerings, whether a film is documentary or fiction depends not on its listing category, but on the audience, since "documentaries are presumed to be truthful, even though considerations about the veracity of particular assertions may play little role in how viewers actually make sense of them" (Eitzen 1995, p. 88). This is important since "it is not the representational or formal aspects of a movie that determine whether viewers 'frame' it as a documentary" (Eitzen 1995, p. 96). Instead, what counts is "a combination of what viewers want and expect from a text and what they suppose or infer about it on the basis of situational cues and textual features" (Eitzen 1995, p. 96).

Netflix's presentation of fiction, non-fiction and partly-fiction alongside one another means that audiences are likely to expect documentaries to be both actuality *and* entertainment, and that these shows are best explored in terms of media effects theories that acknowledge that documentary is not by virtue of its form a separate 'actuality' genre of film to fiction (Bryant, Jennings & Oliver 2009). Agency in Netflix documentaries therefore cannot effectively be understood in terms of theories historically applied to factual media and phrased primarily in political terms, for example the Agenda-setting theory (McCombs 1972; McCombs 2004), Cultivation theory (Gerbner, Gross, Morgan & Signorielli 1986) and spiral of silence theory (Noelle-Neumann 1993). Nor can representations of agency adequately be explored exclusively through analytic tools usually applied to fiction cinema, which focuses on how actors and film grammar replicate the subjectivities of characters by manipulating how the audience perceives the reality depicted (Bordwell 2013). Neither of these approaches alone accounts for fact-based films marketed through online platforms that use fiction film grammar and that are listed alongside fiction and partly-fiction shows. This docu-tainment is more than ever like fictionalised fact rather than longer-form news whose veracity can be assumed merely on the basis of the nature of the medium.

Viewers are even more likely than with non-internet-based forms of media presentation to experience these in similar ways to how they experience fiction: through the formation of empathic engagements (Nathanson 2003) with documentary subjects as takes place with fictional characters on the basis of a suspension of disbelief. These empathic engagements do not derive from simple intellectual digestion of facts, but instead (at least in part) from emotional engagement with the overall reality the films present, which is revealed through a tri-level schema for analysis suggested by Bartsch (2008) that acknowledges the role of audience engagement and expectation around meaning-making in the process of reception of the subject-matter of the documentaries. In terms more appropriate to the Netflix films as docu-tainment than alternative abstracted discourse analytic techniques, her framing acknowledges audience engagement with the agency of documentary subjects by avoiding a focus on 'what the film says' as purported fact. Instead, with a focus on 'feeling with' docu-subjects/characters during reception as is appropriate to an exploration of agency, it allows for an analysis of the film grammar, the story as a whole, and the social environment in which the film is watched.

The cues to meta-emotion for this are found in the documentary styles and forms:

- the aesthetic representation of emotions; and
- the narrative context of emotions;

The cues are also found in elements usually only substantively explored in fiction films:

- symbolic elements that refer to cultural norms and values concerning emotions.

This allows for an analysis of how women in Netflix documentaries are represented as possessing agency (or not), through an explanation of the films that reveals more than what docu-subjects are reported as doing. It allows a view of how agency manifests as the thoughts that result in actions taken by people or groups (i.e. the docu-subject women in the films) with the intention to shape their own experience and make personal meaning. This, therefore, reflects agency as a subjective orientation that references the power and volume of women's voice in culture but is more psycho-social in focus. Through this lens, agency is thereby phrased as a personal characteristic that might have important political ramifications rather than a political statement with more minor personal associations.

Analysis

'Mercury 13' is about female pilots in the 1960s tested to be astronauts but not sent into space due to politics. 'The Keepers' is a docu-series about the 1969 unsolved murder of Sister Cathy Cesnik, a Catholic nun and high-school teacher possibly killed by a sexual predator. 'The Staircase' is about the trial of author Michael Peterson, who is accused of murdering his wife, Kathleen. The female docu-subjects are characterised with wildly differing levels of agency: 'Mercury 13' presents women as heroes who have determination and persistently strive to define a new reality for themselves as female pilots; 'The Keepers' on the other hand, presents the female documentary subjects as helpless victims with little agency; while the women in 'The Staircase' are persistently absent, which nullifies agency *in toto*.

'Mercury 13' – (women as hero)

Emotion-revealing aesthetics

The female docu-subjects are represented as strong, assertive, determined and resourceful through aspirational visuals of their flying planes in an open sky, or standing next to planes in postures of authority and ability. These images are often accompanied by direct commentary from the women in their own voices making strong assertions of what they wanted to achieve. For example, the opening voice-over states, "Most harmful behaviour is based on fear, protecting one's perceived position in society, protecting one's territory or physical wellbeing, but progress is inevitable". Later, one of the women states, "I didn't tell people I was going to be an astronaut, I just did it", while another states "Someone has to start the fight to change opinion, someone has to lead the way". These are clearly explicit demonstrations of their persistent agency.

Emotion-framing narrative

In the narrative's three acts the 'Mercury 13' women are introduced, then an account is given of how they were selected for the NASA training programme for astronauts but then denied, and finally it is recounted how, despite what happened, they have never lost their ambitions and passion for flying planes, a stance that is underscored by a comparison between them and

the next generation of female astronauts who were given chances that the 'Mercury 13' women were denied. The 'good old boys' network' is acknowledged but not foregrounded so as to make the women victims. Instead, their voices sound powerfully against the corrupt system, and assertively about their abilities to compete for a place in the space programme and their abilities as pilots, all of which shows their powerful agentified positions.

Symbolism revealing norms and values around emotions

Throughout 'Mercury 13' symbolic imagery such as official buildings and American flags represents patriarchal state institutions such as NASA and the US government, which at the time stood in the way of the women fulfilling their dreams of space travel. These images are presented at places in the story that underscores how the women appear undefeated in spirit despite not managing to complete the NASA astronaut training programme. Further, the use of symbolism in dialogue highlights a clear sense of their agency and determination to define their own reality despite the system. This is clearly indicated by two closing commentaries. The first states, "I have to imagine I'm not a jet, I'm not a person, I'm a spirit going up". The second is Wally Funk, one of the key docu-subjects, who states, "To the youngsters today, get yourself into space, be an airline pilot, be a flying instructor [...] if that's what you want to be, do it 'cause that's what I live".

'The Keepers' – (women as victim)

Emotion-revealing aesthetics

Most of the seven-part documentary shows close-up visuals of the female docu-subjects and those associated with murder and abuse cases. The visuals are generally dull and grey and are generally accompanied by a haunting soundtrack, in an audio-visual aesthetic that underscores the women's roles as helpless victims. When some women are shown to challenge the corrupt institutes of the state such as the office of the state attorney and the FBI, they are shown, in quite visual terms that impress their state of helplessness and despair, to be confounded in their attempts. Notably, most interviewees merely recount their feelings in passive contexts, and very few visuals demonstrate women in action.

Emotion-framing narrative

The narrative of the seven-part documentary follows the interviews of victims of rape and abuse, and those associated with them in murder and rape cases, against the background of an archdiocese and institutions of the state that kept working against them in their quest for the truth as adults. Jean Wehner (Jane Doe), in particular, and her court charges against Joseph Maskell and the archdiocese are a key storyline. Wehner is shown as waiting decades to take action. After she does, she is left in despair at the end, which underscores overarching victimhood despite her attempts at finding justice. Along with other women in similar circumstances, she is shown as being led around by the system, both by being abused and silenced as a child and then later as an adult as she deals with the turmoil of the rape and abuse incidences. This silencing clearly signals a lack of agency carried through a key narrative theme beginning in descriptions of fear instilled in the women by their perpetrator in childhood and then later in life by their own psychological fears.

Symbolism revealing norms and values around emotions

'The Keepers' clearly undertakes to expose both the corrupt patriarchal system represented by the church, government, law and police, and the resultant victimhood of the women. Visual symbolism throughout reflects how all of the efforts made by the women to speak and seek

justice in the system take them nowhere, and how their agency is nullified at every step. These symbols point to church, government and social norms, and are sprinkled around the story as signifiers of the power of the state in upholding patriarchal systems of religion and social strata. The symbols of power represent the women's inability to obtain justice or closure, and their overall lack of agency.

'The Staircase' – (women as absent)

Emotion-revealing aesthetics

The documentary projects an almost complete dismissal of the search for truth and justice and supports the status quo of a system that effectively silences the voices of women. All the dominant characters are male (Peterson, his purportedly heroic attorney, the private investigator and the judge), while visual representation of the deceased wife, Kathleen Peterson, is almost completely absent. Visuals of the legal proceedings largely exclude her, and her presence in her own house is primarily shown only through photographs of her and signifiers of her dead body, rather than through indication of her life before the murder. Dialogue describing her is imparted by others, in tones that reflect her death and absence, rather than her life experience. Overall, Kathleen is presented as absent and without agency.

Emotion-framing narrative

The story of the years-long journey of Michael Peterson in the various stages of a court battle to clear his name after accusations that he killed his wife is dominated by the various lead male perspectives. Women only appear from time to time, primarily in the form of Michael Peterson's two adopted daughters, Margaret and Martha who serve as supporting and comforting figures for him rather than for Kathleen. Kathleen's sisters, who do not appear often, are presented as angry antagonists to Michael as they recount their stories in terms that express ire against him rather than revealing Kathleen's life. None of the women is given any lead in the progression of the story in answer to the question of 'did he do it?', and altogether female voices are all but silent, and women are invisible and therefore without agency in addressing the core story problem.

Symbolism revealing norms and values around emotions

The documentary's perspective of a masculine and patriarchal system is evidenced in visual symbolism lodged in how most of the key characters are male authority figures, which underscores how the legal system is flawed and is effectively defended by men. A powerful example is when, despite no clear evidence, at the end, the judge suggests that Michael Peterson was innocent from the beginning. The visual framing of this statement within the context of the formal legal system symbolises the might of the judiciary and the power of the patriarchy to protect its own at the expense of the women in society. The lack of visual representation of women as empowered seems to indicate that the documentary-makers are at least in part unaware of the irony of the story being about women but without them.

Discussion: Agency and the conative domain

A plethora of conventional cues in these three films signals a discourse of the non-agency of women in a patriarchal society. Although 'Mercury 13' speaks to the women's self-possession, overall the film makes an unintentional and unfortunate comment on American society: that the ability and achievement of the women in this story are notable and worth celebrating only because they are unusual in historical context, rather than merely an

expression of the inherent character of all women. 'The Keepers' and 'The Staircase' highlight victimhood and absence, respectively, is a reflection of the absence to a concerning extent of women's voices from mainstream culture and the media. The implicit message from the three films as seen together is clear: even when women do express themselves, their social positions make self-expression difficult or dangerous. This implicitly underscores rather than dismantles prevailing damaging essentialist and determinist stereotypes of womanhood: that women are 'more emotional' and less 'goal-directed' than men, and that, if they are to be taken seriously, they must be less vocal than men.

The voicelessness evidenced in the themes of victimhood and absence in 'The Keepers' and 'The Staircase', together with the unusualness of female achievement in 'Mercury 13' reflects passivity, objectification and victimhood as characteristics of women. Nevertheless, the positive voices in 'Mercury 13' deserves more discussion as an example of a film that has a double layer of meaning that lies in both the political and the personal: a prevailing lack of political voice in a patriarchal society does not stop women being active, subjectified individual agents. Despite that, their story is set against the backdrop of political powerlessness that denied them the opportunity to contribute substantively to the early years of the space race; the women are presented as having 'agency' from a complex psycho-social perspective, as understood in terms of the intersection between emotion and mediated narrative as has been explored in literary fiction (Mar, Oatley, Djikic & Mullin 2011); the relationship of identification between audiences and media characters (Cohen 2001); the architectures of such engagement (Tan 2008); and multimedia semantics and narrative structures (Salway & Graham 2003).

Agency here is understood through the lens of 'conation' as mental process, which stands alongside the psychodynamic constructs of 'cognition' (intellectual understanding) and 'affects' (emotion). Conation here can be defined from within the field of psychology as "the ability to apply intellectual energy to a task, as needed over time, to achieve a solution or completion" (Reitan & Wolfson 2000, p. 444). From this perspective, the female docu-subjects in 'Mercury 13' are represented through discrete visual and aural significations and narrative construction as people who engage or focus behaviour and action, and exhibit intrinsic motivation, goal-orientation, volition, will, self-direction, and self-regulation in ways that countermand assumptions that women are inherently merely the passive victims of a sexist society. They are represented as both being emotionally capable and able to engage motivated, goal-oriented, self-regulated activity that derives from their intrinsic psycho-emotional make up. This renders the women in a hopeful way as whole human beings rather than mere representatives of social inequality.

Overall, again following Reitan & Wolfson (2000), 'Mercury 13' effects what neither 'The Keepers' nor 'The Staircase' do. It evidences ways in which the female docu-subjects:

- analyse problems to be faced;
- identify critical components, and apply persistent effort, including trial and error;
- reappraise their problems and possibly adopt a new strategy; and
- persistently use insight and intelligence to reach a solution.

These cannot easily be extrapolated from 'symbolic elements that refer to cultural norms and values concerning emotions' as the third dimension of Bartsch's (2008) tri-level schema. Although this dimension is useful to describe how agency is represented as a politico-social notion of what people do, it does not explain conation as an inner, subjective psychological constitution that describes how people feel and think about their lives. Symbols are not universal, but instead, are constructed in the relationship between specific audiences and the film, and therefore perhaps more accurately describe what is said in the texts of the films by the film-makers than what the women think. This suggests that an analysis of the film's

symbolism speaks to how audiences respond to the films as active participants in the communication process (Şerban 2012) by means of ‘meta-emotional responses’ whereby “emotions are accompanied by metalevel mental processes that colour the experience of emotions and influence how people express and regulate them” (Bartsch, Vorderer, Mangold & Viehoff 2008, p. 8). This relationship between audience and film rather than audience and character is more appropriately understood in terms of the scholarship of media psychology as relates to audiences than to the docu-subjects.

The conative domain for the docu-subjects can, however, adequately be described through a reflection on Bartsch’s (2008) two other dimensions, which reflects what is represented about the women’s inner life through the ‘aesthetic representation of emotions’ as the denotative dimension, and how their subjectivities are presented through the ‘narrative context of emotions’ as the connotative dimension of the communication.

The aesthetic representation of emotions

Through the visuals and soundtrack, the film often phrases women in and around planes, and in particular as flying the planes, which shows the women as feeling athletic and capable. Through archive footage rather than mere verbal description, women are also shown visually as feeling empowered, albeit nervous, as they sat in senate hearings arguing their case. In similar ways, the later generation of women is shown to feel both emotionally and physically powerful while preparing for and then being in space. Altogether, the juxtapositions between images and voice-overs demonstrate high levels of ability to analyse problems, identify components and exercise of persistent effort, re-appraisal and development of new strategies, as well as insight and intelligence. In other words, they are demonstrated as exhibiting high levels of the conative element of psychology that constitutes agency, and are therefore shown to be complex human beings.

The narrative context of emotions

The narrative can be teased out in four sections that each demonstrates differing levels of conation in the women.

In section 1, the history of the women as pilots after World War 2 contains significant numbers of scenes/sequences in which they are shown, through voice-overs superimposed on archive footage and to-camera interviews, to demonstrate high levels of problem analysis; component identification and persistent effort; re-appraisal and development of new strategies; and insight and intelligence.

Section 2 shows lower levels of conation in the lead-up to the second level of testing for their capacity to go into space. Much of this part is shown through to-camera interviews about how they felt and what their aspirations for going into space were. Although their problem analysis; component identification and persistent effort, as well as insight and intelligence, are shown to be high, re-appraisal and new strategy development are low. In particular, the women follow up after their initial tests, but do not challenge them or find new ways to approach them, instead of waiting for the project leader, Dr Lovelace, and his wife to find the solution, which they fail to do.

Section 3 shows lower levels of conation similarly during the period after the women had been denied the opportunity to continue with the testing by NASA. Problem analysis; component identification and persistent effort are high, as are insight and intelligence. However, re-appraisal and new strategy development are lower, especially through how, rather than driving their own course, the women rely on trying to garner high-level support for further testing from the wife of a senator, and from the high profile female pilot.

Section 4 describes the new generation of female astronauts after 1976, returning to a demonstration of high levels of conation in all analytic components. There are high levels of re-appraisal and new strategy development on the part of the new recruits, especially in relation to how a young female pilot had to remain quiet to her male colleagues about her desire to become an astronaut, failing which she risked being socially excluded or her aspirations being thwarted.

Conclusion

Umberto Eco (1976, p. 7) asserts that signs are “in principle [...] everything which can be used to lie”. Even if they do not actively lie, the three Netflix films under discussion creatively construct a reality for the worlds of the docu-subjects that consists of more than the events that the women underwent. Although none of the women represented in the films necessarily had essentially more or less power to influence their lives than others, the films reflect the agency of their docu-subjects in different and unequal ways. ‘Mercury 13’ shows the women as empowered and agentified, while ‘The Keepers’ and ‘The Staircase’ show the female subjects as victims and absent, respectively.

A deeper analysis reflects that the agency displayed by ‘Mercury 13’ is further not merely a political voicing, but is also a representation of the complexity of the women as whole human beings. Despite that the film is set against the background of the political circumstances that prevented the women from becoming part of the NASA forays into space, the film demonstrates agency as something that is a political notion, and is further a more personal, subjective and emotional aspect of humanity. Through evidencing the psychological construct of conation, as understood in context of the psychodynamic constructs of ‘cognition’ (intellectual understanding) and ‘affect’ (emotion), the grammar of the film, in particular the aesthetic representation and narrative context, reflects the women as exhibiting “the ability to apply intellectual energy to a task, as needed over time, to achieve a solution or completion” (Reitan & Wolfson 2000, p. 444).

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

'Research Practice' as Design Informant

Elana van der Wath: University of Johannesburg

Raymund Konigk: University of Lincoln

Abstract

Rapid and ongoing global changes are forcing educators to consider how students can be supported to navigate these events successfully. Reports from the World Economic Forum (WEF 2018) and the Organisation for Economic Co-operation and Development (OECD 2018) highlight the need for developing learner and worker agency and for embedding curricula with projects that develop problem-solving skills; enable deep thinking and reflection; and focus on transferable skills, knowledge, attitudes and values. There is an ever-increasing need for knowledge-based practice in the design industry, and the value of design research in addressing cross-disciplinary challenges has been noted by several government agencies.

Within this context, the curricula of first degrees in interior design and exhibition design at the University of Lincoln (UK) were redeveloped in 2017. The decision was made to eliminate the 'contextual studies' stream and to replace it with a stream of modules focused on 'research practice'. While contextual studies consider the temporal understanding of the artefact; research practice is positioned as central to the design process and with greater potential to develop agency. Emphasis is placed on design entrepreneurship and critical practice through the rigorous documentation of, and reflection on, standard design products. This approach culminates in the identification and formulation of an appropriate design research project that is showcased in an exegesis.

This paper will describe and interpret the major informants to the curriculum process to evaluate the underpinnings of this decision.

By shifting the focus away from specific content to transferable processes, the curriculum is more flexible with greater opportunities for agency and co-production between staff and students. A focus on the research process, instead of the historical development of western aesthetics, is particularly important in postcolonial contexts where this 'history' is so far removed from the student's habitus.

Keywords: Agency, contextual studies, 'student as producer', research practice

Introduction

Those who create knowledge through research have a different and richer relationship to their subject field than those who simply teach the knowledge that others create (Friedman 2000, p. 19).

Rapid and ongoing global changes are forcing educators to consider how students can be supported to navigate these events successfully. Reports from the World Economic Forum (WEF 2018) and the Organisation for Economic Co-operation and Development (OECD 2018) highlight the need for developing learner and worker agency and for embedding curricula with projects that develop problem-solving skills; enabling deep thinking and reflection; and focusing on transferable skills, knowledge, attitudes, and values. There is an ever-increasing need for knowledge-based practice in the design industry, and the value of design research in addressing cross-disciplinary challenges has been noted by government agencies such as the UK Arts and Humanities Research Council (Crossik & Kaszynska 2016, p. 92–95) and the Design Council (2018).

Within this context, the curricula of first degrees in interior design and exhibition design at the University of Lincoln were redeveloped in 2017. These two distinct programmes are delivered in parallel at the University of Lincoln, a rapidly transforming 'post-92' institution¹ in the East-Midlands of the UK. The teaching team decided to eliminate the 'contextual studies' stream and replace it with a stream of modules focused on 'research practice'. This paper will describe and interpret the major informants to the curriculum process to evaluate the underpinnings of this decision.

Contextualised problem

In the United Kingdom, design curricula typically include content in a module stream that can be described as 'contextual studies', 'critical studies', 'humanities' or 'theory'. The terms describe the knowledge areas which should support and complement design production, by providing a reflexive, theory-based underpinning and design description, particularly to support studio production (Herne 2006, p. 1). In England, design curricula are contained in the broader subject labelled 'Art and Design' – "a cognate area with its own characteristic processes and procedures and physical studio space", (Herne 2006, p. 11). Although the subject is experiencing a paradigm shift, it is still largely controlled by a modernist conception of Art as a grand narrative of universal meaning, instead of a pluralist, multi-faceted enterprise (Herne 2006, p. 11). It is envisioned that contextual and critical studies should facilitate the student by providing a reflexive process in which the student makes sense of all the disparate experiences and generators that informs design production (Addison 2000, p. 241). However, sadly, this knowledge can easily deteriorate to "an information-led marathon through the greats of Western art history" separated from other learning activities (Addison 2000, p. 241). The content of this area of the design curriculum has a long-held contentious position alongside the practice-elements of design curricula (Rintoul & James 2017, p. 216). Depending on the institution and approach, this knowledge area can be indistinguishable from practice components, it may be framed as a discrete discourse, or it may even be in conflict with it (Rintoul 2014, p. 346).

At the University of Lincoln, interior design was initially presented with a contextual studies stream shared with architecture. This was criticised by external examiners, who suggested a discipline-specific set of modules. The shared contextual studies module stream covered "the development of architecture, art and design from ancient times through to the present", as well as "theories about interior, architectural and urban space". Finally, in the exit year, students were expected to demonstrate the management of an independent research project

– this typically took the form of a long essay on any topic of the student’s choosing. The stream was the main mode of delivery of research knowledge, and also the only real opportunity for students to illustrate academic competence since the studio modules were focused on skills development and project-based design portfolio. It was also claimed that this module stream “recognises that the role of the designer includes not only the considerations of the formal qualities of the designed object or environment in relation to its immediate audience but also encompasses a broader set of responsibilities to society as a whole”.

The exhibition design course’s theory stream aimed to offer both a historical overview and a thematic framework in which to study contemporary design, exhibition and architecture. In its second year, the programme offered no traditional lectured module, with all content delivered through studio projects. Following the UK tradition, finalists were expected to deliver a large-scale research project, which typically took the form of a long essay related to the topic of investigation in the design studio. In both interior and exhibition design, the essay is the main tool used to deliver academic skills. This is evident in the module description: “It focuses on improving visual literacy and stylistic awareness, as well as introducing the social and contextual factors that have determined design production through history. In addition, the module helps students acquire skills in studying, research, personal reflection and development, writing and the use of information technology”.

Theoretical content at the University of Lincoln was predominantly delivered in a non-integrated manner. This implies separate contextual studies lessons delivered in the pedagogically authoritative lecture theatre and the essay used as the main assessment method (Rintoul & James 2017, pp. 223–224, Rintoul 2014, p. 350). Although this model provided a discrete and easily managed stream of modules, it promoted avoidance of areas of the curriculum, which could be described as ‘academic’. Students with limited academic experience often tried to avoid the knowledge area, described them as ‘useless theory modules’, or viewed it as a necessary evil – a student perception confirmed by Rintoul (2014, p. 347). We share Rintoul’s (2014, p. 346, 350) view that the non-integrated delivery model separates theory and practice artificially and creates a learning environment that is product-based and in opposition to the process-based views promoted in the design studio. It positions the two areas of ‘knowing’ as binary opposites with discrete languages and identities. This is exacerbated by the prevalent practice of assigning research-active staff to ‘theory’ modules and industry-active staff to ‘design’ modules. This creates a perceptual split between those that occupy the space of the lecture hall versus those that occupy the space of the studio.

An undergraduate academic year at the University of Lincoln comprises four 30-credit modules with one dedicated to critical studies and the remainder delivered in the design studio. The prevalent approach was to deliver pre-determined theoretical content to students in the single 30-credit contextual studies module. The content was organised chronologically or thematically, depending on the approach of the staff member managing the module. Contextual studies focused on a temporal understanding of the artefact, thereby placing the focus on design product rather than on process. In our opinion, this placed limitations on the range of learning experiences and knowledge areas available to students.

Addison’s (2004, p. 241) description of an information marathon divorced from other pedagogic activities applies to this curricular context. Students were unable to use the module stream to inform studio production, nor were they able to generate sophisticated design description. Since the knowledge area was perceived as an academic burden, it did not improve academic skills and scholarship across the curriculum. This led to a situation “where student practice lacks criticality and where theory is diluted, difficult to assess and lost at a distance from the studio rather than embedded in it” (Rintoul 2014, p. 353). In our experience, this describes the status quo at many ‘post-92’ institutions. Furthermore, it indicates that the

paradigm shift described by Herne (2006, p. 11) is incomplete and that learning environments are not responsive to changes in working practices and disciplinary concerns.

Finally, programme delivery did not fully align with the institution's approach to research-engaged teaching. 'Student as producer' is the university's organising principle for teaching and learning and promotes research and research-like activities at the core of the undergraduate curriculum. 'Student as producer' provides a base from which to extend student engagement to areas outside of individual learning with its focus on critical engagement where barriers between teaching and research are removed (Lincoln 2012–2016, p. 3). This is an institutional priority across colleges and subjects. "By engaging at the institutional level, this strategy is reinventing the university as a place where students become part of the academic project of the university, and producers of knowledge of real academic value, rather than passive consumers of information" (Neary et al. 2014, p. 9). This discrepancy between programme delivery and institutional vision was a key driver in re-developing the undergraduate curricula.

Research-engaged teaching

When the first degrees in exhibition and interior design were redeveloped, the decision was made to address the problem of integration of theory and studio practice by replacing the set of modules that focused on external theory with a new stream focused on research as a practice. This replaces the temporal understanding of the artefact and positions research practice as central to the design process. Design entrepreneurship and critical practice are emphasised through the rigorous documentation of, and reflection on, standard design products. In the final year, this approach culminates in the identification and formulation of an appropriate design research project that showcases a portfolio, exhibits to the public, and is supported by an exegesis. Critically, the redeveloped curriculum must prepare graduates for both the professional practice of design and for postgraduate education. In this section, we will discuss design research as a process and contextualise it within the University of Lincoln's strategy of research-engaged teaching at the undergraduate level.

The problem of contextual studies can only be fully grasped if one considers that design, as a practice, is underpinned by a range of crafts, vocations, or trades that have never developed an abstract theoretical basis (Friedman 2000, p. 9). This is exacerbated in curricula that emphasise studio education, particularly if the power and agency of the studio are overestimated. Lynas et al. (2013, p. 133) claim that the studio has the following advantages compared to other delivery modes such as the lecture: it facilitates professional conduct; prepares students for working in the industry; and allows time for personal development within the discipline and practice. However, the ability of the studio to deliver these outcomes depends on the acquisition of a set of critical cognitive skills that allows the student to interpret and synthesise disparate informants and experiences (which occur outside the studio environment). We assert that when contextual studies are product-focused, it cannot be fully integrated into the process-focused studio curriculum, and can therefore not aid in developing these processing skills. Integrating the material delivered in the lecture theatre into the overall studio experience is a recurring challenge in design education (Gross & Do 1997). Design practice is in many ways constrained by unspoken assumptions rooted in the inarticulate origins of crafts (Friedman 2000, p. 9). Contextual studies in its current manifestation struggle to address these difficulties (Rintoul & James 2017).

Frayling (1993) defined three types of design research:

- research 'into' design (what design should be: this includes theory, aesthetics, and history);

- research ‘for’ design (that which enables design to occur: this may include the study precedents, materials, and construction methods); and
- research ‘through’ design (which includes typical studio practices such as developmental work and action research).

Murray’s (2012, p. 95-6) similar triadic relationship refers to research ‘into’/‘about’; ‘for’; and ‘through’ design. We argue that the traditional contextual studies module stream in design education, with specific reference to the application at the University of Lincoln, was biased towards research ‘into’/‘about’ design. This is to the detriment of research ‘for’ design, which should support the design studio. Even worse, research ‘through’ design, with its potential to develop design as a rigorous scholarly practice in itself, is almost totally neglected.

The redeveloped curriculum addresses this deficiency by considering design as a form of inquiry, i.e. research. Design is described as “a process of identifying problems, providing viable solutions to these problems, and communicating the results of both actions. Drawing and model-making are considered as essential activities to perform this process” (Lincoln 2018, p. 5). Furthermore, the research endeavour is embedded in the entire undergraduate curriculum. The programmes are “committed to expanding professional practice and to identify and develop new knowledge areas. This puts professionalism, creative inquiry, and technical expertise at the heart of the academic endeavour” (Lincoln 2018, p. 9).

Although these objectives are laudable, the problems of integrating theory and design practice remain relevant. For instance, the education and practice of art and design failed to keep up with the knowledge revolution (Friedman 2000, p. 15) which resulted in a situation where neither the rich craft tradition nor the rigorous research tradition of universities is present in design education. “This gives rise to a culture of people who mistake silence for tacit knowledge and confuses unreflective assertion with reflective practice” (Friedman 2000, p. 15-16). In an attempt to acknowledge this, and to develop rigorous design practice that responds to the ongoing knowledge revolution, the programme description states: “knowledge-based practices and accountability are becoming increasingly important in the design industry. Further, the Academy and Practice are impacted by globalisation, technological advancement and changes in working practices. Problem-based learning is more likely to result in resilient graduates who can not only cope with change but since they thrive on it, will drive positive change” (Lincoln 2018, p. 9).

Central to the curriculum redevelopment process is the attempt to generate greater synergy between theoretical subjects and the studio at the University of Lincoln. This is supported by the larger, institutional endeavour to dissolve the dialectic between teaching and research as core academic tasks by incorporating them as a single academic task. As the university tries to solve the dilemma of teaching and research, so the programmes try to solve the dilemma of theory and studio. Friedman (2000, p. 18) states that research, in its simplest form, is a way of asking questions. By considering research fundamentally as a design activity, we attempt to integrate inquiry and design into a single activity.

Design is, therefore approached as the following research activities in the studio:

- Identify and understand a problem;
- Provide a viable solution; and
- Communicate the results.

This aligns with Godin and Zahedi’s (2014, p. 1) general definition of research through design, where design originates from a research question, but where the output is still the product of design. “The approach acknowledges and embraces professional practice’s contributions to

knowledge making it especially attractive in disciplines where designers/researchers are still practising” (Godin & Zahedi 2014, p. 1). By addressing design as a form of research and embedding the practices of research in the curriculum, we achieve one objective of the redevelopment process: to remove the discrepancy between programme delivery and the institutional vision.

On an institutional level, the ‘student as producer’ strategy reinvents the university as a place where students are placed as a fundamental aspect of the academic project of the university, and as producers of valuable knowledge (Neary et al. 2014, p. 9). This counteracts the prevailing practice, specifically in contextual studies, of treating students as passive consumers of information. Whereas contextual studies were presented as ‘information for consumption’, at times far removed from the studio, research as a process allows students to participate in research, or research-like activities, from the first year of study.

In line with the institutional directive, the curriculum incorporates the following three approaches to learning (after Leary et al. 2014, p. 12):

- Problem-based learning: Students work collaboratively to solve problems;
- Enquiry-based learning: The learning environment is driven by the process of enquiry – knowledge is used in support of the solution; and
- Research-based learning: Students are encouraged to make intellectual and practical connections between content and skills – ideally at the frontiers of their underlying discipline.

According to Leary et al. (2014, p. 14), research-engaged teaching and learning are more likely to result in graduates who are better prepared to cope with a globalised labour market, characterised by ever-changing technology and working practices.

The final section of this paper will discuss the implementation of the new research-process module stream in more detail.

Developing and delivering ‘research process’

In 2017, the decision was taken to integrate the exhibition design and interior design curricula to a greater degree than before. The two teaching teams worked collaboratively to develop a unique and competitive curriculum that would align with the Quality Assurance Agency for Higher Education’s (QAA 2017) updated Subject Benchmark Statement for Art and Design. The University of Lincoln’s revalidation panel approved the curriculum in July 2017. The exhibition design programme delivers a top-up degree in Hong Kong for graduates from the Hong Kong Design Institute (HKDI). This is done in collaboration with the School for Higher and Professional Education (SHAPE) – a member of the Vocational Training Council (VTC). The revalidated curriculum was therefore also scrutinised by an international panel in January 2018 as part of the re-accreditation process required by the Hong Kong Council for Accreditation of Academic & Vocational Qualifications (HKCAAVQ).

The revised curriculum retains the original 4x 30-credit modules per level structure, with a three-term delivery model (nine weeks per term). Design Process (DP) is covered in three studio modules, each presented for a single term. Design Process incorporates the conceptual, technical, and professional knowledge areas for both exhibition and interior design. Research Process (RP) is covered in one module presented in parallel to the studio over three terms. Research Process delivers design theory and contextual material and presents the necessary methods of inquiry (Lincoln 2018, p. 9).

The curriculum aims to:

- approach design as research and encourage design-led inquiry;
- promote visual research and visual sources of empirical evidence; and
- generate a culture of accountability for design decisions.

The revised curriculum places Research Process at the centre of learning, with increasing levels of integration in the studio:

- In year one, design is considered as a form of inquiry to introduce research methods. The aim is to instil an awareness of qualitative and quantitative methods and their application. Theoretical and pragmatic informants of design production are introduced. Furthermore, students are made aware of the utopian and ontological aspects of normative positions as generators for design;
- In year two, the relationship between theory and practice is considered in more detail. Selected visual research methods are covered in greater depth and students are introduced to meta-theoretical perspectives. They are expected to formulate normative positions in response to context and paradigm;
- In year three, total integration is achieved. Students are expected to complete a large-scale self-directed research study to support the design treatise.

The curriculum needed to address the perceptual schism between theory (thinking and writing) and practice (creating and doing) through revised delivery practices. Research Process incorporates traditional lectured content, group discussions in the form of seminars and student-led working groups, and tutorials to assist with individual projects. Although Research Process is deliberately delivered outside the studio environment and coordinated by a single staff member, studio lecturers take part in the delivery of Research Process seminars and tutorials. Design Process gradually becomes more involved over the course of the three years. In the third-year, theory and practice are completely integrated, and, therefore, the perceptual boundary between studio and lecture hall should be invisible.

The curriculum deliberately attempts to integrate research practice with design and to create a learning environment in which design production itself can be viewed as scholarship. To facilitate this, two general strategies for research-engaged teaching are employed:

- The systematic introduction of disciplinary research into the course content (Leary et al. 2014, p. 12). Students are systematically introduced to disciplinary research, including specific methods (such as artefactual analysis through precedent studies and visual analysis through image boards). To encourage more independence, supervision is gradually reduced over the three years; and
- Since research-engaged teaching is inherently practice-based, the design studio should demonstrate how research is incorporated into assessment criteria (Leary et al. 2014, p. 13). Research-engaged teaching dissolves the dialectic separation between theory and practice – all is practice, and all practice is theoretically informed. It is expected that the products of the design studio should be informed by, and able to illustrate, the practice of research.

The Research Process curriculum continues to cover disciplinary knowledge but does this in a non-traditional manner. This can be seen in Research Process 1, where students are required to produce a timeline to illustrate the development of architectural style in Britain from 500 BCE to 2017 CE in small groups. According to Cross (1982) making models is a design tool. The timeline functions as a two-dimensional conceptual model to visualise the temporal relationships between artefacts and events. Students collect a vast amount of data, evaluate and synthesise the information in a visual, academic format. The project is supported by a

lecture series that presents the evolution and development of specific themes in exhibition and interior design practice over the designated time frame. For example, the notion of 'narrative design' is introduced as a method for creating spatial experience throughout architectural history. Although disciplinary content is delivered, the module is instead focused on developing the student's ability to obtain and produce content. They produce a timeline to obtain a holistic view of historical developments instead of merely receiving information. Knowledge is therefore created and embodied in the student's themselves – an activity which Friedman (2000, p. 12) describes as an intensely human act. The OECD (2018, p. 5) describes the need for future-ready students to have disciplinary knowledge, epistemic knowledge, and procedural knowledge. Information evaluation and management of knowledge are key procedural skills necessary for effective problem-solving. In Research Process 1, students are required to search for information and document their findings on index cards for each source consulted. The analogue method of documentation was deliberately selected as it not only makes information tangible but also makes it possible to sort and organise information in thematic clusters during group work exercises. The outcome of this project is a visual interpretation of information presented in a format that is relatable to design students.

In Research Process 2, disciplinary content is delivered in two short lecture series, which are affiliated with the academic endeavour of research-active staff. Two research workshops intercede the lecture series. In these, the use of visual methods of investigation and documentation is further expanded. Students are required to work collaboratively and to deal with a larger sample of data. Less guidance is provided to foster greater student independence. Two main research approaches are introduced in the workshops. Firstly, to gather a broad, but rather superficial, set of visual data. This is manipulated through a series of reflective image boards to conduct content analysis, and secondly, to conduct an in-depth critical case study of a design precedent. The aim here is to move closer to outputs that are specifically associated with the design disciplines and to create further integration with design thinking.

Research Process 3 does not deliver disciplinary-specific content. Instead, four main research methods are covered in greater depth through seminars 1. Literature review; 2. Context analysis (locational, temporal, and thematic); 3. Case study analysis; and 4. Reflective practice. These methods form the backbone of the exegesis generated in support of the self-developed design investigation. Therefore, the focus is almost exclusively on the investigative process, with the student in control of the disciplinary investigation. Guidance comes from both Research Practice and Design Practice staff and conversations in the studio cover both theoretical and practical aspects of the design investigation. Research Practice 3 encourages student agency by creating a personalised learning environment where students can design their learning projects and make connections between different learning experiences. Agency is also enabled through the solid foundation set in Research Practice 1 and Research Practice 2 that develops information literacy (OECD 2018, p. 4).

The module exposes students to common, traditional assessment methods, namely 1. The report (essay); 2. The academic poster; and 3. The verbal defence. In Research Practice 1, students select a research problem from a list of pre-developed topics and can prepare their final submission as a research report or poster. In Research Practice 2, students develop a research problem and describe its significance. In Research Practice 3, the self-developed exegesis is submitted as a report, supported by posters prepared for a public exhibition. The posters form the basis of the final verbal presentation and defence where the entire treatise is interrogated by a panel comprised of Design Process and Research Process teaching staff. This approach aims to generate a culture of accountability for decision making and to offer students the opportunity to develop a portfolio of visual material and research outputs outside of the traditional studio setting. The oral defence and examination is a traditional assessment method in academia and has parallels in the 'design pitch' used by professional designers.

Competencies in written and visual presentation are key skills in the contemporary professional environment.

Finally, the methods and skills nurtured in the Research Process are fully transferable. The OECD (2018, p. 5) identifies 'taking responsibility' as the core 'transformative competency' needed in education to support young people to be innovative, responsible and aware members of society. Central to this competency is the concepts of self-regulation, accountability, and coping with the diversity, ambiguity and tensions related to collaboration. Research Process develops these competencies by focusing on professional skills such as record-keeping practices, time management strategies, and collaborative practice. For example, students have to keep research files and timesheets in Research Process 1. Templates, examples, and briefs are provided for these components by the teaching team to set the standard for future management practices. Guidelines for organising group meetings and dealing with conflict are provided in Research Process 1. By the time they reach Research Process 3, students should be in a position to plan and manage their schedules and group activities independently.

Conclusion

The paper described and interpreted the major informants that underpinned the decision to replace contextual studies with research practice at the University of Lincoln's exhibition and interior design first-degree programmes. We illustrated some of the problems experienced by the traditional set of contextual studies modules through reflection on the concurrent circumstances at the University of Lincoln and a review of critical literature of the knowledge area across the sector.

In contrast, the University of Lincoln's organising principle, 'student as producer', was described. Particular focus was placed on design research, and how contextual studies can primarily be described as research 'into' design. This has severe shortcomings in addressing the lack of integration with the design studio. If design is procedural, then research 'for' and research 'through' design is more appropriate. The new module stream allows for greater integration and application since it addresses skills in all three areas of design research. Students are required to apply various applications of these methods to produce knowledge – a direct application of the institutional directive of 'student as producer'. The aim is, therefore, to provide students with the opportunity to develop a deeper relationship with their subject.

Finally, the paper described the development and implementation of the Research Process module stream in greater detail with some references to pertinent examples of projects completed by students. To facilitate better integration between research practices and the design studio, two specific principles of research-engaged teaching were highlighted: 1. The systematic introduction of disciplinary research; and 2. The requirement of the design studio to demonstrate how research is incorporated in its assessment criteria.

This novel approach should address the inherent problem of design curricula that have not yet fully responded to the information revolution, which places greater emphasis on knowledge practice and accountability. Significantly, the new module stream offers students the opportunity to create knowledge through research in their disciplines. This provides students with a 'different and richer relationship to their subject' than those who simply consume received information. Research practice should be addressed and integrated with the design studio and no longer be viewed in isolation. Research-engaged teaching is, therefore, a fundamental principle that addresses all spheres and all learning environments. However, since Research Practice as a module stream is in its infancy at the University of Lincoln, it is recommended that further research on its implementation, development, and importantly, its pedagogical effects be conducted in future.

A focus on research as a practice, in contrast to the older tradition of presenting a chronological development of styles, has shifted the focus away from specific content to transferable skills. It is envisioned that this will develop student's agency and greater accountability for design decisions.

Notes

1. The term 'post-92' institution refers to the 35 polytechnics in the United Kingdom that were granted full university status as a result of the *Further and Higher Education Act 1992* which set about to establish a unitary system of higher education in the United Kingdom. Boliver (2015) posits that a divide continues to exist between the 'old' (pre-1992) universities (characterised by higher levels of research activity, greater resources and more academically successful and socio-economically advantaged students) and the 'new' (post-1992) universities (characterised by a 'teaching-led' mission). It is important to note that similar levels of teaching quality and student satisfaction exist in both groups of universities.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Communication Design Futures: A pilot user interface course case study at the University of Johannesburg

Christa van Zyl: University of Johannesburg

Abstract

Following a query in 2018 by the University of Johannesburg's (UJ) alumni office to establish in which industries or companies UJ alumni were predominantly employed, information was gathered by members of the department of Graphic Design and data accumulated on a large number of alumni from the Department of Graphic Design.

It became apparent that, while many alumni do indeed manage their own design firms, act as successful freelancers or are employed as designers at various agencies in accordance with their field of study, a growing number have migrated to user experience (UX), Interaction and user interface (UI) design. This shift illustrates the need for graphic design curricula to remain relevant and keep track of new developments pertaining to the so-called fourth industrial revolution or Richard Buchanan's fourth order of design (Buchanan 2015, p.11).

In consultation with UJ's Department of Multimedia, a focused user interface course for second-year students in Graphic Design was therefore developed and tested during February and March 2019. Its main purpose was to enable students to apply their knowledge of UI design to the solving of design problems and to use various design methods, processes and techniques to create professional UI designs while promoting a better understanding of designing functional human-centred systems.

The project was reviewed internally via anonymous student questionnaires and externally by various alumni working in the field of Interaction Design. This paper reports on the findings of the reviews and suggest ways to improve Graphic Design education to remain relevant in a changing creative industry. The paper introduces the project, clarifies key concepts, theoretically grounds the subject matter and provides student and industry feedback with regard to the project.

This project has opened the door to a closer relationship between industry and UJ Graphic Design, stimulating continued research and insight in real-world inspired practical projects. The process was highly rewarding, especially in developing a model of practice and, in the process, updating a module to improve the UJ curriculum. The new skills required of graduates are

indeed “setting the base for a different kind of designer, not primarily concerned with the process of form-giving, but with the understanding of complex systems” (Ferrari 2017, p. 4).

Keywords: Graphic design, user experience design, user interface design, creative industry, media and communications design

Introduction

In 2018, the University of Johannesburg’s alumni office requested that academic staff provide information with regard to the industries in which alumni are predominantly employed. The query, while interesting and relevant, could not be answered easily, so few colleagues responded. However, through social media and networking sites (e.g. LinkedIn and Facebook), I accumulated data from my personal network of graphic design alumni to answer this question.

After six months of gathering information, a picture started to emerge, pointing to a shifting creative industry. Of the 552 alumni identified, the majority was successful freelancers, business owners, or were employed as designers and art directors by various agencies within the industry in accordance with their training, but 19.7% had completely shifted career paths, listing their careers as user experience (UX), Interaction and user interface (UI) designers. This can be understood as a natural progression for graphic design alumni, aligning their careers with the so-called fourth industrial revolution (4IR). The fourth industrial revolution marks the advent of the fusion of technologies to the extent that the lines between the physical, digital and biological spheres are becoming blurred (Ferrari 2017, p. 3). This statistic, however, also indicates that graphic design curricula need to be adapted to remain relevant and ensure that graduates remain employable in the 4IR or Richard Buchanan’s fourth order of design (FOD) (Buchanan 2015, p. 11). This observation is confirmed by the statement of the American Institution of Graphic Arts in *AIGA Designer 2025* (2017, p. 2), that “the mandate to colleges and universities is to prepare this burgeoning population of communication design students for a half-century of practice in the profession of the future”.

From personal experience and as an external examiner at four Gauteng tertiary institutions (of which two are private institutions and two public universities), many South African graphic design curricula leave UX/UI design education to multimedia programmes or merely treat it as an extra within a larger project. Owing to the impact of constant technological advances on the consumption of designed media, this indifference is creating a gap with regard to training graphic design practitioners for a changing industry. If tertiary design curricula do not adjust the content of their programmes, their outdated message-centred design approach is likely to struggle to keep graphic design relevant (*AIGA Designer 2025* 2017, p. 3).

An outdated message-centred design curriculum was also, to some extent, the problem in UJ’s Department of Graphic Design. While the curriculum already offered interaction design projects prior to 2018, these units were taught by external lecturers who changed annually, subject to availability. Continuity was, therefore jeopardised. These units of learning often focussed more on digital development, software and coding, and less on UX and UI design principles. For these reasons, it seemed prudent that a full-time lecturer should play a larger role regarding digital design, to expand and develop the unit annually, and continually align the curriculum with industry requirements and expectations for graduates.

In consultation with colleagues from UJ’s Department of Multimedia, I developed a focused UI course for second-year communication design students. The first course on UI design took place from February to March 2019. The project was reviewed internally via anonymous student questionnaires. To ascertain the success and relevancy of the project, with an aim to

modify and improve it for 2020, alumni working in UX/UI design were also asked to give feedback on the brief, class notes and a final student project.

Aim of the paper

The main aim of this paper is to suggest improvements to graphic design curricula with regards to UI and UX design, on the basis of findings from the students' and alumni' feedback on the initial second-year user interface project. This research is a step towards ensuring that the curriculum remains relevant for graduate employability in South Africa's changing creative industry.

Methodology

The new learning unit was created based on the theory of atomic design, which is a modular approach to UI design and UX design that breaks interfaces down to create interface design systems in a more deliberate and hierarchical manner (Frost 2016, p. 42). The project brief and outcomes were reviewed through quantitative anonymous student feedback, as well as qualitative industry feedback. Proper ethical clearance was obtained from specific student participants to use excerpts from their projects, as well as from alumni and student participants with regards to questionnaires completed by both groups.

Key concepts

UX vs graphic design

UX differs from traditional graphic design, in that the role of the graphic designer is normally that of an interpreter of messages (Krippendorf 2006, p. 11) whereas UX design, according to Pretorius et al. (2015, p. 2), can be seen as "a broad umbrella field of disciplines and practices that focus on applying user-centred and market-related research, and iterative design methods for the design of digital products and services" but also as "a specific field of design that situates the notion of experience as a key conceptual concern of the design process".

The Interaction Design Foundation's definition in some ways constitutes a combination of these two interrelated interpretations: "User experience (UX) design can be defined as the process design teams use to create products that provide meaningful and relevant experiences to users. This involves the design of the entire process of acquiring and integrating the product, including aspects of branding, design, usability and function" (Interaction Design Foundation 2019).

UI vs graphic design

Within the broader field of UX design, the principles of user interface design align best with graphic design principles, although the understanding of bigger systems, that is, UX, still remains crucial to design a good interface. The user interface is the information exchange between users and technology, which guides how they use the functionality defined in the specifications and structured in the interaction design (Garrett 2011, p. 109). Interface design moved designers' interest from the external appearance of technology to the interaction of users with technology (Krippendorf 2006, p. 8). Jesse James Garrett, writer of *The Elements of User Experience* (2011), defines interface design in practical terms such as selecting elements, such as colour, font and buttons, and laying these elements out for the screen in a logical, user-friendly way to help the user complete a task (Garrett 2011, p. 114). Interface designers must

take into account how an end-user interacts with the design, how the user makes the transition between screens and assure that the designed components provide feedback on the user's interactions (Murphy 2018). According to Krippendorf (2006, p. 8), "Interfaces constitute an entirely new kind of artefact, a human-technological symbiosis that cannot be attended to without reference to both. For designers, a key concern is that interfaces are understandable".

The fourth industrial revolution's growing impact on communication and graphic design

The need to introduce new modules such as UI design, arises from technical innovations linked to the fourth industrial revolution, a term first used in 2015 by the executive chairman of the World Economic Forum, Professor Klaus Schwab, in an article in *Foreign Affairs*, and elaborated on in his 2016 book, *The Fourth Industrial Revolution*. In 2006 Klaus Krippendorf (2006, p. xiv), Professor of Communication at the Annenberg School for Communication, University of Pennsylvania, already remarked that skills such as desktop publishing, traditionally associated with graphic designers, have been taken over by technologies. This has "forced a redrawing of the boundaries between design skills and mere technological literacy" (Krippendorf 2006, p. XIV). Since then, technological progress has brought about considerably more changes. While Frey and Osborne (2013, p. 26) state in their working paper on the future of employment that "it seems unlikely that occupations requiring a high degree of creative intelligence will be automated in the next decades". Changes in technology and media consumption, such as a decrease in printed media and above-the-line advertising (Breitenbach 2018; Thompson 2018), have decreased the need for traditional graphic design, while digital advertising and UX design have increased (van der Haar 2018). It seems, though, that formal tertiary tuition has not measured up to recent developments. According to the American Institute of Graphic Art (AIGA), there has been a shift in establishing the changing goals of communication design, but United States design schools, "assigned new media instruction to specialised classes, or in some cases, to independent curricula that left communication design programs bereft of instruction in emerging technologies for as much as a decade" (AIGA Designer 2025 2017, p. 1).

The United States of America Bureau of Labour estimates 4% growth in traditional graphic design positions between 2016 and 2026, versus an anticipated 8% growth in multimedia design, 15% growth in web development and 24% in software development (United States Department of Labor Occupational Outlook Handbook 2019). While this picture is a little different in South Africa (van der Haar 2018) owing to a dissimilar market structure, it still indicates that a dramatic shift in media consumption is underway. According to Pretorius et al. (2015, p. 2), "it has become increasingly common, perhaps even required, for organisations to include user experience (UX) activities, such as user research and testing in their design and development process" (2015, p. 2). This shift towards user experience correlates with Richard Buchanan's (2015, p. 11) four orders of design which "demonstrate the evolution of the design professions from graphic and industrial design to interaction design and, then, to the design of systems". The 19.7% of alumni employed in UX/UI are therefore already working within 4IR and the fourth order of design.

According to Schwab (2016, p. 7), "(on) the societal front, a paradigm shift is underway in how we work and communicate, as well as in how we express, inform and entertain ourselves". Krippendorf (2006, p. XV) recommends that "[d]esign has to shift gears [...] to conceptualising artefacts, material or social, that have a chance of meaning something to their users, that aid

larger communities, and that support a society that is in the process of reconstructing itself in unprecedented ways and at record speeds”. According to Tomás García Ferrari (2017, p. 4), senior lecturer in Design at Waikato University, New Zealand, in “[u]nderstanding that the domain of design has expanded from form-giving to creating systems that support human interactions, a literacy on systems becomes relevant to design”. Meredith Davis, Professor Emeritus of Graphic Design at NC State University and former president of AIGA, in her keynote address at the 2008 AIGA conference, asks “if our role as designers is [...] increasingly about designing tools, systems, and the conditions through and in which others create their own experiences, what are we doing to educate design students about engaging the people for whom we design; about platforms that are adaptable and expandable as participants and social structures evolve over time; and about working in interdisciplinary teams that include human-centred experts?” (Davis 2008, p. 5)

Based on these potentially disruptive changes, AIGA in 2017 studied the creative industry and compiled a list of influential trends and recommendations for graphic design curricula with regard to new competencies required by both practitioners and graphic design graduates (*AIGA Designer 2025* 2017). According to *AIGA Designer 2025* (2017, p. 2), “A design education for the future (...) is not one in which technology is simply a tool for the design or display of information but a data-rich, data-aware landscape that is reading and responding to everything we do”.

Pretorius et al. state in a study on the 2015 landscape of UX Design that “(i)n South Africa the landscape of UX is at a critical point because although it has begun to gain acceptance as a valuable and viable approach to designing digital products, services and systems, there is still no specific, formal tertiary education route to becoming a UX designer” (Pretorius et al. 2015, p. 3). Their survey on 105 UX practitioners, “shows a variety of institutions where UX is offered, but according to the authors’ knowledge, no institution offers a formal UX-focused degree” (Pretorius et al. 2015, p. 3).

UX design careers are mostly covered by South African multimedia programmes, but owing to the complexity of UX design fields, there is still room for graphic designers to enter the field, specifically as UI designers, because of the strong focus on visual design informed by UX. This is seen in the statistics generated from a UJ graphic design alumni network employment survey in 2018, based on information gained from LinkedIn and Facebook. The data indicated that, at the time of the survey, 19.7% of alumni had diverged from ‘traditional’ graphic design to UX design.

The 2019 Project

The first user interface course for second-year students of UJ’s Department of Graphic Design took place from 12 February until 22 March 2019. The project ran over two three-week periods with a group of 44 second-year students.

The purpose of the module was to enable students to apply their knowledge of ‘traditional’ graphic design to the solving of design problems, using various design methods, processes and techniques to create professional UI designs, and in the process developing an understanding of designing functional human-centred systems.

A brief was developed in an interdisciplinary team with the assistance of UJ’s Department of Multimedia. The chosen clients, owing to their varied products, were two well-known purveyors of seeds, who, according to the brief, required a new shopping application (app). Students were asked to:

1. Conduct basic research on a current user-interface design by:
 - identifying three 'commerce' based applications, listing how the applications function, especially the organisation of product information, as well as drawing the phases of the user-journey within the App (Figure 1);
 - drawing user journeys for all phases of the interaction of their proposed app, taking into account the needs of the end-users (Figure 2).
2. Create a proposed design by hand and digitally with regard to colour, fonts and layout, including a series of wireframes, by:
 - creating a style tile (Figure 3) of the proposed design,
 - drawing a series of wireframes that show logical user journeys for all phases,
 - showing all possible layouts and interactions within the wireframes
 - basing all designs on a consistent grid.
3. Design cohesive interaction elements for a modular design by:
 - sketching and designing cohesive interface and interaction components, including different behaviour states of *use*, that is, the interaction design pattern (e.g. pressed button, incorrect entry)
4. Combine designed elements into a well-designed user interface by:
 - creating a consistent visual identity for the entire app
 - creating a mock-up of a comprehensive app

After the briefing, students were divided into two groups that both had to complete the project within three and a half weeks. As shown in Figure 1, as part of initial research, the user journey for an existing app is documented as part of initial research, representing the steps a user takes while interacting with the product (Mears 2013):

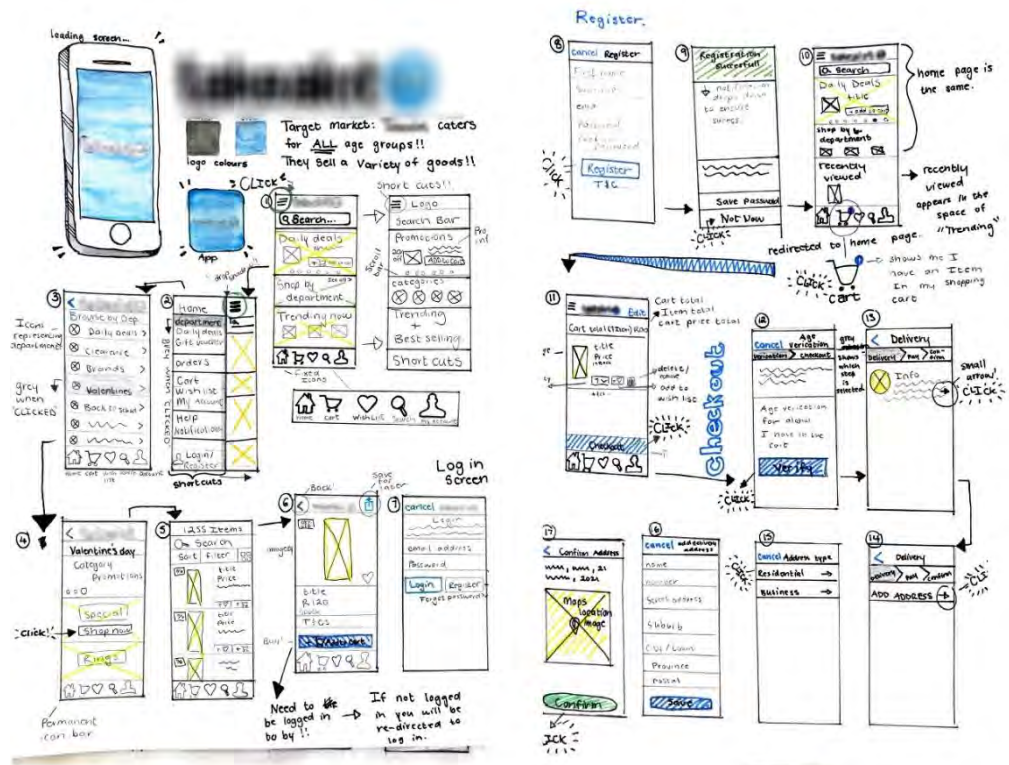


Figure 1: Existing user journey, 2019 (Crooks 2019) (research file)

During the first project phase, students had to complete three user journeys on shopping applications to help them grasp the logical coherence of an application. After research on target markets, relevant apps and user journeys, students designed their own initial user-journeys in rough wireframes (Figure 2).

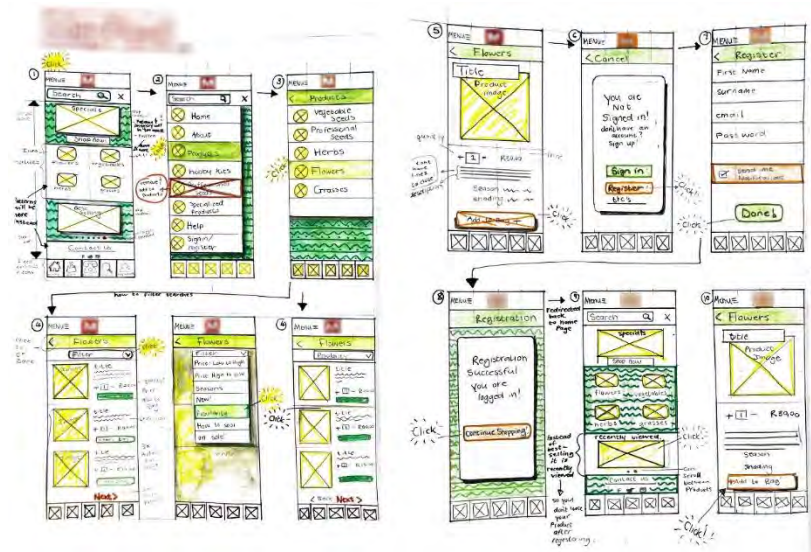


Figure 2: Student user journey (detail), 2019 (Crooks 2019) (research file)

During class, students were paired three to five times with peers and tasked to follow each other's user journeys. While this was only a small class exercise, it greatly improved the human-centred approach in a majority of the projects. Based on the more human-centred designs, students extended the range of their wireframes and developed brand-specific style tiles, proposing the look and feel of the application.



Figure 3: Student-generated style tile, 2019 (Crooks 2019) (research file)

Using the concept of atomic design, which is a modular approach to user interface design that breaks interfaces down to create interface design systems in a more deliberate and hierarchical manner (Frost 2016, p. 42), students were then required/tasked to develop a unique icon set and design all interactive media in their various states. All these separate elements were used to populate the initial wireframes and create a comprehensive application. Students had to hand-in a pdf digitally of the final app. Students also had to provide a thorough research document of their design process. This document had to include their visual inspiration, style tile, wireframe scamps, ideas for layouts, the site map, as well as their designed pages, including different behaviour states of use, for example, pressed a button and incorrect entry (Figure 4 as an example).

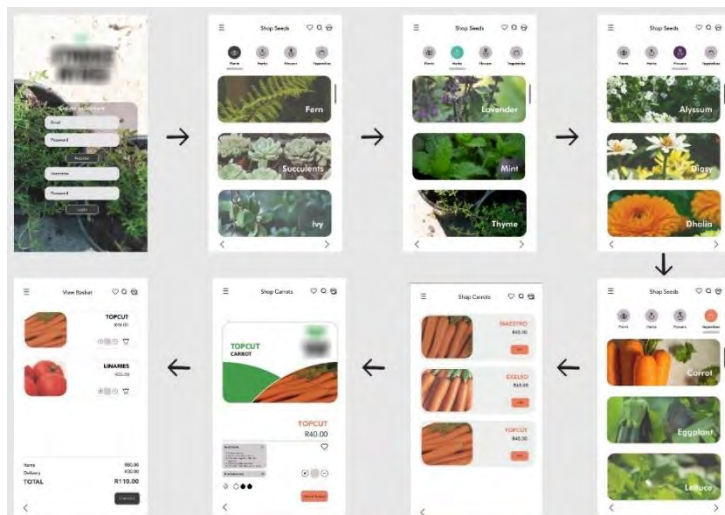


Figure 4: Starke Ayres site map (detail), 2019 (Bismilla 2019) (research file)

Feedback on the course

Feedback included the opinions of both the graphic design students who had completed the course and of graphic design alumni currently involved in the user experience field in South Africa.

Student feedback

A survey was conducted to obtain voluntary, anonymous feedback from 28 out of 44 second-year student respondents who completed the course. Questionnaires on Google Forms probed the suitability of the brief in relation to the students' level of study; the clarity of the course content; aspects of the content and activities that were most enjoyable; the problems experienced; valuable lessons learned from the unit; the influence of the project on students' feelings (did it make them more averse to or more positive towards a career in UI design); suggested improvements, and so forth.

Student feedback was positive, with 92% of respondents indicating that they had enjoyed the project. Some students struggled with compiling their research presentations (7%), icon design (21%), the choice of the right colour scheme (11%), and with the strict use of a grid (21%). Valuable lessons students learned included proper time management, project planning (28%); proper grid-use (36%); attention to detail (32%), and user-friendly and target market-friendly design principles (25%). Suggested improvements included a longer period for the project (21%); more depth concerning layout, styles and anatomic design (21%), as well as one request to be taught coding.

Industry feedback

To ascertain the project's success, to better align the project with industry requirements of graduates, and to improve the unit for 2020, a small number of relevant alumni were requested to provide feedback on the 2019 project by reviewing the course notes, the brief and a final student project, which received high marks according to the brief's outcomes.

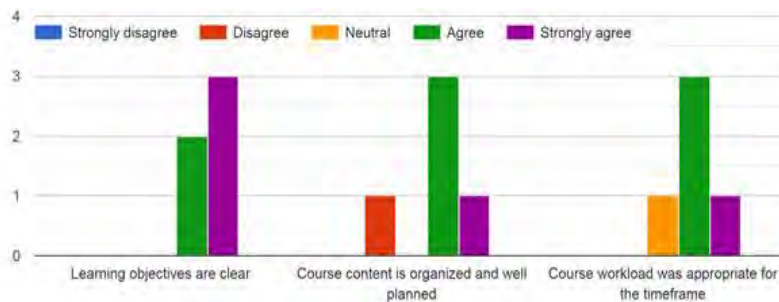
Questions were asked with regards to what alumni would have preferred to learn during their studies in view of their current careers; which skills they would recommend students be taught for a career in UI/UX; the potential contribution of the 2019 course to prepare students for industry; relevance of the course content; the complexity of the course; the structure of the course content; the amount of work required for the timeframe; the most valuable aspects of the brief and project; aspects of the content deemed less important or irrelevant and possible improvements and suggestions for an appropriate follow-up course.

The industry feedback was particularly valuable, as it highlighted gaps in both the project and the curriculum. However, the specific ways in which the alumni use their skills are not necessarily aligned with what they had been taught in undergraduate programs. For example, design thinking and human-centred design units, which require working with stakeholders to identify their needs, using empathy, respect and clear communication channels (Giacomin 2012), is taught in detail during the optional honours year, which only one of the alumni had completed. Two alumni had obtained an online qualification in UX design after graduating, to extend their knowledge after their university studies.

Alumni's main requests, that is, what they wished they had learned during their studies in view of their current careers, can be summarised as human-centred design (60%); prototyping software such as Adobe XD (60%); the foundations of UX and UI (40%); industry phases of product design and design systems (60%), i.e. understanding a systematic approach to UI design. The last three points were covered by the 2019 course. Alumni's emphasis on the value of better comprehending the phases of product design align with AIGA Designer 2025's focus on complexity, and the fact that industry-based design problems are progressively situated within larger human-centred systems, distinguished by interdependent relationships among elements or activities which require interdisciplinary expertise (American Institute of Graphic Artists 2017, p. 3).

Required knowledge for graduates, as recommended by the alumni, included empathy for users and of user testing (80%); colour theory (20%); digital typography (40%); prototyping software (60%); Information Architecture (60%); systems design (20%); wireframing (60%); user journeys (60%); responsive design (40%), proper grid use (20%), pixels and resolution (20%) and design consistency (20%), as well as an understanding of the technological limitations of developers (60%). Of the listed recommendations further user-testing, correct pixel and resolution use, as well as prototyping software (Adobe XD) will be integrated into the 2020 course. Colour theory, digital typography, information architecture, wireframing, user journeys, proper grid use and design consistency are already addressed in the current course. Further research will be conducted to understand technical limitations and responsive design, but this may prove too extensive for an introductory course. Alumni recommendations align with AIGA Designer 2025's (2017, p. 4) trend on linking physical and digital experiences, in emphasising users' transition across systems, devices, environments and activities in continuous communication and service experiences, and therefore the need of technology to provide a seamless, unified experience with regard to visual, system and information design.

Table 1. Course content evaluation, 2019, industry evaluation of the 2019 second-year UI course (Google Forms)



There was less consistency in what respondents deemed the most valuable aspects of the brief, namely the focus on information architecture (20%), understanding the fundamentals of UX/UI (40%), the project structure's introduction to process work (20%), the correct terminology used (20%), and requiring students to justify their design decisions (20%) (Table 1 & 2).

Table 2. Contribution to preparing students for practical skills in industry evaluation, 2019, industry evaluation of the 2019 second-year UI course (Google Forms)



The majority of alumni (60%) considered atomic and icon design as unnecessary. If these aspects were to be removed from the course, it could make room for a focus on other UI aspects, such as learning relevant prototyping software. One respondent felt that the style tile was also unnecessary, as all the applications she had worked on already had existing brands. Another felt the overlap between UX and UI needed to be highlighted more, as UI designers can still create wireframes and prototypes, influence the interaction, and do user research and testing, something that had been a particular struggle in developing the course.

The improvements alumni recommended were varied. These included explaining a real-world application process (20%); accentuating the role of the UX and UI designer in product design (40%); conducting user testing (20%), and defining stakeholders in detail (20%).

Some respondents suggested that the course should take place later in the year, with a preceding course in UX design. The follow-up course should focus on UI, and include iconography, graphical components, imagery and typography. While this is feasible, it would interfere and overlap with what is already covered by UJ multimedia, but some of these aspects are planned to be included in future courses.

Although the alumni were critical, the majority (60%) regarded the course as highly relevant, and 40% of respondents felt that the course covered the fundamentals well, and wished that they could have followed it.

Conclusion

The planned 2020 second-year UI project aims to combine the outcomes of the 2019 course with specific recommended changes, such as the introduction of prototyping software, namely Adobe XD, and a clearer explanation of key concepts such as UX and UI design. The process has been highly rewarding with regard to developing a model of practice, updating this module, as well as other modules that I currently teach, consequently further improving the UJ Graphic Design curriculum and the university's relationship with a growing industry.

In future, alumni from industry will be invited to come and expound on their role in the development of a real application, as this project has opened the door to a closer relationship between industry and UJ graphic design. This should not only introduce students to real-world inspired practical projects, better prepare them for their future careers and enable role-players from industry to become acquainted with potential employees but can also generate future research and new collaborations.

The new skills required of graduates are indeed "setting the base for a different kind of designer, not primarily concerned with the process of form-giving, but with the understanding of complex systems" (Ferrari 2017, p. 4). The constant improvements in technology present both a challenge for and an opportunity to tertiary graphic design curricula to be on the forefront, remain relevant and prepare students to easily cope with innovation in a rapidly changing creative industry.

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

Postgraduate Communication Design Education in South Africa: Challenges and opportunities

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Abstract

The study qualitatively explored the local communication-design-education landscape and identified the structures, nature, challenges and role players. Theoretical models with the potential to guide the development of postgraduate design education were analysed. These are the Mode 1, 2 and 3 models, Innovation Triple, Quadruple and Quintuple Helix models, as well as research approaches that have the potential to better align academia with industry, such as practice-based and practice-led research, recognition of prior learning and work-integrated learning.

One of the possibilities to increase capacity at postgraduate levels is to work closely with the design industry, and the study, therefore, gauged the perceptions, attitudes and needs of designers in industry about postgraduate education. The findings confirmed the gap between industry and academia, with industry seeing the main role of academia as the provider of entry-level designers. No alignment between postgraduate degrees and designer's career paths exist, and academic research is not seen as a valid or accessible source of knowledge.

Key findings and insights about the educational landscape, the theoretical models and the perceptions and needs of designers in industry formed the foundation for the development of a conceptual framework. The frame-innovation approach, a problem-solving method based on the processes used by expert designers, was used to direct the development of a framework that offers various possibilities. These possibilities take the widening domain of design into consideration through the conceptualisation of an open, collaborative space that would allow for the different interests of academia, industry, society and ecology and flexible research approaches.

The contribution of the study is, therefore, the creation of an evidence-based consolidated framework that is systemic and has practical value for future development and implementation; that may increase capacity and potentially align industry and academia beyond entry-level supply.

¹⁸ The paper is based on doctoral studies conducted at The Da Vinci Institute for Technology Management

Keywords: Capacity-building, challenges, postgraduate studies, communication design

Introduction

Design has developed into a mature discipline that addresses human, societal and ecological needs (Norman 2016; Manzini 2015). Part of this development is a widening of the domain of design and shift from solution-driven to problem-processing design. The changes in the discipline of design result in the requirements for new skill sets and knowledge for the designer and design education. These changes extend the competency needs of a designer to be interdisciplinary, to move from being focused on form, technique and manufacturing also to include social, cultural, economic, psychological, and ecological factors. Education therefore also needs to adapt to provide designers with matching skill sets, and a craft-based education can no longer sufficiently deal with these new requirements (Norman 2016).

The knowledge needs of a changing discipline led to the development of courses at higher education institutions (HEIs), making design one of the youngest 'new' disciplines (Buchanan 2001). For a field to be called a discipline it needs to have a specific research focus, a body of specific specialist knowledge based on theories and concepts, use a specific technical language and specific research methods according to research requirements; the discipline is taught at universities and colleges and linked to professional associations (Krishnan 2009). The discipline of design ticks all these boxes.

Knowledge production is strongly associated with economic and social development, and the development of high-level skills is seen as central to increase global competitiveness and success of societies (Webbstock 2016; Simpson & Gevers 2016). New knowledge generation often takes place at postgraduate levels. Therefore, the development of capacity and activity at postgraduate levels is not only central to the development of knowledge generation and distribution but also improves productivity and innovation (Simpson & Gevers 2016).

Postgraduate contexts in communication design

Design education in South Africa started to include more human-centred design approaches, service-learning and modules such as critical citizenship but is still seen as 'static' and not driven by local 'needs' (Sooful 2013, p. 238, 242; Chmela-Jones 2013; Costandius 2012). Despite shortcomings, undergraduate education provides entry-level designers with sufficient knowledge, skills and insight to carry on with a career in design.

Master's and doctoral degrees in design make up a small part of design education (Table 1). One of the outcomes of these low numbers is the shortages of lecturers with one-up qualifications. Another shortcoming is seen in the limited research and publication of local design knowledge that could advance *both* academia and practice. Frascara (2007) states that research needs to be relevant, and recognises that although there is no research without method, research is useless without relevance, even if it follows method. International research generally does not fulfil the need for relevant local knowledge

Advanced design knowledge and skills are part of the development of an innovative economy and the development of the discipline (Davis 2008). A challenge, not only in South Africa, is the inherent conflict between theory and practice in design. Potur and Kayihan (2010) point out a deep gap or bias where academics view the practical field as formalist and non-intellectual, and professionals see the academic environment as abstract and theoretical.

A review of the Higher Education Management Information System (HEMIS) data from 2010–2016 revealed that the Design and Applied Arts (030200) CESM produced only 14 doctorates (CHET, s.a.). This CESM includes Graphic Design and Illustration, Industrial Design, Commercial

Photography, Fashion/Apparel Design and Interior Design. Master's level in this broad CESM shows some growth, from 11 in 2010 to 36 in 2016. However, qualifications awarded at The South African National Qualifications Framework (NQF) level 8 (honours level) steadily decreased from 348 in 2010 to 108 in 2016 (Table 1).

Table 1. Design and applied arts (030200) CESM

2010 - 2016 Design and applied arts (030200) CESM* at Public HE institutes											
(All races)	NQF6	NQF7		NQF8				Total NQF8	NQF9		NQF10
	UG DIP/CERT (3YRS)	1ST BACH DEG (3YRS)	B TECH (1 YR)	1ST BACH DEG (4YRS) NQF8	PG/DIP/POST DIP DIP/CERT	PG BACH DEG	HONOURS NH DIP		MASTER'S RE-SEARCH	MASTER'S NON RESEARCH	
2016	468	20	174	73	0	0	35	108	33	3	0
2015	485	81	179	118	0	0	17	135	24	3	3
2014	484	56	No info	277	1	0	11	289	22	1	6
2013	483	37	No info	277	0	0	2	279	16	3	2
2012	526	23	No info	302	0	0	5	307	19	3	0
2011	446	10	No info	266	0	0	0	266	20	5	1
2010	488	13	No info	345	2	0	1	348	6	5	2

(*Excludes University of Stellenbosch, whose data captured in a different CESM)

Source: Compiled by author, based on available HEMIS tables (CHET, s.a.)

According to Academy of Science of South Africa (ASSAf) (2010) it 'takes' approximately three honours graduates to produce one master's graduate, and seven master's graduates to convert into one doctoral graduate in South Africa. The conversion based Table 1 is one master's graduate for every 10.5 honours and one doctorate for every 11.5 master's. This conversion indicates that design needs a much bigger pool of honours students or change the current conversion rate to master's and doctorate levels.

These numbers do not take the students at private HEIs into consideration – if they are included, then these pipeline numbers show more deviation from the ASSAf pipeline. Several private education providers entered the design education scene over the last 25 years. See Table 2 for a snapshot of private providers teaching communication design at undergraduate levels but none at postgraduate level.

Table 2 shows a gap in the public provision of NQF8 qualifications. This is a hopefully temporary, as a direct result of the re-aligned NQF framework. This gap may also explain the decrease in NQF8 graduates. A typical designer's education stream before the NQF restructuring was:

- National diploma ⇒ BTech ⇒ MTech ⇒ DTech
- Bachelor's degree (three years) ⇒ honours degree ⇒ master's ⇒ doctorate
- Professional bachelor's degree (four years) ⇒ master's ⇒ doctorate

The new structure looks as follows:

- National diploma (NQF6) ⇒ advanced diploma (NQF7) ⇒ postgraduate diploma/honours Degree (NQF8) ⇒ MA (NQF9) ⇒ PhD (NQF10)
- Bachelor's degree (NQF7) (three years) ⇒ honours degree/postgraduate diploma (NQF8) ⇒ master's (NQF9) ⇒ doctorate (NQF10)
- Professional bachelor's degree (NQF8) (four years) ⇒ master's ⇒ doctorate

Table 2. Communication design courses at HEIs in South Africa

Communication design courses at HEI's (July 2019)					
	NQF 6	NQF 7	NQF 8	NQF 9	NQF 10
Universities					
University of Pretoria		● (4 year)		●	
University of Stellenbosch		● (4 year)		Visual Arts**	Visual Arts**
North West University		● (4 year)		●	Communication**
Comprehensive Universities					
University of Johannesburg		●	■	■	■
Nelson Mandela University	●	BTech*		●	
Universities of Technology					
Tshwane University of Technology	●	BTech*		●	■
Cape Peninsula University of Technology	●	BTech*		■	●/■(UConstruction)
Vaal University of Technology	●	BTech*	■ PGDip Design Technology	●	
Central University of Technology	●	● Advanced Dip GD	■ PGDip Art and Social Design	●	
Durban University of Technology	●	BTech*	●	●	
Private Higher Education					
Greenside Design Centre		●	●		
AAA		●			
Inscape Design College		■	■		
Pearson (MGI)		●	●		
Prestige Academy		●			
Red & Yellow		●			
Stellenbosch Academy		●	●		
Open Window		●	●		
Cape Town Creative Academy		●			
IIE (Vega +RosebankCollege)	●	●	●		
Style Design College	●				
Ruth Prowse	●				
Damelin	●				

* Phaseout. ** Different CESMs ■ Combination: different design disciplines
Based on SAQA and institutional websites at the time of writing.

The reclassification of qualifications puts the BTech as equivalent to the BA Degree. The MTech and DTech degrees retained their level status (NQF8 and NQF9). The temporary absence of available advanced diplomas in design is at this stage an obstacle and designers with diplomas have few options to access postgraduate studies, with BTechs being phased out and fully subscribed.

The doctorate degree is an international benchmark widely used as a representation of the health of a higher education system, as well as an indication of the competence to start work as an independent researcher (Simpson & Gevers 2016). The top four reasons found by ASSAf for doing a doctoral study is the following: a natural continuation of studies or career, preparation for a career in teaching or research at a higher education institution, personal interests and some other professional career.

The NDP (2012, p. 308) recognises that universities play a critical developmental role: firstly, universities “educate and train people with high-level skills for the employment needs of the public and private sectors”; secondly, universities are the dominant producers of new knowledge and critique and develop existing knowledge; thirdly, universities provide opportunities for social mobility and strengthen “equity, social justice and democracy” (NDP 2012, p. 308).

ASSAf (2010:82) found that the weaknesses noted by employers in the skills and abilities of doctoral graduates in South Africa are a lack of “i) exposure to international expertise, theories and debates; ii) methodological competence; and iii) ‘real-world’ relevance”. Furthermore,

many private employers consider a doctorate as an unnecessary qualification and require more practical business administration, financial administration and other business-related skills (ASSAf 2010). Students, on the other hand, reported that the skills least developed as part of their doctoral studies were the development of innovative solutions, networking, teamwork, leadership and managerial skills, and international cooperation (ASSAf 2010). Graduates further reported that despite a change in title and status at their place of work after doctoral studies, their responsibilities, income, critical tasks and position did not necessarily change (ASSAf 2010).

52% of doctoral graduates are employed in higher education, the others are employed by industry, government, science councils, not-for-profit sector or self-employed. In humanities, 60% of doctoral graduates are employed in higher education (ASSAf 2010).

Academia and industry – worlds apart?

The academic profession needs renewal and needs to meet the needs of industry and society for the South African universities to expand (NDP 2012). Therefore, the question is what the design industry’s needs and perceptions are. Industry and academia are posed as opposites in Figure 1.

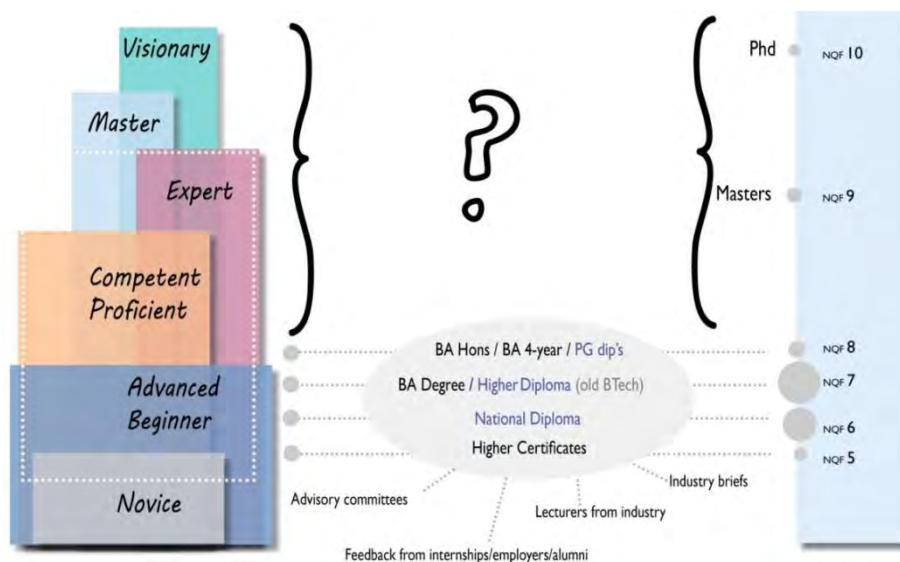


Figure 1: Aligning career paths with education levels

Bachelor degrees produce a graduate at an *advanced beginner* level. Alignment between undergraduate education and industry requirements are achieved using advisory panels, guest lecturers, feedback from students doing internships and alumni feedback.

The next level is *proficiency* and *competence*. The competency level is characterised by a new ‘unease’ due to the recognition of the scope of work and the sense of involvement (Dreyfuss & Dreyfuss 2014). This is followed by a level of *expertise*, the highest level that most designers will achieve. Here designers do not consider more alternatives but develop high-quality solutions faster than novices (Björklund 2013).

The development path on the left takes place in the *world of work*, and the knowledge necessary to cope is lay knowledge, gained through education and learning, experience and self-reflection (Mouton 1996). Mouton (1996, pp. 7–11) points out that the description ‘lay’ knowledge is by no means simplistic and can be complex and sophisticated. The imperative for such knowledge is *pragmatic* and caters for the *what* and the *how* to do it.

World 1 in a design context is the workplace where the goal-oriented process of design takes place. The designer needs to understand the nature of the design problem and project-specific knowledge about the client, cultural contexts, customer/user needs and expectations, visual approaches, trends and technologies and skills. Questions need to be answered about material, purpose, lifespan, markets, budgets and production; these are by no means simplistic questions, but pragmatic (Friedman 2003, p. 510; Visocky O’Grady & Visocky O’Grady 2017).

Project-specific knowledge is gained through what Friedman (2003, p. 510) and Buchanan (2001, p. 17) calls ‘clinical research’. Research undertaken in the studio (World 1) contributes to design knowledge, but the end purpose or intention of research in the studio is to complete a project and not to add to the broader knowledge pool.

World 1 problems or phenomena become the foundation for systematic, methodical and rigorous inquiry and study by scientific researchers, described as World 2 (Mouton 1996). World 2 is driven by the need for ‘*epistemic*’ or truthful knowledge and is the world of science where new theories are developed, tested, accepted or rejected. World 2 reflects the complexity of World 1.

Design research in World 2 would, for example, be conducted at institutions of higher education or by stakeholders such as organisations and includes applied research where the aim is to develop theories or principles, such as best practice, or rules-of-thumb working with classes of problems (Friedman 2003; Buchanan 2001).

World 3 of knowledge is characterised by a *critical* focus on the scientific world of a discipline and includes the meta-reflective and methodological development of scientific research. Research in this world aims to bring “conceptual clarity, historical perspectives and moral behaviour” (Mouton 1996, pp. 9–10). The interest of World 3 is the improvement of Worlds 1 and 2.

World 3 research in design, ‘basic’ research, is the search for general principles and meta-theories that cover broad areas and the cultural, broader social meaning of design outcomes (Buchanan, Doordan & Margolin 2010, p. 1). Meta-theories are often interdisciplinary and are critical to the future of the field (Buchanan 2001, p. 19). Development of researchers for Worlds 2 and 3 typically takes place at postgraduate levels.

Opinions from industry

The next section reports on insights about designers’ perceptions about academia and knowledge need once they enter the workplace and is based on fifteen in-depth interviews with communication designers at various levels of their career development and in different industries (Van Zyl 2018).

The interviews confirm that postgraduate design studies are seen to have limited value and recognition. When asked if they would consider studying further, participants related the answer to negative undergraduate experiences, the shortage of lecturers with suitable industry experience and that postgraduate education lacks accessibility, flexibility and affordability. When asked if they know anybody with postgraduate design qualifications, participants only mentioned colleagues or friends who did MBAs. Some of the older participants showed a lack of awareness of any postgraduate qualifications in design, while the younger participants are aware of postgraduate pathways.

Three of the participants have incomplete master’s degrees and mentioned barriers such as fees, workload and those supervisors are very young with little industry experience. This seems to be an unusual generation gap that is maybe more specific to design than other faculties at

university. These participants also pointed out how difficult it was to apply for postgraduate studies and to write a research proposal.

The second set of questions probed to see if designers in the industry regard universities as centres of knowledge. The lack of access to libraries and the high costs of academic journals were mentioned as barriers. Nearly all participants mentioned that their lecturers in the past have a lack of industry insight and knowledge.

The dominant outcome of PhD studies – that of a thesis – was criticised as a dated medium that lacks the fundamentals of communication. Only one older designer mentioned case studies as an opportunity to learn. Participants described universities as a provider of entry-level designers and with no other purpose.

The workplace is regarded as a key source of development, and moving positions are seen as part of development. Nearly all the participants who are formally employed pointed out that their employers encourage development, but do it in-house through workshops and training.

The knowledge and skills needs that received the most mentions during the interviews related to *business intelligence* such as entrepreneurship/own business, design strategy, project management, costings, proposals and tenders. The needs for workplace skills such as time management, life and work balance, health, how to behave and connect with people, workplace etiquette, the need to be adaptable and deal with criticism, were mentioned, and the need for mentorship has been a point of discussion. Several of the senior designers mentioned the need to improve written or verbal communication and the need to learn how to work in transdisciplinary or interdisciplinary collaborative teams.

The need to stay up to date with software and new media are seen as part of the daily existence and survival for designers. Respondents seemed comfortable about their design and technology knowledge and often mentioned the fact that they learn ‘on the job’.

The online space received the most mentions as a space for development. Design Indaba, an interdisciplinary design conference, was mentioned by nearly all the participants, but also criticised for being expensive and too international.

The younger designers mentioned that postgraduate qualifications could provide career opportunities, such as advancement to a management level or the start of their own business. Some of the respondents are aware that postgraduate qualifications would enable a designer to lecture, but some others saw lecturing as limiting. Further studies were recognised by these participants as a way to move up the corporate ladder or to apply for corporate or government positions, but that they would still like to be designers.

On a positive note – the ability to conduct research as part of the design process is seen as important by all the respondents, and the youngest two respondents were most positive about going back to study further and may point to a new generation of designers.

Industry is still seen as having a glass ceiling for designers, especially by participants in an agency environment, and these participants felt that they are still perceived as the ‘executors’. Several of the participants referred to the nature of the industry as brutal, and that their own business can be a better alternative. Participants also see the NGO sectors as an alternative area of practice, and several participants expressed the need to make a difference to society as designers.

The interviews provided rich insights about the perceptions of designers, their challenges and knowledge needs.

Models to close the gap

Theoretical frameworks and approaches that can be used as a foundation to close the perceived gap between industry and academia and promote mutual and collaborative development are briefly introduced and considered in the next section.

Recognition of prior learning (RPL)

RPL is a recognised process that can be used to provide access to postgraduate qualifications (SAQA 2013). RPL for access can take place when the candidate does not meet the entrance criteria (Keevy, Bolton, Naudé & Lloyd 2014). According to the Council on Higher Education – the responsible body for quality assurance and promotion in South Africa (CHE) a service provider may not allow more than 10% of a cohort to be RPL candidates (CHE 2016).

RPL could provide access to postgraduate design studies for candidates with national diplomas and work experience. This process may also apply to designers with a degree in Fine Arts, as was common practice in the past. There is not yet any research available that reports explicitly on the application of RPL in design education.

Work integrated learning (WIL)

WIL uses practices that integrate formal learning and workplace concerns and is highly suitable for the field of design (CHE 2011, p. 4). It is traditional practice to include some form of WIL in undergraduate design education, usually in the form of internships, shadowing or simulations.

The CHE also provides formats for WIL at master's and doctoral levels in the form of work-directed theoretical learning, problem-based learning, project-based learning, and workplace-learning. The CHE WIL policy document indicates possibilities for opportunities and different pathways for qualifications with a professional focus that could add diversity in qualification type and professional relevance (Webbstock 2016). The professional doctorates would be such an example.

Mode 2 approaches as a solution to close the gap

One of the ways to narrow the distance between academic research and industry is found in the development of the Mode 2 approaches. The Mode 2 model originated in management sciences as the answer to the need for practice grounded problem solving as part of academic research. The characteristics of Mode 2 knowledge production are as follows (MacLean, MacIntosh & Grant 2002, Sandstrom 2016):

- It is not institutionalised in universities but produced in the context of application.
- Makes use of a wider range of quality criteria. Mode 1 uses peer evaluation, Mode 2 uses the broader community and practicality of solutions as part of evaluation.
- Mode 1 is disciplinary and homogeneity while Mode 2 is transdisciplinary, heterogeneous and transient. The transdisciplinary nature means that the research and knowledge production is not limited to a single discipline, but that it is more systemic. The heterogenic nature means that the problem is not limited to a specific team or institution.
- Socially accountable and reflexive: a system of inclusion through negotiation with participants, composite nature.
- Mode 2 allows for a horizontal discourse that extends to include industry, with a permeable boundary.

Design as part of a creative and innovative economy could be ideally suited to Mode 2 knowledge production and transfer, where workplace problems can be solved through the development of practice-led, evidence-based solutions. Mode 3, as an alternative in transforming higher education, are now also debated and refers to knowledge systems situated in the electronic information space that looks at the combined future of science, knowledge and technology (Sandstrom 2014, p. 16).

Practice-based research

One of the newer approaches in design research is the application of practice-based research, where design activity is part of the research process. The criteria for evaluating practice-based research are how well the research questions were answered, the process and the contribution to knowledge (Candy & Edmonds 2018).

Practice-based research differs from practice-led research. Practice-led research shares characteristics with Mode 2 and is workplace or project related, where the practice is informed by research. The result is a contribution to new knowledge or best practice and the development of a solution. In these cases, the process and solution are taken into consideration when evaluating.

However, none of these alternatives is implemented without some problems. Many supervisors and students are not familiar with these approaches and examining workplace holders of PhDs remain problematic (Johnson 2005). To involve the professional community actively as field supervisors in assessment, can be one way of overcoming this challenge (Johnson 2005).

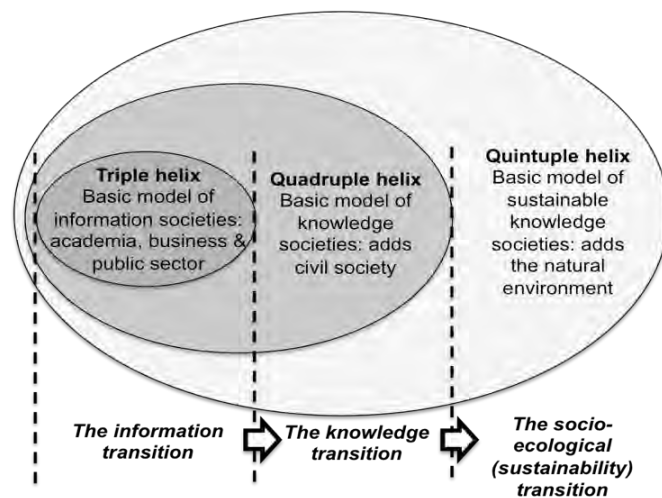


Figure 2: Triple Helix, Quadruple Helix and Quintuple Helix innovation systems, the Helix system and transition to sustainable knowledge societies

Source: <http://www.unksoc.org/index.php/handbook/4-1-transforming-societal-architectures/4-3-knowledge-and-innovation/4-3-1-creating-different-types-of-knowledge/>

The last conceptual model to consider is the Helix system of knowledge production between university, industry, public sector, civil society and the natural environment (Figure 2). Such a system creates hybrid integrated formats for the production, transfer and application of knowledge. From a practical perspective, a university, in this case, will be entrepreneurial driven and would educate not only individuals but also organisations. The Helix system proposes the integration of different stakeholders as part of a knowledge society (Gebhardt 2015).

The way forward

The information and insights gained from the literature, desk research and interviews were used to develop a systemic conceptual framework (Van Zyl 2018). Dorst's (2015) frame innovation approach was used to guide the process. This abductive approach follows seven stages of reframing: archaeology, paradox, context, field, themes, frames, futures, transformation and integration. Frame innovation is a design thinking approach used to tackle problems that are open, dynamic, complex and networked.

The lead question is 'what makes this problem hard to solve?' (Dorst 2015, p. 74). Dorst (2015) uses the word 'paradox' to describe a problem that has one, two or more conflicting statements, that is situated in the real world, and is caused by conflicting values and needs. The core paradox is a 'deadlock' that is in the way of the solution (Dorst 2015, p. 76). Some of the paradoxes identified are:

On perceptions, knowledge and skills in the industry:

- *Because* skills are seen as more important than knowledge, designers feel they do not need any further design education.
- *Because* the next stage in the career of a senior designer is in the management of strategy, creative direction, teams or an entrepreneurial venture, management knowledge is seen as more desirable than design knowledge.

On the gap between universities and industry:

- *Because* academic research adheres to academic requirements and platforms, industry cannot access it in terms of language/understanding or costs.
- *Because* the younger generation of design academics with postgraduate qualifications have little or no industry experience, designers in the industry feel they cannot learn from them.

On the postgraduate landscape:

- *Because* few designers return to postgraduate education, the pipeline from graduate to postgraduate is small.
- *Because* HEIs are under pressure to get master's and doctoral students to finish studies in a very short time, only a few top students are admitted with little flexibility for the older working student.
- *Because* of supervisor capacity, access is limited for the non-traditional student who could be RPL'd.

On Mode 1 approaches:

- *Because* design is visual and conceptual, designers struggle to fit in the narrow constraints of the conventional research approaches 'allowed' at universities.

- Because of university ‘conventions’, new research approaches are not seen as legitimate.

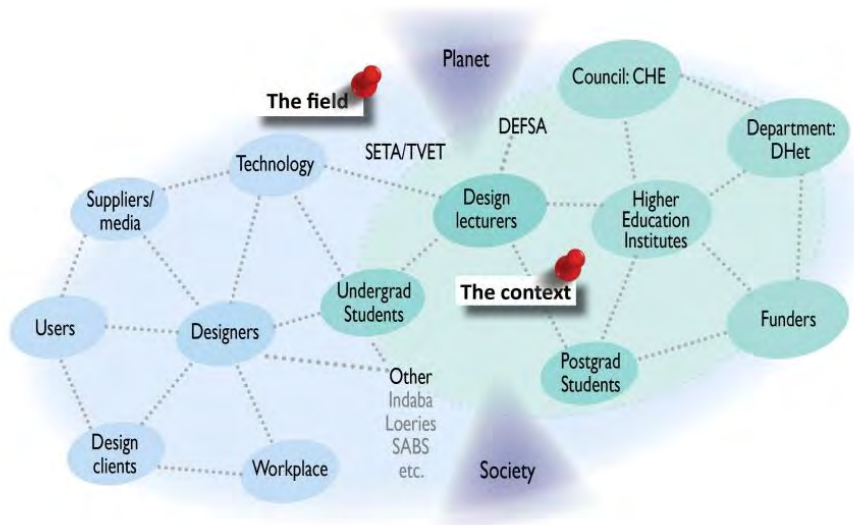


Figure 3: The context and field

When these paradoxes are studied, the complexity of the situation is evident. The next step in frame innovation is to look at the problem from a network point-of-view since complex problems can seldom be solved in isolation. The *context* is the inner circle of stakeholders and comprises students, lecturers/supervisors, HEIs, departments, councils and funders.

The field as an extension of the context comprises designers, workplaces, technologies, media, clients and users. Ecological and social challenges underpin both industry and education and these are indicated as *planet* and *society* (Figure 3).

Some collaborative and practical strategies to build capacity are:

- Collaboration between postgraduate and undergraduate students: expose undergraduate students to research.
- Use RPL for access.
- *Improve knowledge transfer*: make research accessible for industry
- *Find a common core*: Actively pursue the development of shared meaning, feeling of belonging, well-being and contributing to ‘something bigger than ourselves’ (Cherkowski & Walker 2014, p. 73). By developing such common foci, the relationship between field and context loses any form of hegemony and could direct research for the benefit of all (Figure 4).

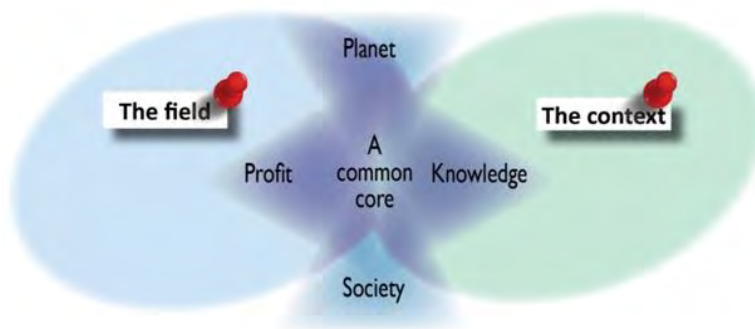


Figure 4: A shared common core

- *Collaborate with other disciplines in academia and industry:* through collaborating with other more developed disciplines, capacity can be developed much quicker than by doing it in isolation (Figure 5).
- *Build the business case for research:* Build an economic case for the use of evidence-based design and communicate the value for industry and society.
- *Embrace new approaches* in the postgraduate space, such as the use of practice-based, practice-led/Mode-2 approaches, with suitable evaluation methods.
- *Become user-centred.* Develop student-centred processes that allow for the adult working student and show empathy for the knowledge needs of the industry.

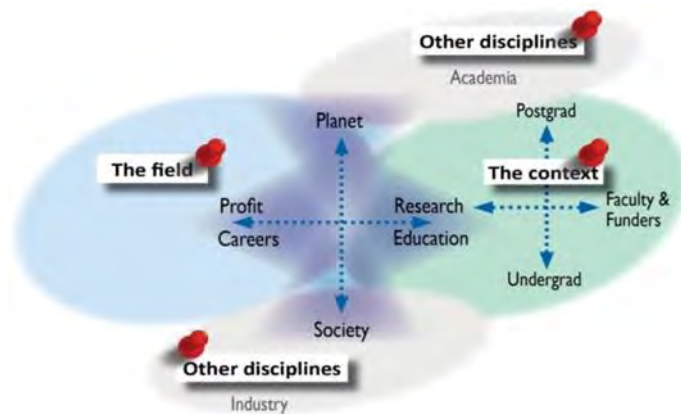


Figure 5: Integrated framework

This exploratory study revealed the division between postgraduate education and the industry. This gap and the lack of postgraduate capacity may be symptoms of the core of the problem: a discipline that is still trying to catch up with the internal shifts from being craft-based to knowledge-based, new knowledge needs and rapid changes in the workplace and technological landscape. DEFSA's role will be essential to address the challenges, monitor changes and to create opportunities to grow postgraduate education in design. Hopefully, ten years from now, the postgraduate landscape in communication design will look different.

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Simulated practice: The interior treatise through a cumulative design research process.

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Raymund Konigk: University of Lincoln

Elana van der Wath: University of Johannesburg

Abstract

Professional practice provides a context which requires design to be performed as an efficient and linear process (which may be a determining factor in the sustainability of practices). Research is an increasingly important component of accountability for design decisions.

In response to an environment in which graduates may not be fully prepared for the changes in, or the collaboration required by, contemporary design practice, the provision of a professional masters programme is organised as a simulated practice. Students act as associates in a practice with an established approach, knowledge base, culture, and documentation standards. This replaces idiosyncratic student outputs. The studio is considered not as the physical learning environment, but as the vehicle for a project-based learning strategy which allows the studio to generate synergy between the research and professional activities of staff and the learning activities of students.

The construction of a theoretical model clarifies the interrelationship of technical, conceptual, and professional knowledge areas embedded in the simulation (which is informed by two sets of design theory: altering architecture and the imaginal interior). The result is a hermeneutic model of the research-engaged design process.

This research illustrates how a master's interior treatise is compiled as the result of a cumulative and linear process with design and research as reciprocal activities. It is significant since this contributes to the conceptual movement of design as personal, individual expressions towards design as the result of collaborative processes and contextual responses. Students are specifically instructed in the processes and outcomes of the various investigations they have to conduct to create and defend their projects.

A simulated practice may produce an enabling studio with realistic expectations. Individual activities are coordinated to deliver consistent outputs to set quality standards. This provides a structured approach which supports the emancipation of the individual.

Keywords: Design research, simulated practice, studio, treatise