Cape Peninsula
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INTEGRATING PRINCIPLES OF SUSTAINABILITY INTO COMMUNICATION DESIGN PEDAGOGY AT SELECTED HEIS IN CAPE TOWN: TOWARDS AN INDUSTRY-RESPONSIVE CURRICULUM

by

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DECLARATION

I, Laskarina Alice Yiannakaris, declare that the contents of this dissertation/thesis represent my own unaided work, and that the dissertation/thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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ABSTRACT

This research study investigates the level of awareness of, and engagement with Design for Sustainability (DfS) among three categories of actors within the Cape Town communication design fraternity: design educators, design students and design professionals. It focuses specifically on the degree of application of DfS within three selected Higher Education Institutions (HEIs) in Cape Town, while also interrogating the local industry's need for students who are knowledgeable and skilled in this subject.

To successfully practice DfS, communication designers need to be responsive to the possible environmental, social, cultural and economic impacts of their work. This study argues for the early incorporation of principles of sustainability into communication design curricula in order to promote the uptake of DfS.

An extensive review of literature facilitates the showcasing of practical examples of how communication designers can positively address sustainability through their design solutions. Further, it also unpacks the barriers and solutions to integrating DfS into both education and practice. The study employs a qualitative research approach. Using purposive sampling, rich data is gathered from the key informants through focus groups and semi-structured interviews. Activity Theory is used as an analytical lens through which to examine the dynamics between the three different actors who are involved in the activities of teaching, learning and practicing DfS in communication design.

The findings identify major gaps in the teaching of DfS as the subject is typically considered to be applicable to environmental issues. There is also limited understanding of how to practically apply principles of sustainability. Along with proposing appropriate strategies and tools to enrich the education around DfS in a more holistic manner, the study highlights the need for proactive re-curriculation so as to effectively sensitise students to the responsibility of communication designers to tackle sustainability issues. A set of adaptable guidelines is proffered as a way of making DfS more accessible to students while training them to channel their unique skill set and enhance attributes of agility and resilience in preparation for professional practice and an ever changing world. Educators are seen as playing the most crucial role in effecting the proposed guidelines because they interface with both students and industry; as well as straddle the critical domains of research, pedagogy and professional praxis. Additionally, this study recommends establishing more robust, responsive and meaningful connections between academia and industry in order to develop contextually relevant industry standards that will promote and advance DfS best practice among the Cape Town communication design fraternity.

KEYWORDS

- Behavioural change
- Cape Town
- Communication design
- Context-responsiveness
- Design education
- Design practice
- Design for Sustainability
- Environmental responsibility
- Higher Education Institutions
- Principles of sustainability
- Socially Conscious Design
- Socially Responsible Design
- Sustainability
- Sustainable lifestyles
- Re-curriculation

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The financial assistance of the CPUT University Research Fund (URF) towards this research is acknowledged. Notwithstanding this generous support, the opinions expressed in this thesis and the conclusions arrived at, are those of the author, and are not necessarily to be attributed to the Cape Peninsula University of Technology.

[1] For more information about CyclusOffset see: http://www.papersmith.co.za/cyclus-offset/

DEDICATION

"Knowing is not enough, we must apply. Willing is not enough, we must do."

– Johann Wolfgang von Goethe (n.d)

This project is dedicated to my late parents, Rita and George Yiannakaris whose courage, resilience and determination inspired me to persevere through many tough times.

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GLOSSARY

Terms/Acronyms/Abbreviations	Definition/Explanation
Activity Theory (AT)	a theory attributed initially to the Soviet psychologist, Lev Semyonovich Vygotsky and his colleagues. AT was further developed by other scholars – including Alexei Nikolaevich Leont'ev and later Yrjö Engeström – in the analysis of various dynamics in human activities (M'Rithaa, 2009:xv).
Agents of Change	people who change the way others think and/or the way they act, for the better. Designers who do not just understand sustainability but act on it, incorporating it into everything they design (Dougherty, 2008:13).
Biomimicry	the practice of learning from, and emulating nature's genius in order to solve human problems (Benyus, 1998:9).
Carbon Footprint	a measure of the amount of carbon dioxide (CO_2) produced at a given time (Denison, 2009:182).
Closed-loop Systems	an ecological system that does not rely on inputs from, or matter to be exchanged from, outside of the system. Some or all outputs of the system are also used as inputs (Sherin, 2013:182).
Communication Design	the term refers to the creative discipline of planning and shaping messages in content, form and delivery (Price & Yates, 2015). These messages usually evoke a response from a specific target audience. Communication designers therefore have the ability to inform, persuade and ultimately change how audiences act (Dougherty, 2008; Chick & Micklethwaite, 2011). Communication design is not only concerned with printed outcomes, but also includes multi-media elements such as visuals, video and sound. Communication design has come to define a number of design practices, inter alia: graphic design; information design; web design; advertising and branding (Perullos, 2013). Throughout this thesis the terms 'communication design' and 'graphic design' are interchangeable, therefore when the term 'graphic design' is cited in literature it is understood to refer to communication design. See Graphic Design.

Continuous Professional Development (CPD)	a means of introducing or enhancing professional knowledge, skills and attitudes (Kennedy, 2005:236).
Cradle-to-Cradle	a design strategy that attempts to eliminate the concept of waste through the creation of *closed-loop systems* (Braungart & McDonaugh, 2002). This approach requires designers to trace the entire life cycle of materials, from extraction, production, distribution and use, through to disposal, when materials should either be recycled or reclaimed (Irwin, Richardson, Sherwin, 2005:16). Cradle-to-Cradle was inspired by *Biomimicry*. One of the guiding principles of Biomimicry is that in nature all waste equals food. Braungart and McDonaugh (2002), the pioneers of Cradle-to-Cradle, were adamant that there was no reason for human activity to be inherently wasteful and destructive.
Creative Commons (CC)	a nonprofit organisation that enables the sharing and use of creativity and knowledge through free legal tools (Creative Commons, n.d.).
Design	a professional field categorised by different disciplines including, *inter alia*: communication design; interior design; industrial design; jewellery design; fashion design and surface design (Chick & Micklethwaite, 2011). Design is viewed as a strategic problem solving tool that, through various creative processes, can provide innovative alternatives and successful solutions (Designers Accord, 2011; Sherin, 2013). Design is not simply concerned with producing artefacts, although it does consider aesthetics.
Design Activism	design thinking, imagination and practice applied knowingly or unknowingly to create a counter-narrative aimed at generating and balancing positive social, institutional, environmental and/or economic change (Fuad-Luke, 2009: 27).
Designing Backwards	similar to Cradle-to Cradle in that it urges designers to make better design decisions by considering their design project's ultimate destination (Dougherty, 2008). Designers need to work backwards, considering every stage of the design process, including distribution, manufacturing and materials, until arriving back at the design studio.

Design for Sustainability (DfS) theories and practices for design that cultivate ecological, economic and cultural conditions that will support human well-being indefinitely (Thorpe, 2007:13). In the context of this thesis the term DfS refers to a specific subject within the domain of sustainability. See Sustainable Design.

Design Thinking a popular methodology advocated by the international design and innovation firm IDEO, Design Thinking uses the designer's sensibility and methods to match people's needs with what is technologically feasible. It is a creative process based on the "building up" of ideas, which is achieved by working through several stages including discovery, interpretation, ideation, experimentation and implementation (Brown, 2008:86). Design Thinking is a collaborative, human-centered approach to problem solving (IDEO, 2008:11) Increasingly being adopted into disciplines outside of the design domain, most notably in business, Design Thinking reveals the power of design to drive action for sustainable change (Cassim, 2010:158). See Human-Centered Design.

Ecodesign a design process that considers the environmental impacts associated with a product through its entire life from acquisition of raw materials through production/manufacturing and use to end of life. It seeks to improve the aesthetic and functional aspects of the product (Fuad-Luke, 2009:339).

FSC the Forest Stewardship Council is a not-for-profit organisation that sets the standards for responsibly managed forests, and certifies products originating from these forests (Forest Stewardship Council, n.d.).

Graphic Design a discipline concerned with visual problem solving through the arrangement of words, and/or images. See Communication Design.

Green Design a design process in which the focus is on assessing and dealing with individual environmental impacts of a product rather than on the product's entire life (Fuad-Luke, 2009:340).

Green Economy	a system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well-being over the long term, while not exposing future generations to significant environmental risks and ecological scarcities (UNEP, 2008).
HEIs	Higher Education Institutions**.**
Human-centered design	a creative approach to problem solving that keeps people's lives, their needs and desires at the core. It consists of three main phases: Inspiration Phase, Ideation Phase, and the Implementation Phase (IDEO, 2015:9-11). See Design Thinking.
Life Cycle Assessment	an assessment that looks at the environmental impact of all the components of a product or service system, from the growth or mining of raw materials, to manufacture, distribution and the eventual disposal by the end user (Jedlicka, 2010:52).
Pillars of Sustainability	Environmental; Social; Cultural and Economic.
Principles of Sustainability	a set of guidelines that can be used to assist designers to design sustainably.
Recycled paper	paper that is made from pre- or post-consumer waste.
Sustainability	the balanced use of natural, sociocultural and economic capital for the continued health of the planet and future generations (Sherin, 2008:12).
Sustainable Communication Design	"the application of sustainability principles to communication design practice," it requires that practitioners "consider the full life cycle of products and services, and commit to strategies, processes and materials that value environmental, cultural, social and economic responsibility" (Cadarso & Da Silva, 2012:177).
Sustainable Design	design that considers, throughout its life cycle, the environmental, sociocultural and economic implications of its materials, production processes, intended use, and its message (Chick & Micklethwaite, 2011:114). Whereas there may be some different epistemological emphasis, for the purpose of this thesis Sustainable Design will

	be taken to be synonymous with Design for Sustainability. See Design for Sustainability.
Sustainable Systems Thinking	an approach to problem solving where all four pillars of sustainability are taken into consideration, and the problem is seen to be an "integrated component of an entire network", rather than an isolated component (Perullos, 2013:xii).
Triple-Bottom Line	refers to the balanced exchange of goods and services (beyond just profit) that takes into account the economic, environmental, and social implications of an organisations' output and performance – also commonly referred to as People, Planet, and Profit (Sherin, 2008:187).
Work Integrated Learning (WIL)	a university programme that encourages experiential learning through the discipline-specific placement of students in industry.

CHAPTER ONE
INTRODUCTION TO THE STUDY

1.1 Introduction

This study investigates the challenges of integrating the principles of sustainability into communication design curricula and the appropriate strategies for achieving such integration at selected Higher Education Institutions (HEIs) in Cape Town, South Africa. As an approach to design, sustainability is commonly linked to disciplines such as architecture, interior design, industrial design and fashion design; but its applicability to communication design is not as apparent (Perullos, 2013; McMahon, 2014). Through advertising, marketing, packaging and websites, the communication design industry, one way or the other, influences people's daily lives (Price & Yates, 2015). A greater understanding is therefore needed of how this industry can practice responsibly, by way of sustainability issues, in order to prevent any negative impact its work may have on society and the environment.

The need to make sustainability contextually relevant to the local communication design fraternity (educators, students, professionals), as well as the confusion around the term 'sustainability' are recurring themes in this thesis. This study identifies educators and the institutions they represent as key role players in informing a sustainable approach to communication design.

1.2 Background to the study

1.2.1 Design can change the world!

The immense environmental, sociocultural and economic crises experienced by millions of the world's denizens, in 2015 alone are evidence of growing global calamities. The devastating earthquake in Nepal; the destabilising terrorist attacks in parts of Africa, the Middle East and Europe; the raging civil war in Syria and the subsequent fleeing of hundreds of thousands of refugees; and the catastrophic financial breakdown in Greece are such examples. While certain events are impossible to predict, there is a strong belief amongst the design community that the resulting challenges of such events can be lessened and even eliminated (IDEO, 2008; Shedroff, 2009; Simmons, 2011). For example, the rapid spread of Ebola in north-west Africa could have been prevented by designing effective communication tools to educate people about the virus, how to avoid contracting it, and where to find emergency treatment[2] (Quist-Arcton, 2014; Obilade, 2015).

In order to positively address current and future crises, there needs to be change. According to design innovator, Bruce Mau, this change needs to be "massive". In his book, *Massive*

[2] For examples of how communication design can promote Ebola awareness, refer to the CD-ROM appended at the end of this thesis.

Change, Mau (2004:18-19) highlights design as a powerful tool for achieving change, and designers as the agents for positive change. In this famous quote by Nelson Mandela: "Education is the most powerful weapon which you can use to change the world" (Mandela, 2011:245), another important tool for bringing about change is singled out. This research study explores how maximum impact can be reached when the above-mentioned beliefs – design and education used as tools for change – are combined with sustainability principles.

1.2.2 Role of HEIs in training future communication designers

As the world changes, so too do the roles and responsibilities of design professionals (Chick & Micklethwaite, 2011:101). Today's students will become future industry leaders, and therefore need to be inspired and empowered to become agents of change. Manzini (2011:11) advocates that design schools have the important role to play as the "critical and creative actors in the ongoing transition towards sustainability."

Through working with communication design departments at two HEIs in Cape Town, the researcher identified that *Design for Sustainability* (DfS) had not yet become an integral part of curricula. Upon further investigation through literature, it was discovered that this was a common problem globally. This lack of integration is a concern because communication design students need to be educated about their significant role in addressing issues of sustainability. Through the messages they communicate, designers have the power to inform public thoughts, opinions and views, and can therefore influence change in attitudes and behaviours (Dougherty, 2008; Sherin, 2008; Shea, 2012; Perullos, 2013; Price & Yates, 2015). With this power comes responsibility, and design curricula need to adapt to include the knowledge, skills and tools required for students to confidently embrace this role. Curricula also need to be attuned to the local context in which it is taught so that sustainability becomes relevant to the lives of the students and the communities in which they live. In this study the community is the City of Cape Town, and no one resource currently exists to guide communication designers towards best, sustainable practices.

Cape Town faces complex challenges of poverty, unemployment, inequality and scarce resources. To address the city's challenges local policy makers have identified the urgent need for unique and sustainable solutions (Pieterse, 2010; Swilling, 2010). If equipped with the right skills, local communication designers could create solutions that lessen the negative impact of these challenges, or prevent them all together. Several authors (Benson & Napier, 2012; Perullos, 2013; Tarallo, 2013; Dritz, 2014) argue that informed communication design graduates can influence the design industry to address the environmental, sociocultural and economic impact of their work, therefore building a powerful community of agents of change.

The next section will provide a brief history of the concept of sustainability and an overview of related concepts and terms important to this study.

1.3 Key concepts and terms

While the Glossary is intended to familiarise the reader with the relevant terms that are linked to this study, additional information about the background to key concepts and terms are elaborated on below. These include: Sustainability, Principles of Sustainability, DfS and Design Education for Sustainability.

1.3.1 Sustainability

According to Mebratu (1998), it is widely accepted that discourse around the concept of sustainable development first became prevalent after appearing in the 1987 United Nations World Commission on Environment and Development (UN WCED) Report, commonly referred to as the Brundtland Report. In the report sustainable development was defined as *"*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*"* (UN WCED, 1987:8). The report, which was responding to noticeable deterioration of natural resources and the human environment, asserted that sustainable progress was interlinked with the state of the economy, environment and society (Everard, Johnston, Robèrt & Santillo, 2007; Werbach, 2009; Perullos, 2013)**.** The 1992 UN Conference on Environment and Development (UNCED), also known as the Earth Summit, established the view that "sustainability equals the integration or balancing of environmental, social and economic issues" (Sutton, 2004:5). The term 'sustainability', a derivative of the concept sustainable development, has been adopted globally into policy documents of various sectors of society and has resulted in multiple definitions and interpretations of the word (Mebratu, 1998).

This thesis follows Werbach's (2009:9-10) interpretation of sustainability, which consists of the following four pillars: *Environmental; Social; Cultural and Economic.*

1.3.2 Development of the Principles of Sustainability

In 1992, in response to the lack of clarity around the terminology, members of the scientific community came together to "derive a set of universally-applicable principles which define sustainability at all scales, disciplines and aspects of human endeavour*"* (Everard *et al*., 2007:62). Four guiding principles, which imply what should be done to eliminate the negative effects of human society on the earth, were developed (see Table 1.1)

Table 1.1: The Four Sustainability Principles (Adapted from AIGA, 2009:14)

To become a sustainable society we must eliminate our contributions to:			
1. The systematic increase of concentrations of substances extracted from the Earth's crust (for example, heavy metals and fossil fuels)	**2.** The systematic increase of concentrations of substances produced by society (for example, plastics, dioxins, PCBs and DDT)	**3.** The systematic physical degradation of nature and natural processes (for example, over harvesting forests, destroying habitat and overfishing)	**4.** The conditions that systematically undermine people's capacity to meet their basic human needs (for example, unsafe working conditions and not enough pay to live on)

These principles have become known as *The Natural Step Framework*, a framework that represents the interconnectedness of the four pillars of sustainability, and provides guidance for any organisation to pursue sustainability (Everard *et al*., 2007; AIGA, 2009). Much like with the definition of sustainability, many iterations of the principles of sustainability have subsequently developed over the years, causing confusions and re-emphasising that sustainability has come to mean various things to various people, depending on their agenda (Agogino, Bayley, Hartman, Oehlberg, 2012). However, the Four Sustainability Principles are recognised by several authors (Dougherty, 2008; AIGA, 2009; Jedlicka, 2010) as having contributed significantly towards the development of principles that guide DfS. The principles of sustainability and how they have been adapted to the design context will be interrogated in Chapter Two.

1.3.3 Sustainability in the context of design

Design has increasingly become recognised as a powerful and vital tool in the drive towards sustainable change (Chapman & Gant, 2012; Giard & Walker, 2013). Victor Papanek is considered by many authors to be the forerunner in the sustainable design movement (Sherin, 2008; Fuad-Luke, 2009; Jedlicka, 2010; Chapman & Gant, 2012). According to Sherin (2008:16), Papanek began to challenge designers to take responsibility for their roles in "environmental degradation and social inequity" in the early 1970s through his book, *Design for the Real World*. The design community was slow to respond to Papanek's call and only in the early 1990s did issues relating to sustainability start to be addressed. First came *Green Design,* which considered the environmental impact of design outcomes by, for example, choosing recycled materials (Chick & Micklethwaite, 2011:102). This was then succeeded by *Ecodesign,* an approach that looked beyond materials and rather considered the environmental impact through the entire life cycle of the design: from the origins of materials, the manufacturing processes involved, transportation and logistics, the actual use of the design, and finally to what happens to the design after its intended use (Fuad-Luke, 2009). Design for Sustainability (DfS) emerged out of the Ecodesign movement, it was an attempt to address the objectives of sustainable development (Thorpe, 2007; Cadarso & Da Silva, 2012). DfS emphasises the need for a holistic approach to design that considers not

only the environment, but also social and economic implications. Furthermore, DfS emphasises the need to consider the larger context in which designers' work would exist (Blincoe, Fuad-Luke & Spangenberg, 2010). Giard and Walker (2013:5) define DfS as "an endeavour that calls upon human creativity to imagine, conceptualise, visualise, and effectively communicate alternative pathways for living meaningful lives while consuming far less in terms of energy and materials". DfS is concerned with design existing within sustainability, not sustainability existing within design (Chick & Micklethwaite, 2011:117).

1.3.4 Design Education for Sustainability

In terms of design education, Papanek (2000:291) notes a flaw in the system:

> *The main trouble with design schools seems to be that they teach too much design and not enough about the ecological, social, economic, and political environment in which design takes place*.

To overcome this, and the perception that design is simply concerned with producing artefacts, students need to be educated about the impact that their work can have on people and the planet. Design educators, who form part of the greater design community, are the key to providing this information and ensuring the uptake of DfS among students. They must "structure opportunities for students to develop deep, first-hand experience, engage empathetically, and cultivate broad understanding*"* (Designers Accord, 2011:3). This thesis attempts to discover how higher education can empower communication design students to become problem solvers by exposing them to principles of sustainability.

1.4 Statement of the research problem

HEIs in Cape Town do not effectively integrate principles of sustainability into the communication design curricula. This results in students failing to address the environmental, sociocultural and economic impact of their design solutions.

1.5 Rationale of the study

The researchers interest in DfS within the context of communication design education was shaped by her experience as a practising communication designer, and her consciousness of this professions impact on society. Four years into her career, the researcher wanted to expand her knowledge about DfS. In 2008, upon realising that no such courses were offered locally, the researcher enrolled in the *Urban Sustainable Design Studio, a* summer school hosted by the Foresight Design Initiative in Chicago, USA. Here the researcher was exposed to innovative ways in which design could tackle complex sustainability challenges. The innovation was not only focused on materials and production processes, but also on how to approach a design problem by asking the right questions.

On returning to Cape Town, the researcher approached her alma mater, Cape Peninsula University of Technology (CPUT), with a proposal to conduct an introductory DfS module with fourth year communication design students. The researcher ran the module at CPUT in 2009 and 2010. The researcher was then approached to teach the same module with third year students at Ruth Prowes School of Art in 2011 and 2012. Through this involvement with design education, the researcher identified a gap in communication design curricula. Outside of the DfS module there appeared, across all student levels, to be little or no engagement with the subject, specifically from a practical perspective. In addition to this, the researcher was working as a communication designer and had first-hand experience of the industry's lack of insight into sustainability as a design strategy. These observations provided an opportunity to investigate guidelines for learning, as well as best practice in the context of design education, in order to encourage young designers to become change agents within the industry.

1.6 Basic assumptions of the study

This study assumes that:

- design educators play a critical role in inspiring and teaching students about important design concepts. Communication design educators are not equipped with the knowledge and tools to teach about DfS;
- DfS cannot afford to be considered merely as a design trend. Rather, it must be considered a fundamental inclusion in any communication design brief;
- communication design students need to be given the opportunity to practically apply the principles of sustainability to their design solution. They need to be exposed to, and experiment with, different materials and production processes;
- the local communication design industry has been slow to adopt DfS into their practice. In order for the design industry to become accountable for the impact of their design decisions, a new breed of conscious designers is needed; and
- *climate change* is a reality. It is worsened by human impact on the earth, and designers have played a role in this impact. By understanding, and improving the life cycle impact of a piece of communication design, designers can lessen their negative impact on the world.

1.7 Aim and objectives of the study

The main aim of this study is to convey the importance, and feasibility, of incorporating sustainability principles into communication design curricula. To achieve this aim, the following specific objectives are addressed:

- evaluating the level of awareness of sustainability within the communication design fraternity in Cape Town;

- showcasing successful outputs/exemplars based on the adoption of sustainable principles;
- developing guidelines for integrating the principles of sustainability into current communication design curricula at locally-selected HEIs; and
- proposing appropriate strategies and tools to allow for local design educators and students to incorporate principles of sustainability within their specific communities of practice.

1.8 Research Questions

1.8.1 Main research question

How can principles of sustainability be integrated into communication design curricula in order to advance design solutions that consider environmental, sociocultural and economic challenges?

1.8.2 Sub-questions

1. Why are principles of sustainability not widely incorporated into communication design curricula?
2. Why should these principles be incorporated into the curriculum?
3. What is the level of sustainability awareness amongst communication design educators and students?
4. At what stage, if at all, are students currently introduced to the concept of DfS?
5. What is the level of engagement with principles of sustainability amongst educators and students?
6. What strategies can be applied to promote the uptake of sustainability principles?

1.9 Research design and methodology used to address the problem

In order to address the research problem and to achieve the desired objectives outlined in Section 1.7, a qualitative research methodology is followed. Qualitative research is concerned with capturing a holistic perspective; it not only describes what happens, but also why and how it happens, within the context being studied (Denscombe, 2007:249). Purposive sampling was used to identify key informants, namely, design educators, students and professionals. Primary and secondary research sources were used to obtain comprehensive knowledge about the key issues as well as the key informants (Berger, 2011:33). Focus groups, semi-structured interviews and an online survey were the primary research methods used to collect data. Secondary research sources included published information such as books, journals and internet-based resources. These were used to collect past and present data that provided a better understanding of the research problem.

1.9.1 Conceptual framework

The research is positioned within an Activity Theory framework. Since there are multiple actors involved with this study, Activity Theory provided an analytical lens through which to view the interrelationship between these actors when involved in context-based activities (Engeström, 1999:65). Figure 1.1 is a summary of the overall research design.

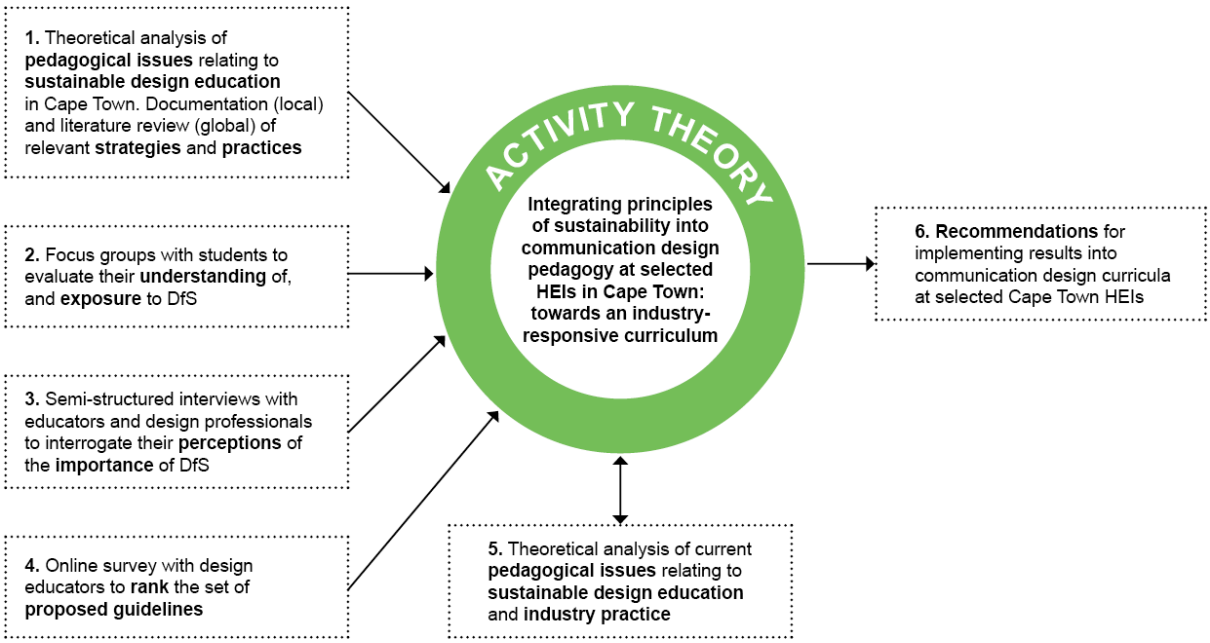

Figure 1.1: The overall research design (after M'Rithaa, 2009)

The figure above illustrates how Activity Theory was used as a lens for investigation, as well as a lens for the analysis of the investigation.

1.10 Delimitations of the study

This study focuses on current communication design courses offered at three HEIs located in and around the Cape Town city bowl:

- Cape Peninsula University of Technology (CPUT), the largest public university in the Western Cape Province;
- Ruth Prowes School of Art (RP), a small private tertiary institution; and
- Vega School of Brand Leadership (Vega), a large private tertiary institution with branches nationally.

By selecting institutions of different sizes one gets a sense of the scalability at which the principles of sustainability can be adopted into the curriculum. These HEIs were selected because the curricula focuses on different communication design related subjects. For example, at Vega the focus is on brand innovation, whereas at RP the focus is on communication design aesthetics. CPUT has a large suite of subjects relevant to

communication design, so the curriculum is fairly diverse.

Educators who teach design theory and/or design practice to communication design students at the above-mentioned HEIs were consulted during this study. Only third year students from the three selected HEIs were sampled, as they would have had more experience with the communication design course than first and second year students.

Cape Town-based design professionals from five different communication design companies were selected to represent the greater communication design industry. While these companies offered similar communication design services, the scale of execution differed according to the size of the company, the resources available, as well as the clients they serviced. This allowed the researcher to gain insights into the level of awareness and practice of DfS across a spectrum of the industry.

From its onset, the research intended to validate the promotion of positive change in both pedagogy and praxis. However, this study is not concerned with designing new curricula for HEIs in Cape Town; but various guidelines for integrating the principles of sustainability into the current curricula have instead been developed. Furthermore, the scope of this study is not concerned with interrogating the most environmentally, socially and economically responsible material options and production processes available to the communication design industry. Rather, current examples that are considered to represent best practice are presented.

1.11 Significance of the study

Sustainability is a critical issue that can change the way industry impacts on the local environment, society and economy. The Cape Town communication design industry is not significantly addressing this issue. Different levels of understanding of sustainability result in communication designers' inability to contribute innovative solutions (Perullos, 2013; Dritz, 2014). HEIs are also speaking a different language when it comes to sustainability. This study explores the possibility of sustainability becoming a core agenda and connecting private and public institutions in Cape Town. If exposed to similar content, students should have a similar understanding of the creative possibilities when designing according to the principles of sustainability. This research makes a contribution towards a more homogenised exit profile of a communication design student. Communication designers who speak the same language should then be encouraged to share knowledge, and collaborate on answering challenging design briefs.

This research study motivates for greater integration of the principles of sustainability into the communication design curriculum. At the time of conducting this study, CPUT, including the Faculty of Informatics and Design embarked on a comprehensive process of re-curriculation. Since DfS has not been a formal inclusion in the CPUT communication design course, the various recommendations developed by the researcher will propose how the integration of principles of sustainability can be achieved. CPUT produces the largest pool of design graduates in Cape Town, putting this institution in a position to positively influence change in the communication design sector. These recommendations are adaptable, therefore applicable for use across all Cape Town HEIs.

International trends in design and business are revealing the growing pressure on such industries to innovate around all aspects of sustainability. Rather than just being reactive to the problems identified in the communication design industry, this study aims to be proactive by providing a workable context in which DfS can develop. The findings of this research study offer a valuable contribution by helping to grow a student base of design thinkers well versed in DfS.

1.12 Structure of the thesis

Following from Chapter One, which gives an overview of the topic under investigation, the structure of the thesis is as follows:

Chapter Two: Literature Review

This chapter provides an in-depth review of literature that focuses on the principles of sustainability; the relevance of DfS in communication design education and practice; and the potential barriers and solutions to integrating DfS into both education and practice. Further, global and local examples of sustainable communication design are reviewed; ending with the current state of DfS within the African and South African design context.

Chapter Three: Research design and methodology

This chapter outlines the research design and methodology used in this study. It discusses the qualitative data collection and data analysis methods, as well as the analytical framework utilised in this study. The population sample is also presented.

Chapter Four: Analysis of Findings: DfS in communication design education

This chapter presents the analysis of the findings from focus groups with students and semi-structured interviews with educators from three HEIs in Cape Town.

Chapter Five: Analysis of Findings: DfS in the communication design industry

This chapter presents the analysis of the findings from semi-structured interviews with design professionals from five communication design companies in Cape Town.

Chapter Six: Discussion of Findings

This chapter discusses the main findings addressing the study's research questions. It culminates with a discussion about proposed guidelines for integrating DfS into communication design education.

Chapter Seven: Conclusion

The final chapter summarises the conclusions drawn from the main findings of this study as well as presents the proposed guidelines for integrating principles of sustainability into Cape Town communication design curricula. It also outlines the study's contribution to knowledge, limitations, and implications for further research.

1.13 Summary

DfS is popular globally, but locally there is not a clear understanding of what sustainability really means within the context of communication design. Communication designers can make a positive impact through the materials and production processes they choose, but also through the messages they create. The key to this success is education. In order to engage communication design students to become custodians of their city's future, they must not only be literate in sustainability, but they must also be made to feel confident in their abilities as change agents. This research study investigates the various ways in which this can be achieved.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter is a review of literature concerned with principles of sustainability, current practice of sustainable communication design, and ways of implementing sustainability into design education. The principles of sustainability and how they apply to communication design are unpacked. Proposed approaches and strategies that designers can use to implement sustainability principles are investigated. Practical examples of how communication designers can practice DfS, and the barriers preventing industry in the effective uptake of DfS, are presented. Lastly, sustainability in education is explored as a solution to drive and inspire change in the communication design industry, both in a global and local context. The study of this literature offers insights into the potential of advancing the communication design industry through the adoption of sustainability principles.

2.2 The role of the principles of sustainability

DfS is a response to the momentous challenge faced by society to contribute positively towards environmental stewardship, social responsibility, cultural preservation, and economic viability (Blincoe *et al*., 2010; Perullos, 2013; Robertson, 2014). In order to successfully reshape the world, designers need to be prepared and competent to adopt new creative processes (Giard & Walker, 2013; Price & Yates, 2015). The principles of sustainability offer guidelines to assist designers, in thought and action, to address the challenge of designing for sustainability (Fuad-Luke, 2009). Four documents outlining the principles of sustainability, applicable to design, will be reviewed in the following section. Only certain principles from each document, relevant to communication design, will be highlighted (see Appendix A for hyperlinks to all documents).

2.2.1 Examples of principles of sustainability

Over the past three decades there have been several compilations of principles deemed important for designers to practice sustainably (AIGA, 2009; Blincoe *et al*., 2010). The four that will be reviewed are *The Hannover Principles, The SCALES Principles, The GDC Sustainability Values and Principles*, and *The Living Principles for Design.*

In 1992 William McDonough & Partners assembled the *The Hannover Principles: Design for Sustainability* document for the Expo 2000 - The World's Fair. The aim of the document was to "provide a platform upon which designers can consider how to adapt their work toward sustainable ends" (Braungart & McDonaugh, 1992:3). Consisting of nine principles, the document challenged designers to take responsibility for addressing human needs without negatively impacting the environment (Moalosi, M'Rithaa, Rapitsenyane, 2010). Examples of

these principles, which are considered by this study to be most relevant for communication designers to apply, are listed in Table 2.1. The bottom row is the researcher's interpretation of how these principles align with the pillars of sustainability.

Table 2.1: Selected examples of The Hannover Principles (Adapted from Braungart & McDonaugh, 1992:5)

PRINCIPLE	**Recognise interdependence**	**Eliminate the concept of waste**	**Understand the limitations of design**	**Seek constant improvement by the sharing of knowledge**
EXPLANATION	The elements of human design interact with and depend upon the natural world, with broad and diverse implications at every scale. Expand design considerations to recognising even distant effects.	Evaluate and optimise the full life cycle of products and processes to approach the state of natural systems in which there is no waste.	No human creation lasts forever and design does not solve all problems. Those who create and plan should practice humility in the face of nature. Treat nature as a model and mentor, not as an inconvenience to be evaded or controlled.	Encourage direct and open communication between colleagues, patrons, manufacturers and users to link long-term sustainable considerations with ethical responsibility; and re-establish the integral relationship between natural processes and human activity.
RELATED SUSTAINABILITY PILLARS	**Environment / Society**	**Environment**	**Environment**	**Environment / Society**

Although originally intended for the architectural community, Braungart and McDonaugh believed that the principles formed the foundation of a new philosophy that could be applied to any design discipline (1992:3). While the *Hannover Principles* were concerned with sustaining the earth's ability to meet present and future needs, they did not clearly guide designers on how to consider the social and economic impact of their decisions. The following document, *The SCALES Principles*, aimed at establishing a more holistic approach to designing sustainably.

The SCALES Principles document was the outcome of the **De**sign **Ed**ucation and **S**ustainability (DEEDS) project, conducted between 2006 and 2008. DEEDS comprised of multiple actors and stakeholders from various European design and sustainable development communities (Ainsworth, Blincoe, Fuad-Luke, Holmgren, Jaschke, Jung, Spangenberg, Thomson, Tylka, 2008). Their objective was to come up with a solution to "integrate sustainability into mainstream design education and design practice in EU countries" (Ainsworth *et al*., 2008:2). According to Fuad-Luke (2009:225) *The SCALES*

Principles is the most "comprehensive manifesto for change" that has been published in the last three decades. This complementary set of twenty-four principles is based on six themes: "**S**pecial skills; **C**reating change agents; **A**wareness; **L**earning together; **E**thical responsibilities; and **S**ynergy and co-creating" (Blincoe *et al*., 2010:1490). Examples of the principles most relevant to communication design are listed in Table 2.2.

Table 2.2: Selected examples of The SCALES Principles (Adapted from Blincoe *et al*., 2010:1490)

SCALES THEME	**Special skills – holistic approach**	**Special skills – communication & leadership**	**Creating change agents**	**Ethical responsibilities**
PRINCIPLE	**Analyse problems from multiple perspectives**	**Tell engaging stories**	**Set new aspirations**	**Focus on experiences not objects**
EXPLANATION	Including the four sustainability dimensions – economic, social, institutional and environmental – but not forgetting human dimensions too (mental, physical, emotional and spiritual).	Develop presentation, narrative and scenario-setting skills.	Practice Design for Sustainability (DfS) approaches that provide significant, immediate and visible benefits to encourage consumers to aspire to a new sustainable cultural representation of the 'good life'.	Develop practical, functional and fun design that deepens life experiences and strengthens personal and social cohesion.
RELATED SUSTAINABILITY PILLARS	**Environment / Society / Culture / Economy**	**Society**	**Environment / Society / Culture / Economy**	**Society**

As identified in the examples shared above, *SCALES* emphasises the need for designers to develop specific skills, highlighting the importance of communication and leadership skills. Communication designers can therefore fulfil a critical role in the drive towards sustainability by telling engaging stories that inspire behavioural change. The following document, *The GDC Sustainability Values and Principles*, presents additional examples of how the communication design industry can practice sustainably.

The Society of Graphic Designers of Canada (GDC) defines sustainable communication design as the "application of sustainability principles to communication design practice" (Cadarso & Da Silva, 2012:177). In 2009, to move the industry forward, the GDC's National Sustainability Committee developed a list of *Sustainability Values and Principles* (Dritz, 2014:10). Examples of these are shown in Table 2.3.

Table 2.3: Selected examples of Graphic Designers of Canada (GDC) Sustainability Values and Principles (Adapted from GDC, n.d.)

PRINCIPLE	**Encourage the evolution of graphic design practice**	**Demonstrate commitment to improve the natural environment**	**Raise and foster awareness of sustainable communication design practice**
EXAMPLE	Accept responsibility for the consequences our actions have on our natural environment.	Act as community and industry advocates for environmentally responsible design practices.	Provide education and information resources to our members and the community at large to inform environmentally responsible design decisions.

These principles were intended to guide the GDC members' actions with a specific focus on environmental sustainability (AIGA, 2009:12). While GDC's *Sustainability Values and Principles* and *SCALES* were both developed for specific territories, namely Canada and Europe respectively, the following document, *The Living Principles for Design*, was intended for the entire global design community.

The Living Principles for Design is a recent attempt at providing designers with a framework to tackle sustainability. It was conceived by AIGA, which is regarded as one of the leading professional associations for design in America, and has been endorsed by many global design organisations (Dritz, 2014). The document is the outcome of an extensive review of various sustainability resources such as principles, manifestos and tools (AIGA, 2009). It supports similar considerations as those outlined in the *Hannover Principles*, *SCALES* and *GDC's Sustainability Values and Principles* of how DfS can be integrated into everyday practice. The document does however focus more attention on the impact design has on culture. The twenty-one principles are grouped according to the four pillars of sustainability – environment, society (people), culture and economy. Under each theme the principles guide the designers to critically evaluate their work by questioning the impact of their design decisions (see Table 2.4).

Table 2.4: Selected examples of The Living Principles for Design (Adapted from The Living Principles, n.d.)

SUSTAINABILITY PILLARS	**ENVIRONMENT**	**PEOPLE**	**CULTURE**	**ECONOMY**
PRINCIPLE	**Behaviours**	**Impacts**	**Diversity**	**Benefits**
SUPPORTING QUESTION	How can this project promote actions that protect and restore the environment?	How does the project affect various individuals and communities throughout its life?	How can this project promote cultural diversity?	What are the short- and long-term economic benefits of incorporating sustainable solutions?

The authors of the *The Living Principles for Design, The Hannover Principles* and *SCALES* consider these sets of principles applicable to any design discipline. In terms of communication design, Perullos (2013:64) and Dritz (2014:7) believe that *The Living Principles for Design* acts as a catalyst for communication designers to drive "positive cultural change". Although the *GDC Sustainability Values and Principles* are specifically defined for communication design, these principles only refer to the environmental aspect of sustainability, falling short of being a comprehensive set of principles that integrate all pillars of sustainability.

In an interview conducted by Aaris Sherin (2008:19) with Eric Benson, a considered authority on sustainable communication design, Benson suggests five core sustainable principles that communication designers should follow. These principles address all sustainability pillars: "Respect and care for the community; improve quality of life; conserve earth's vitality and diversity; minimise the depletion of non-renewable resources; and change the personal attitudes and practices to keep with the planet's carrying capacity". Benson (2007:3) believes that by considering such principles, the designer will be encouraged to make more conscious decisions. Examples of such decisions are listed in Table 2.5.

Table 2.5: Communication design decisions guided by the sustainable principles (Adapted from Sherin 2008:19)

DESIGN DECISIONS
• Design for reuse and/or longevity • Design cyclically, not linearly • Choose recycled and/or nontoxic materials • Minimise waste • Minimise ink coverage • Choose local vendors that use renewable energy and employ socially equitable and environmentally friendly business practices • Educate consumers about the life cycle issues through messaging and/or marketing

While several authors (Moalosi *et al*., 2010; Agogino *et al*., 2012) believe that principles of sustainability inform sustainable decision-making, when looking at the local communication design industry it does not appear as if these principles are being applied in any significant way. The literature shows us that there is no one definitive list outlining the principles of sustainability. A gap therefore exists in terms of translating sustainability principles into actionable tasks for communication designers. This then raises the question of how principles of sustainability can advance communication design solutions that consider environmental, sociocultural and economic challenges. It is critical for a comprehensive list of principles to be defined as a guide of how communication design can best incorporate sustainability into the discipline. Principles of sustainability should be incorporated into the curricula as a way for students to critically evaluate the impact of their design decisions, thus

preparing them to become problem solvers and change drivers. Designers need to be taught to action these principles. In the next section useful problem solving approaches and design strategies for applying sustainability principles will be discussed.

2.3 Proposed problem solving approaches and design strategies for applying principles of sustainability to communication design

If design is to successfully fulfil its role as a strategic problem solving tool, designers need to be equipped with appropriate approaches and strategies to address the environmental, socio-cultural and economic challenges facing the world. According to Pourdehnad, Wexler and Wilson (2011:1), how well designers deal with problems "depends on the quality of the approaches" they try to implement. *Sustainable Systems Thinking* and *Design Thinking* are two approaches that can assist communication designers to innovatively solve complex problems (Young, 2010; Pourdehnad *et al.*, 2011; Re-nourish, n.d.).

Sustainable Systems Thinking is a holistic approach to problem solving where designers look at a problem within the context of a larger system (Perullos, 2013:13). This approach not only requires that designers consider how their design decisions will affect the environmental, social, cultural and economic components of a system, but also that they understand how these four components interact with each other (Shedroff, 2009:8&357). Considering that eighty percent of a product, service, or system's environmental impact and destiny are determined at the design stage, designers play a deciding role in the life cycle impact of their proposed solutions (Thackara, 2005:18; Chick & Micklethwaite, 2011:27; Price & Yates, 2015:167).

Figure 2.1 illustrates how the communication designer is central to the decisions made within a larger system. The first circle surrounding the designer represents the four processes which are "integral to the entire system", including: end of life considerations, material sourcing, transportation, manufacturing, and vendor practices (Yvette Perullo, n.d.). The outer circle shows how every design solution exists within interconnecting systems relating to the environment, society, culture and economy (Shedroff, 2009; Perullos, 2013).

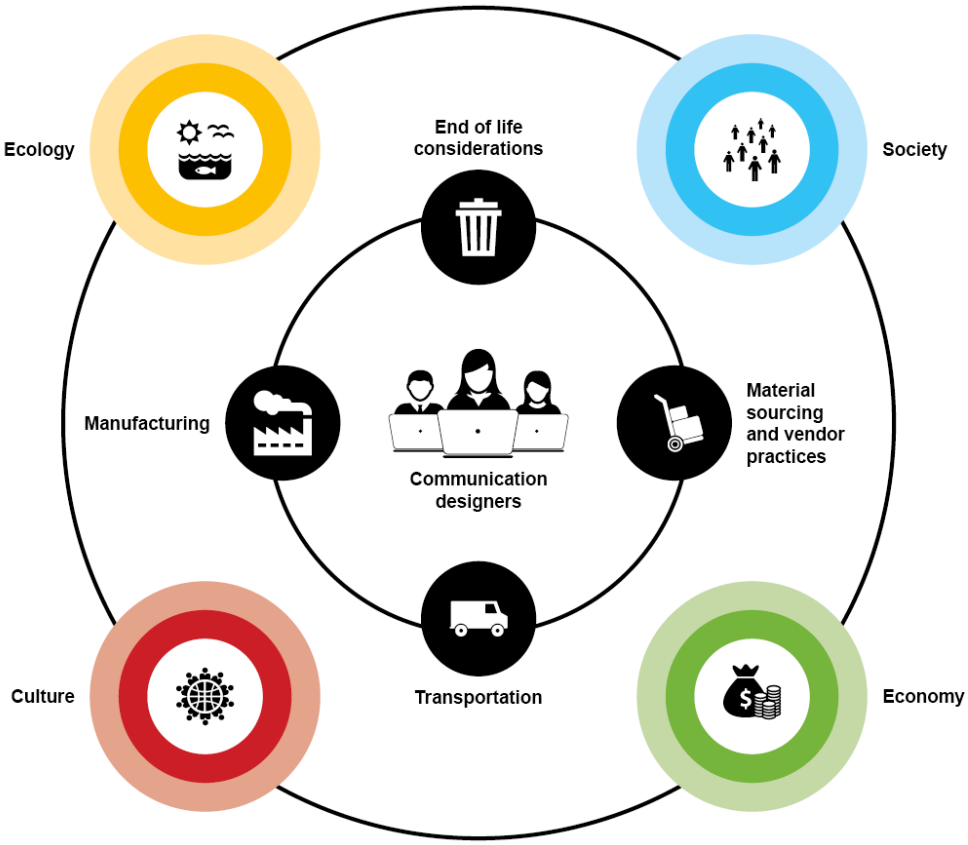

Figure 2.1: Sustainable Systems Thinking in communication design infographic (Adapted from Yvette Perullo, n.d.)[3]

To assist communication designers to incorporate Sustainable Systems Thinking into their practice, Benson and Perullos developed a four-step design process (see Table 2.6) that, if followed, should not only result in creative solutions, but also positive impacts on people and the environment (Re-nourish, n.d.).

Table 2.6: Proposed four-step design process for incorporating Sustainable Systems Thinking into communication design (Adapted from Perullos, 2013:36)

1. Define project goals	2. Brainstorm alternatives	3. Map out possible scenarios	4. Evaluate project outcomes
What should the end result achieve?	How can you use your design expertise to guide your client to the best possible solution, even if it's different from what they think they want?	What are the direct and indirect effects? What are the risks and benefits associated with each solution?	Which option meets the client's needs while having the greatest positive impacts?

Several authors (Young, 2010; Pourdehnad *et al*., 2011; Perullos, 2013, Darzentas & Darzentas, 2014) recognise that *systems thinking* in design requires a collaborative method

[3] To view the interactive version of this diagram, including detailed explanations of the entire system, visit http://www.yvetteperullo.com/designtorenourish

of approaching problems. This is where *Design Thinking* proves valuable. Recognised as an important tool for DfS, Design Thinking looks at redefining challenges by using design as a "problem-finding" and "need-solving" device (Chick & Micklethwaite, 2011:35). Design Thinking is a human-centered approach to problem solving (Brown, 2009). This means it places people at the core of the design process, urging designers to be empathic (Young, 2010; IDEO, 2015). Design Thinking emphasises the importance of learning from the multiple perspectives of all relevant stakeholders. This ensures that design solutions do not only consider the end users' practical needs, but also their cultural and emotional needs (Pourdehnad *et al*., 2011; IDEO, 2015). Therefore, in order to design long-lasting solutions, designers should apply both a Sustainable Systems Thinking and Design Thinking methodology to every design brief. Once the designers have identified the best solution to a problem, they then need to use appropriate strategies to execute the solution.

2.3.1 Design strategies for applying sustainability principles to communication design

The most commonly used sustainability strategy relating to communication design is Designing Backwards, although Cradle-to-Cradle is also useful when considering the environmental impact of material choices and production processes (Sherin, 2008; Chick & Micklethwaite, 2011; Perullos, 2013). Cradle-to-Cradle is a strategy that attempts to eliminate the concept of waste through the creation of closed-loop systems (De Pauw, Kandachar, Karana, 2013). A simple example of how this strategy could be applied to communication design could be if a printed package is made of biodegradable materials that could decompose into the ground and become nutrients for the soil (Benson, 2007:4). For the closed-loop system approach to be effective, the designer would have to trace all the materials used throughout the design's life cycle. To determine if the discarded design could have any negative effect, such as ink leaching toxic chemicals into the ground, the designer would have to understand what is contained in the materials (Perullos, 2013). This therefore speaks to the responsibility of communication designers to carefully investigate the implications of the different materials and production processes they are using (Sherin, 2008; Jedlicka, 2010). Benson and Fine (2010) therefore suggest that communication design education needs to provide knowledge about available materials and processes so that design graduates will be equipped to make responsible decisions.

Right at the start of the design process designers need to think holistically about the entire life cycle of their design in order to design the best solution as well as the best possible destiny for the solution (Chick & Micklethwaite, 2011; Pourdehnad *et al*., 2011). Applying the Designing Backwards strategy encourages designers to make informed choices based on the knowledge gained by considering every stage of the design process (Dougherty, 2008, Perullos, 2013). Designing Backwards is a "mental journey" that requires designers to work

backwards, starting at the design projects ultimate destination, then examining all the distribution processes, manufacturing and materials used, until arriving back at the design studio (Dougherty, 2008:48). Figure 2.2 explains the six steps of Designing Backwards using the example of a print project.

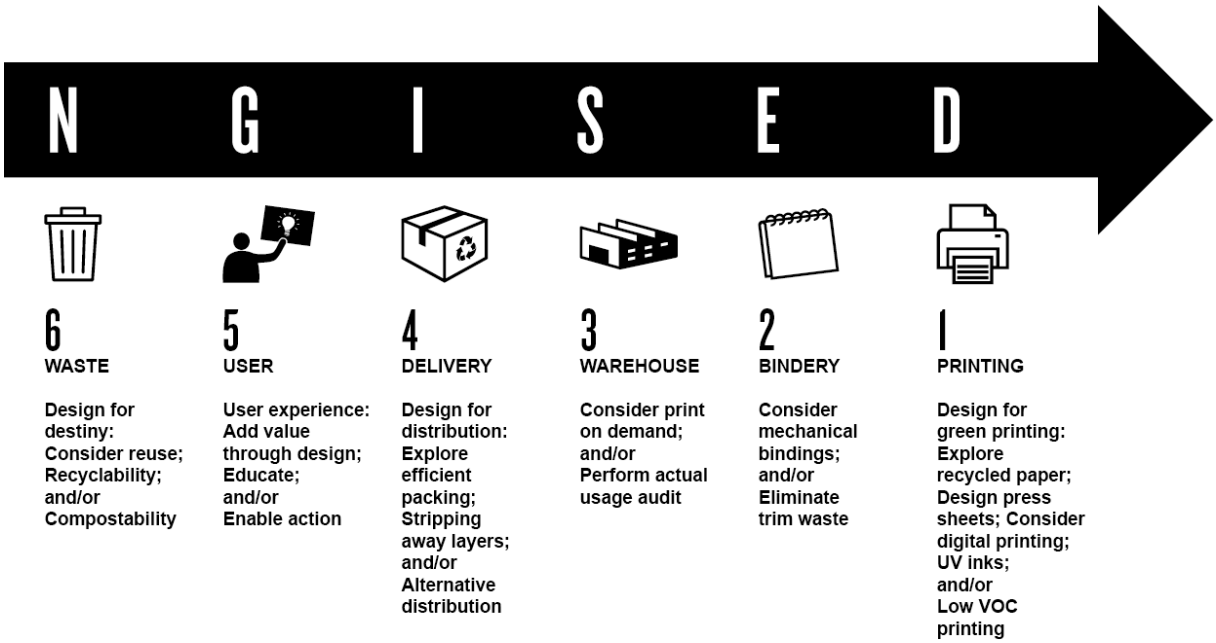

Figure 2.2: Six steps of Designing Backwards
(Adapted from Dougherty, 2008:48-49)

This strategy of "managing-out" potential negative impacts can be applied to any design brief (Chick & Micklethwaite, 2011:27). Dougherty suggests that this process also encourages designers to envision how the end user's experience with the design can be more valuable and potentially long lasting (2008:49). If designers are aware of the capabilities of their designs, such as being suitable for recycling or reuse, only then will they be able to educate the end user on what to do with the design once its original use has come to an end.

In an interview featured in the recently-published *Communication Design: Insights from the Creative Industries*, Nat Hunter, a celebrated UK designer who has championed DfS since 2007, said about communication designers:

> *I believe that we do have the power to change the world for the better like Bruce Mau says. To get there we need systems thinkers and people who care about the world* (Price & Yates, 2015:172).

This shows that Sustainable Systems Thinking has an important role to play, and if communication designers combine this approach with Design Thinking as well as with Cradle-to-Cradle and Designing Backwards, DfS solutions should be the result. Designers who employ these approaches and strategies need to research thoroughly and to plan ahead for each brief. In order to truly understand how DfS applies to communication design, it is

important to research how sustainability principles and strategies are being put into practice. The next section will look at examples of sustainable communication design.

2.4 Communication Design for Sustainability

For communication designers to practice DfS they need to address the environmental, social, cultural and economic impact of their work. In the following section definitions and practical examples of the four pillars of sustainability will be looked at. For a more comprehensive database of inspiring exemplars of sustainable communication design refer to the CD-ROM appended at the end of this thesis.

2.4.1 Communication Design for Sustainability: environmental impact

Papanek believed that "in all pollution, designers are implicated at least partially" (2000: xiii). This is true of communication design. Although many digital solutions are created, it remains largely a print-based discipline (Benson & Napier, 2012; Perullos, 2013). A large percentage of printed designs for packaging, posters and flyers end up in landfills within a year of being created (Sherin, 2008). Beyond that, paper production releases greenhouse gas emissions that contribute to climate change, and the paper industry consumes excessive amounts of water (Jedlicka, 2010; Perullos, 2013). Several design decisions can be made to lessen the physical impact of printed work, such as choosing light-weight, Forest Stewardship Council (FSC) certified recycled paper; minimizing ink coverage; and avoiding toxic inks and foil finishes (Green, 2007; Dougherty, 2008; Sherin, 2008; Denison, 2009; Jedlicka, 2010).

While such considerations are important, they do not address the entire life cycle impact of the design. This is because the physical output of the communication design industry is not the only area where environmental impact occurs. Designers use electronic equipment, such as computers, servers and printers to conduct and store their work. This equipment consumes energy and could have harmful effects if not disposed of correctly (Perullos, 2013; Price & Yates, 2015). Therefore, in order for designers to avoid harmful effects on the environment, they first need to be informed about the implications of the equipment, materials and production processes they are using. Table 2.7 below presents a definition of environmental sustainability, and explains what role design could play in achieving it.

Table 2.7: Definition of environmental sustainability and the role of design (Adapted from The Living Principles for Design, n.d.)

ENVIRONMENT	
Definition	**Role of design**
Actions and issues that affect natural systems, including climate change, preservation, carbon footprint and restoration of natural resources.	Design can invent new systems, products, and services that use less and deliver more. It can translate complex concepts into the relevant messages that help people adopt behavioural change.

Being conscious of energy consumption and material choices is important, but as Table 2.7 suggests, conveying information about environmental sustainability is vital. Therefore the communication designers' real impact lies in their ability to communicate, persuade, and ultimately change behaviours (Dougherty, 2008; Sherin, 2008; Jedlicka, 2010; Boehnert, 2012; Price & Yates, 2015). To successfully communicate a desired message, the visual execution of the message must attract the attention of the intended audience. However, for a design to have a positive impact on the environment, both the impact of the message and the delivery of the message must also be considered (Jedlicka, 2010). An example of a visually striking and environmentally responsible events poster will be reviewed next.

2.4.1.1 Examples of environmentally sustainable practices in communication design

Paperless posters are an example of how a piece of communication can fulfil its objective without having a negative effect on the environment. Figure 2.3 shows a window graphic as an alternative solution to a printed, paper poster. Rather than using vinyl, which is not recyclable, the paperless poster is made with nontoxic water-based ink. An alternative to petroleum-based and vegetable-based inks, water-based inks emit much lower volatile organic compounds (VOCs), making them better for the environment (Sherin, 2008:70; Jedlicka, 2010:329). The design is applied using a screen-printing technique and it can be easily removed using a scraper (Jedlicka, 2011). While nontoxic, low-VOC inks are currently the best option, minimising ink coverage is considered to be a smart sustainable design practice (Dougherty, 2008; Sherin, 2008; Jedlicka, 2010; Perullos, 2013). The paperless poster takes this into consideration as only a small area of the window is covered in ink.

Figure 2.3: Green Drinks paperless posters (The Living Principles for Design, 2011)

The paperless poster is an example of how to design in an entirely new way. The designers of these posters focus on the goal of the brief. This is to communicate information about Green Drinks, an event about environmental marketing, not to design another print poster on paper that could end up as trash. According to Jedlicka (2011):

> *When we allow ourselves to step back and look hard at what it is we're trying to do, rather than starting with how to do it, a whole new set of options opens up to us. When you set out to design a printed poster, in the end you'll have a printed poster. When you start with the idea of communication, anything can happen!*

This example illustrates how communication designers can lessen their environmental impact by making informed choices about the materials they specify. What's more, these material choices have the ability to create deeper meaning in the communication by visualising the message through environmentally-sound materials. The following section will explore how communication design can contribute towards social sustainability.

2.4.2 Communication Design for Sustainability: social impact

The social implications of communication design are concerned with the industry's effect on people. Most notably, communication designers have the ability to use their skills to create persuasive messages (Dougherty, 2008). These messages can have a positive effect through: changing behaviour by encouraging people to use water sparingly; raising awareness about important humanitarian issues; or by motivating action to support a local brand that sells organic produce (Perullos, 2013:74). These messages can also accomplish the opposite by having a negative effect. For example, designing a piece of advertising to persuade people to purchase cigarettes – a product proven to be addictive and harmful – is ethically irresponsible and counters the sustainability agenda of building healthy societies (Chick & Micklethwaite, 2011:64; Perullos, 2013:22). Therefore the designers' impact on society is also determined by the kind of work they choose to take on. According to Sherin (2013:6) this speaks to the "relationship between personal values and professional practice"; and communication designers who choose to practice sustainably are "driven by values-based decision making".

Furthermore, the communication designer also needs to be conscious of what is happening behind the scenes in terms of the working conditions experienced by people up and down the supply chain (Perullos, 2013). The designer must choose vendors, such as paper suppliers and printers, that abide by labour rights policies such as providing fair wages and safe working conditions for their employees (Jedlicka, 2010). By working with such vendors, designers ensure that they are consciously showing respect and care for the community, which is one of Benson's suggested sustainability principles. Table 2.8 below presents a definition of social sustainability, and explains what role design could play in achieving it.

Table 2.8: Definition of social sustainability and the role of design (Adapted from The Living Principles for Design, n.d.)

SOCIETY	
Definition	**Role of design**
Actions and issues that affect all aspects of society, including poverty, violence, injustice, education, healthcare, safe housing, labour and human rights.	Design can visualise acute needs, raise awareness, prompt public response, and affect policy. It can promote messages of inclusion, equality and empathy; helping to establish harmonious and healthy conditions in which all members of society can flourish.

By choosing to practice ethically and responsibly, communication designers play a transformational role by creating "powerful messages that help shift social norms and aspirations to be more in line with sustainable lifestyles" (Irwin, *et al*., 2005:12). The campaign featured below is an example of how communication design can raise awareness of a global issue, and encourage positive behavioural change amongst consumers at a local level.

2.4.2.1 Examples of socially responsible communication designs

Globally, the dependence on fossil fuels as a main energy source is a major environmental concern. Scientists attribute fossil fuels such as coal to the increase in CO_2 emissions that "increase global warming and further climate change" (Hasanuzzaman, Hosenuzzaman, Malek, Nahar, Rahim, Selvaraj, 2015:285). In South Africa, electricity is mainly generated by coal-fired power plants, it is in very short supply and is becoming increasingly expensive (Brent & Walwyn, 2015). After the rolling blackouts experienced between 2007 and 2008, the City of Cape Town (CoCT) realised the urgent need to promote efficient electricity usage to not only reduce energy consumption, but also to reduce carbon emissions caused by coal-fired power stations (City of Cape Town, n.d.). In 2010 *The Cape Town Electricity Saving Campaign* was launched. It was a "behaviour change marketing campaign" that aimed at reducing household consumption by between twenty-five and forty percent (Western Cape Government, n.d.).

Created by Derrick, a local advertising agency, the campaign was based on the idea that "using electricity more efficiently is the cheapest, quickest and most environmentally friendly way to tackle the power shortage situation" (Derrick, n.d.). The SAVE logo (see Figure 2.4) formed the anchor of the campaign. The letter 'A' was replaced with an icon of an electric plug, clearly communicating the message to save electricity (Western Cape Government, n.d.). The campaign consisted of several strategic elements including print, digital, radio and site-specific activations. Each element communicated a simple message, and through the clever use of imagery and words, the campaign engaged consumers on both a rational and emotional level. The rational component spoke to consumers about the cost of electricity: "Electricity is expensive. Saving is simple" (ICLEI, 2014). Practical tips for saving electricity,

and in turn saving money, were shared via adverts in newspapers, flyers posted with rates accounts, and on the *Saving Electricity* website. This information was communicated using easy-to-understand illustrations and wording (see Figures 2.5 and 2.6).

The emotional component spoke to the cost of electricity felt by the environment: "Electricity could cost more than you think" (*ibid*). This was communicated via adverts and posters that depicted large cooling towers spoiling the pristine Cape Town landscape (see Figure 2.7). Cooling towers are associated with coal-fired power stations, and are used in the campaign to visually depict the consequences of excessive electricity consumption. In addition to these print elements, Derrick designed an inflatable cooling tower that could be strategically positioned to capture the attention of the public (see Figure 2.8). The cooling tower, which drew large crowds, served as an information booth delivering saving tips along with the message that "if we continue our unsustainable behaviour of wasting electricity, we're going to need more power stations than ever before" (Derrick, n.d.).

Figure 2.4: Electricity Savings Campaign SAVE logo (Derrick, n.d.)

Figure 2.5: Electricity Savings Campaign print elements (Derrick, n.d.)

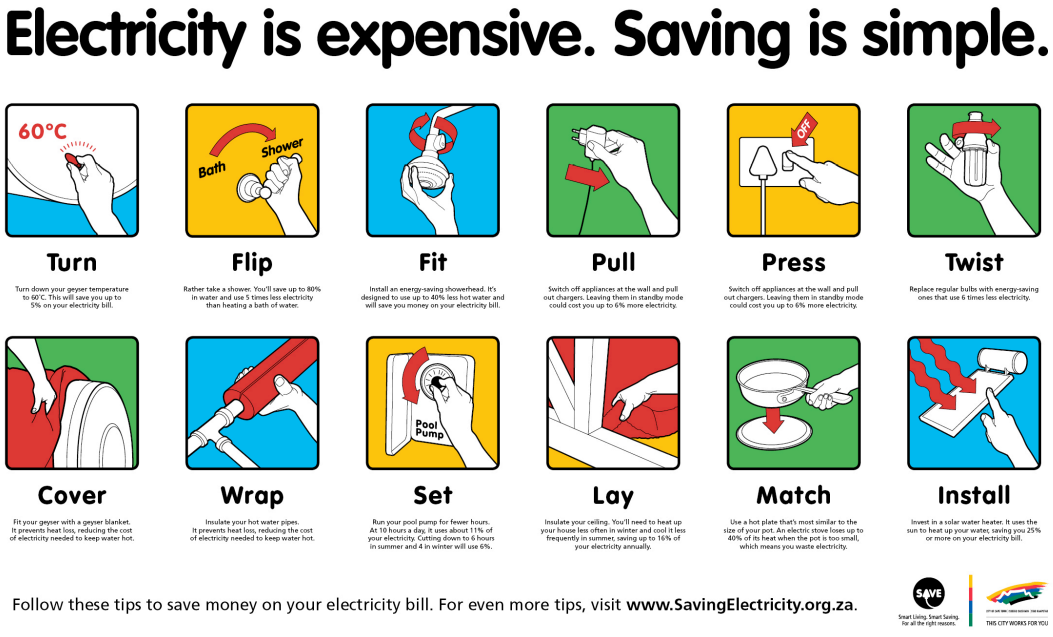

Figure 2.6: Electricity Savings Campaign print poster (Derrick, n.d.)

Figure 2.7: Electricity Savings Campaign print advert (Derrick, n.d.)

Figure 2.8: Electricity Savings Campaign inflatable cooling tower (Derrick, n.d.)

Understanding the power of design and advertising to influence attitudes and behaviours, the advertising agency, Derrick, was able to develop a campaign that empowers consumers to take sustainable action. As a result of this campaign, a steady decrease in electricity usage was noticed by the CoCT municipality (Guangzhou Award, 2014). According to CoCT Councillor Garreth Bloor, the change in consumer behaviour was largely due to the campaigns ability to inform Capetonians about "why they should save, how much they can save, and exactly how to save" (Derrick, n.d.).

Furthermore, Derrick has since moved the campaign to a global context to raise awareness of the importance of saving electricity. The agency has made the SAVE logo freely available by licensing it through Creative Commons, and several municipalities in South Africa and North America have adopted the logo to help promote the efficient use of electricity (*ibid*). Further proof of the campaign's global reach is the redistribution of the inflatable cooling tower. In 2014 Greenpeace used it as a tool to campaign against coal-fired power stations in Scandinavia (*ibid*). This campaign is an example of how designers can use their communication skills to drive change instead of consumption, which according to Shea (2012:8) is an important component of designing for social impact. This example also illustrates the interconnectedness of the different pillars of sustainability. By encouraging a more sustainable lifestyle of consuming less power, the campaign has addressed environmental, social and economic issues. The following section will discuss how communication design can contribute to yet another pillar of sustainability, culture.

2.4.3 Communication Design for Sustainability: cultural impact

Designers can support cultural sustainability by promoting respect, support, unity and preservation of different cultures. According to Perullos (2013:14&28), communication designers can show respect for different cultures by creating designs that embrace the values and address the needs of the culture. Furthermore, in a global context where many different languages exist, designers can support and unite diverse cultures by creating messages that are universally accessible and that direct people towards a common goal (Shea, 2012). Table 2.9 below presents a definition of cultural sustainability and explains what role design can play in achieving it.

Table 2.9: Definition of cultural sustainability and the role of design (Adapted from The Living Principles for Design, n.d.)

CULTURE	
Definition	**Role of design**
Actions and issues that affect how communities manifest identity, preserve and cultivate traditions, and develop belief systems and commonly-accepted values.	Design can cross cultural barriers to promote universal understanding. It can deliver a compelling view of sustainability that ensures its assimilation by a broad array of people. And at its best, it can shift consumption and lifestyle aspirations, literally changing the definition of prosperity.

This suggested role of design is becoming increasingly important. According to a report conducted by the AIGA into the future competencies of designers, the "ability to work in a global environment with understanding of cultural preservation" was ranked in the top ten (AIGA, 2008). Therefore, in order to positively contribute towards cultural sustainability, communication designers need to understand for whom they are designing, as well as the accepted cultural norms of the community in which their work will exist. Applying Design Thinking's human-centered approach of designing with communities will assist designers in achieving this (IDEO, 2015). The following example illustrates how communication design can be used to transcend cultural differences such as language, and assist people with their true needs.

2.4.3.1 Examples of cultural sustainability in communication design

Over the past decade there has been a dramatic increase in the number of refugees displaced from their home countries due to natural disasters, conflict or terrorism (UNHCR, 2015). These people desperately attempt to escape to a better future, most often fleeing to countries that are culturally very different from where they come from. Upon arrival in these countries, the refugees are often harboured in makeshift shelters or camps. To overcome communication barriers between aid workers and refugees – such as language, illiteracy and cultural differences – Gert and Derk Dumbar designed a solution to provide refugees with critical information (Derk Dumbar, n.d.). Referred to as the *International System of Disaster Pictograms*, the solution is a standardised set of universally-recognisable pictograms that aim to help people find answers to urgent needs such as: "Where to find safe shelter; Where to find food and water; Where to get medical care; and How to find one's family" (*ibid*).

The system of eighty pictograms was designed for use during "natural disasters, epidemics, human failure, armed conflicts and terrorism" (Prevention Web, 2011). It is divided into five colour-coded categories: green for safety; blue for information; yellow for warning; white for medical care; and red for prohibited items or actions (see Figure 2.9). The designers selected the colours based on a colour-coded warning system that had already been established by the American National Standards Institute as being universally applicable (*ibid*). The pictograms, which were tested internationally, form a picture language that can be easily understood by children and adults. This is an example of how designers can effectively communicate information by developing a universal visual language that can be understood by as many people as possible, regardless of their level of literacy (Butler, Holden, Lidwell, 2010). The intention is for key wording, written in a legible font, to appear in two languages – English and the local language. The intentional simplicity of the pictograms ensures that they are visible from a distance, and clear in chaotic situations (Derk Dumbar, n.d.). This example of using a visual language to promote understanding across cultural lines, as well as calm in

times of crisis, is particularly relevant if one considers the current refugee and migrant crisis. By the end of 2016, the UN predicts that well over four-and-a-half million Syrian refugees will have fled the civil war in that country (Mercy Corps, 2016).

Figure 2.9: International System of Disaster Pictograms, five categories (Derk Dumbar, n.d.)

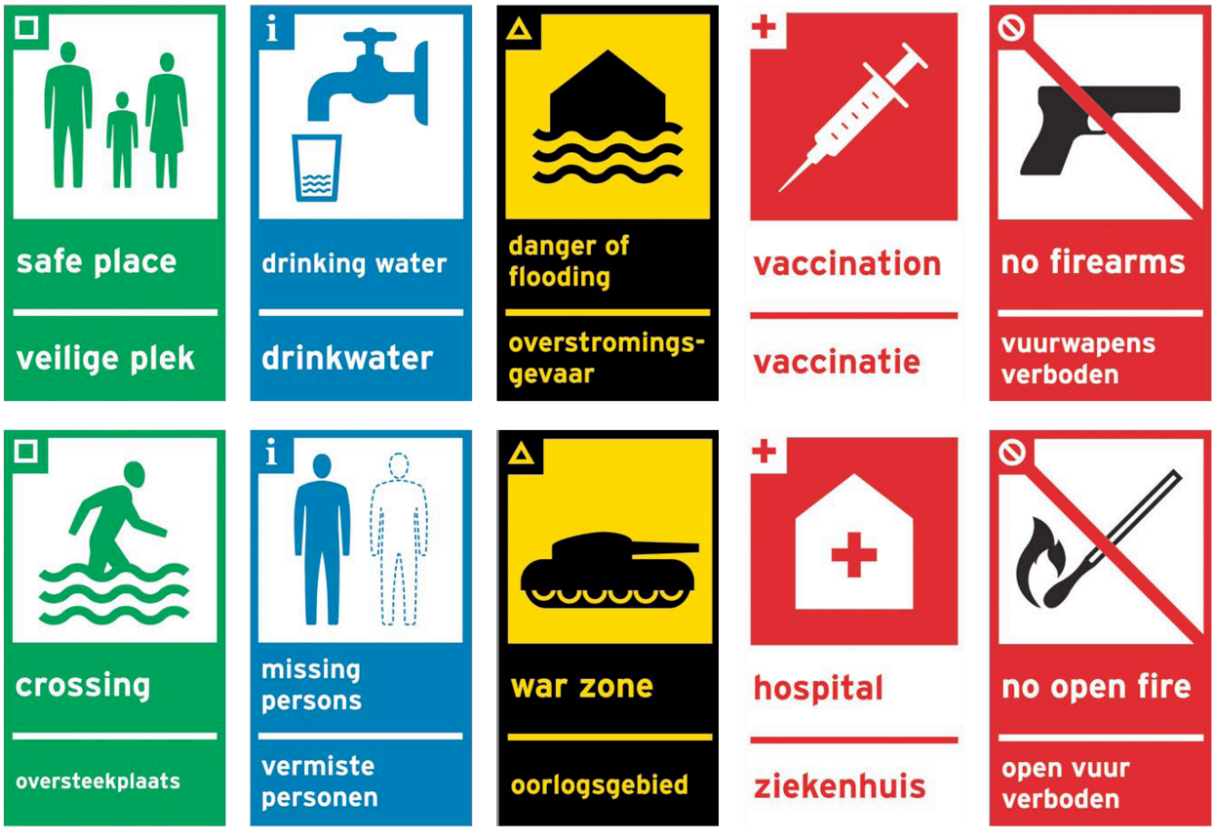

Figure 2.10: International System of Disaster Pictograms, examples (Derk Dumbar, n.d.)

Figure 2.11: International System of Disaster Pictograms (Derk Dumbar, n.d.)

The International System of Disaster Pictograms and Cape Town's Electricity Saving Campaign both illustrate that whether working with governments or advocacy groups, effective communication is key to such organisations realising their missions. Communication designers can therefore contribute towards sustainability far beyond just selecting environmentally friendly materials (Dougherty, 2008; Sherin, 2013). Having discussed how communication design can contribute towards environmental, social and cultural sustainability, the role of communication design in contributing to economic sustainability will be explored in the following section.

2.4.4 Communication Design for Sustainability: economic impact

A vibrant economy is essential to sustainability (Pauli, 2010; Robertson, 2014). The design industry can contribute towards economies, and the value created by this industry represents a design economy (Design Council, 2015:2). Table 2.10 below presents a definition of economic sustainability and explains what role design can play in achieving it.

Table 2.10: Definition of economic sustainability and role of design (Adapted from The Living Principles for Design, n.d.)

ECONOMY	
Definition	**Role of design**
Actions and issues that affect how people and organisations meet their basic needs, evolve and define economic success and growth.	Design thinking's approach to investigation, analysis and visualisation can create value and opportunities for companies and people across all streams of sustainability.

In contrast to the above, Pauli (2010) points out that if design fails to develop a sustainable and competitive industry, no economy will continue to function. Who and what communication designers choose to work with determine their economic impact (Jedlicka, 2010). If designers are able to add value by using what is locally available, supporting local vendors and choosing locally-sourced materials, they will be contributing towards growing the local economy (Pauli, 2010). In addition, designers must also make their solutions

financially feasible by avoiding costly materials and finishes, and by cutting down on the amount of materials used (Perullos, 2013). The paperless poster discussed in Section 2.4.1.1 is not only an example of an environmentally responsible design, it is also a simple example of how communication design can reduce the cost of a printed design by using less to execute the design. By reducing production costs, design will be made affordable to more people, therefore ensuring that the design industry remains competitive and economically sustainable.

Throughout this section examples of sustainable communication design have been reviewed, showcasing how the various aspects of sustainability can be addressed by applying the principles in different ways. The examples illustrate how designers can have a positive effect by being conscious of their material choices; by creating messages that encourage change in consumer behaviour; by developing messaging systems to overcome cultural barriers; and by contributing to the local economy through supporting local suppliers. Although a lot more needs to be done to promote DfS in the industry, these examples clearly highlight that the communication design industry is starting to respond to issues of sustainability. This then begs the question: Why is sustainability not being integrated into communication design curricula in order to assist industry to respond to these issues in a more significant way? Globally the marketplace has been slow to adopt sustainable communication design (Benson, 2007; Cadarso & Da Silva, 2012; Perullos, 2013; Price & Yates, 2015). Supporting this notion, Sherin (2008:26) adds that communication designers often overlook and underestimate their environmental and social responsibility. The next section will explore reasons for this, including the role education can play in promoting DfS.

2.5 Barriers that prevent communication designers from practising DfS

According to Dritz (2014:46), the communication design industry is yet to see sustainability as a "legitimate and supported area of practice". Perullos (2013) and Dritz (2014) believe that the slow advancement within the industry is because no clear definition exists about what it means to practice sustainable communication design. With no "established methods, practices, or standards of measurement" the practice of sustainability and the role of the designer "is largely open to interpretation" (Dritz, 2014:21). Therefore, a set of standards or "global best practices" is needed in order to advance the practice of sustainable communication design (GDC, n.d.). The architectural industry provides a good example of how this can be achieved through their implementation of the rating system known as the *Leadership in Energy and Environmental Design* (LEED) building standards (Benson, 2007; Giard & Walker, 2013; Perullos, 2013; Robertson, 2014). The LEED standards provide designers with a checklist to measure a project's environmental impact and resource efficiency (Schindler, 2010:307). Projects are awarded points for complying with the

checklist, and when enough points are gained the project will receive the LEED certification. Benson (2007:2) and Perullos (2013:14) therefore suggest that a similar set of standards should be developed to assist communication designers to measure the sustainability impact of their projects. This once again highlights the need, as identified in Section 2.2.1, for a comprehensive list of sustainability principles to guide communication designers. Moreover, to avoid the perception that communication design only addresses environmental sustainability, these principles need to include all aspects of sustainability.

As well as implementing a rating system, the architectural industry is praised for disseminating sustainability information at tertiary education level. In contrast, communication design education has been criticised for not offering the same level of inclusion in the curriculum (Perullos, 2013; McMahon, 2014). To drive action for change, IDEO's Tim Brown advises that "the most important opportunity for long-term impact is through education" (2009:222). Until sustainability becomes a standard inclusion in communication design education, Perullos (2013:7) believes that designers will not be equipped to "holistically conceptualise sustainable solutions to design problems". This lack of implementation of DfS in the curriculum emphasises another critical reason why a gap exists between communication designers practicing DfS. Understanding this, it is vital that communication design education fills this gap by integrating principles of sustainability into the curriculum. The following section will highlight the important role higher education plays in advancing the ideals of sustainability.

2.6 Education for sustainable development: a global perspective

2.6.1 Why sustainability education is important

> *Education is the most powerful path to sustainability. Economic and technological solutions, political regulations or financial incentives are not enough. We need a fundamental change in the way we think and act* (UN DESD, 2014).

This quote by Irina Bokova, Director-General of United Nations Educational, Scientific and Cultural Organisation (UNESCO) highlights the important role that education must play in addressing the sustainability agenda, not only by raising awareness, but also by developing actionable skills. Over the past ten years there has been an international multidisciplinary investigation into the ways in which sustainability could be integrated into higher education curricula. This was driven by declarations initiated by prominent world bodies in which they stated the moral responsibility of higher education to promote sustainable literacy (Jones, Selby, Sterling, 2010:56). In 2002 the United Nations (UN) declared the years 2005 to 2014 the Decade of Education for Sustainable Development (UN DESD). Falling under the scope of the UNESCO, DESD aimed at:

> *… integrating the principles and practices of sustainable development into all aspects of education and learning, to encourage changes in knowledge, values and attitudes*

> *with the vision of enabling a more sustainable and just society for all* (UN DESD, 2014:9).

In 2008 the Sapporo Sustainability Summit Declaration was issued in Japan after the G8 University Summit. It stated:

> *Universities have a critical role to play in educating future generations, disseminating information about sustainability, and particularly by training leaders with skills to solve regional and local problems from a global and interdisciplinary perspective* (G8 Summit, 2008:3).

The above quotes highlight the goal of sustainability education to ensure a better future for all. Furthermore, the agency for incorporating sustainability into higher education is also driven by the private sector, which recognises the benefit and need of having a knowledgeable and skilled workforce that can "contribute to developing greener economies" (UN DESD, 2014:10). Designers are part of this workforce. Increasingly, designers have the opportunity to take the lead in "helping businesses and brands make the transition into sustainability" (Dritz, 2014:48). For this transition to be successful designers need to be equipped with the necessary skills to practice sustainably (Benson & Fine, 2010; McMahon, 2014; Price & Yates, 2015). Design education therefore needs to prepare the next generation of design leaders to shape a better future (Gugg & Leube, 2014). This is not only seen as "an investment in the future", but also "a vital ingredient" to ensure a better future (Manzini, 2011:11; Giard & Walker, 2013:6). According to Perullos (2013:36&53), for future communication designers to "possess the skills to make positive and responsible choices" there is an urgent need for "overhauling curricula" to include "proper training, exposure, experimentation and guidance" around sustainability. Section 2.6.2 will look at research that has been carried out, investigating ways in which to integrate sustainability into design education.

2.6.2 Research that has investigated ways to integrate sustainability into design education

Several authors (Benson, 2007; Nussbaum, 2008; Perullos, 2013; Dritz, 2014) have confirmed the necessity of integrating sustainability into design education in order to advance the practice of DfS. Four projects that investigated ways of mainstreaming sustainability into design curricula and that resulted in the production of DfS teaching resources will now be reviewed. These are the *Design Education and Sustainability* (DEEDS) project, the *Designers Accord*, the *Learning Networks on Sustainability* and the *Teaching Guide for The Designer's Atlas of Sustainability* (see Appendix A for hyperlinks to these resources).

As discussed in Section 2.2.1, the DEEDS project contributed to the development of strategies for integrating sustainability into design education. DEEDS discovered that for

educators to be motivated to integrate sustainability into their practice, they wanted to be provided with new teaching and learning materials that would not only lessen their workload, but also inspire innovation in the educational space (Blincoe *et al*., 2010; Park, 2010). It was therefore proposed that the *SCALES Principles* should form the basis of sustainable design education in Europe (Fuad-Luke, 2009). Ainsworth *et al.* (2008:2&8) believed that if educators engaged with the *SCALES Principles*, their "skills and competences" would be improved as the principles provided a "philosophical and practical foundation" from which educators could build. In addition, each principle offered the potential of becoming a separate teaching module (Blincoe *et al*., 2010). Through "educational experiments" conducted in design departments at universities in Brighton and Poznan, DEEDS was able to suggest examples of teaching and learning that would motivate students to adopt DfS practices (Blincoe *et al*., 2010:1489). One such suggestion was that "substituting traditional design briefs for sustainability-oriented instructions broadened the horizon of students and led to an outburst of creativity and originality" (*ibid*). The *SCALES Principles* document is accessible online for educators to utilise (see Appendix A).

A similar project, the Designers Accord, ran in North America between 2007 and 2012. Its vision was to "integrate the principles of sustainability into all aspects of design practice and manufacturing" and thereby create positive environmental and social impact (AIGA, 2009:10). The first Designers Accord initiatives focused on evolving design education. This was done through the development of the 2009 Designers Accord Educational Toolkit, which is freely available online (Dritz, 2014). The toolkit was the outcome of an intensive two-day Global Summit involving international academics and design professionals – none of whom were from Africa – who brainstormed the most effective ways to integrate sustainability into design curricula (Designers Accord, 2011:2). Targeted at design educators, the toolkit focuses on answering eight pertinent questions (see Table 2.11). The toolkit offers an average of five solutions for each question. Those solutions considered by the researcher as the most achievable for educators to implement are listed below.

Table 2.11: Questions and proposed solutions from the Designers Accord Educational Toolkit (Adapted from Designers Accord, 2011:3)

QUESTIONS	PROPOSED SOLUTIONS
How can we continue to move design education forward?	Create design challenges in context.
How can we create a common language?	Guide and facilitate – don't dictate. Allow students to discover meaning on a personal level.
How can we communicate best?	Lead by example and seek out great examples.
How can we design a sustainability curriculum?	Choose a new theme to explore each term or year.
How can we update existing design programs?	Interdisciplinary and multi-generational: build a diverse framework.
How can we turn abstract ideas into concrete actions?	Add a tangible context to theory.
How can we help students work in more meaningful ways?	Support the critical role of reflection in gathering new insight.
How can we measure success?	Set benchmarks.

By addressing these questions, the toolkit suggests ways to provide opportunities to empower students – both practically and theoretically – to become ambassadors for sustainable change. Furthermore, The Designers Accord toolkit (2011:9) identifies that sustainability must be "integrated as a critical lens in design" and should not "be considered as an extra-curricular concern". To be most effective, it is advised that the toolkits' content be adapted to fit the local context in which it is to be taught, as well as to the specific design discipline. By aligning the content of the toolkit with local challenges, DfS should become more meaningful to both the educator and the student (Designers Accord, 2011; Wals, 2014). Although the toolkit does not provide specific examples of projects or resources, the Designers Accord website does offer a platform where educators can share and discuss examples of educational activities that attempt to integrate sustainability into curricula (Designers Accord, 2011). Another online platform that aims to provide learning resources and tools to assist educators with DfS curricula development is the Learning Networks on Sustainability (LeNS) portal.

LeNS began in 2007 as a three-year project involving seven design schools across Asia and Europe. The objective was to promote a "new generation" of designers and design educators knowledgeable in DfS (Kohtala & Vezzoli, 2010:2). Today LeNS continues to operate as an open-source e-learning platform for exchanging knowledge and experiences of curriculum development. It provides tools and materials that have been developed and tested by a variety of design educators from institutions across the world. Resources that guide educators to implement DfS into their courses include presentations, spread sheets, audio-visuals and related readings (Learning Network on Sustainability, n.d.). LeNS has affiliates in Europe, Asia, Africa, the Americas and Australasia, with each chapter able to adapt the modular platform to suit their requirements. While the three teaching resources developed by

DEEDS, the Designers Accord and LeNS were intended to be modified according to the didactic needs of the various design disciplines, none of the resources provide specific solutions for integrating DfS into communication design curricula.

A teaching resource that did attempt to address the education of sustainability for all design disciplines, including communication design, was Ann Thorpe's *Teaching Guide for The Designer's Atlas of Sustainability*. It was developed by Thorpe (2011:3) to assist design educators to explore the comprehensive presentation of sustainability concepts that were featured in her earlier book, *The Designer's Atlas of Sustainability*. This book received praise from many educators (Beale, Lynas, Underwood, Wahr, 2010; Park, 2010; Thorpe; 2011). Due to the book's popularity, it is assumed by the researcher that the *Teaching Guide* will also be recognised by educators as a valuable tool. However, only five out of the thirty design briefs and research exercises in Thorpe's guide mention how these can be adapted to the communication design discipline. This highlights that the resources available are limited and that more should be done to aid educators in integrating sustainability principles into communication design curricula. The lack of resources is one of numerous barriers that inhibit the implementation of sustainability in design education (Perullos, 2013). Section 2.6.3 explores further barriers to the advancement of sustainability in higher education.

2.6.3 Barriers to incorporating sustainability into higher education

In recent years there has been a proliferation of sustainability degree programmes, specifically in the science fields. However, sustainable education available to other disciplines, including design, has been "substantially underrepresented" (Dripps, Nicholas, O'Byrne, 2015:55). According to the UN DESD, "most countries" are not yet experiencing the integration of sustainable strategies into their education systems (2014:10). Table 2.12 illustrates the main challenges published by the UN DESD, the United Kingdom's (UK) Higher Education Academy and DEEDS, in three separate reports that looked into education for sustainability.

Table 2.12: Main challenges to incorporating sustainability into higher education (Adapted from UN DESD, 2014: 112; Dawe, Jucker, Martin, 2005:28; Ainsworth *et al.*, 2008:14)

UN DESD
• Translation of commitments into implementation requires coordinated change at multiple levels – in governance, planning, academic programmes, facility management and financial systems. • Deeper innovation in staff development and across institutions is necessary to transform curricula and pedagogy. • Disciplinary boundaries continue to be barriers to the exploration of complex issues and to the preparation of learners with the capacity to address complexity.
UK's Higher Education Academy
• Crowded curriculum • Perceived irrelevance by academic staff • Limited staff awareness and expertise • Limited institutional drive and commitment
DEEDS
• Lack of knowledge • Quality and dissemination of information regarding resources and impacts • Schooling versus education • No knowledge about sustainable thinking and/or living • Lack of confrontation and/or visceral awareness • Lack of feedback at the point of consumption and hard-to-analyse remote impacts

The above findings highlight the need for commitment from various stakeholders to equip themselves with the necessary knowledge to successfully implement sustainability into higher education. In addition to the findings of UN DESD, the UK's Higher Education Academy and DEEDS, several published individuals have also identified a variety of barriers.

Similar to the DEEDS findings, Perullos (2013) identifies the main barriers to incorporating sustainability principles into communication design curricula as being that design faculty lack knowledge, tools and time. Furthermore, Perullos finds that there are very few "quality resources for guidance", let alone any "guideline, standard or certification" to aid communication design educators to implement this thinking (2013:66). Jones *et al.* (2010: 9&41) attribute a resistant attitude of academic staff, as well as a lack of clarity around the term sustainability, as major barriers to the inclusion of this topic into higher education curricula. According to Park (2010:5), the term sustainability is unhelpful to educators because it is an "ideologically-loaded term, non-specific in what it is and what it can do". In contrast, Benson and Napier (2012:196) suggest that communication design educators recognise the necessity to embed sustainability into the curriculum; but the barrier lies in how to actually teach the concept of sustainability to students. It is clear from the literature that the barriers to incorporating sustainability into design education are many. To overcome these barriers, innovation in pedagogy and learning is required. Various ways that this can be achieved are presented below.

2.6.4 Proposed strategies for integrating sustainability in higher education

To innovate means to change the way things are done. Jones *et al*. (2010:42) argue that in order to integrate sustainability into higher education, there needs to be a shift in the approach to teaching. Table 2.13 showcases their recommendations to ensure successful integration of sustainability in higher education.

Table 2.13: Shifts needed for successful integration of sustainability in higher education (Adapted from Jones *et al.*, 2010:42)

Integration of sustainability within higher education implies shifts:	
From:	**To:**
Transmissive learning	Learning through discovery
Teacher-centered approach	Learner-centered approach
Individual learning	Collaborative learning
Learning dominated by theory	Praxis-orientated learning linking theory and experience
Focus on accumulating knowledge and a content orientation	Focus on self-regulative learning and real issues orientation
Emphasis on cognitive objectives only	Cognitive, affective, and skills-related learning
Institutional, staff-based teaching/learning	Learning with staff but also with and from outsiders
Low-level cognitive learning	Higher-level cognitive learning

This suggests that in order to effectively disseminate information about sustainability, educators need to encourage dialogue and promote experiential learning. However, these shifts in thinking and practice need to be accommodated by both the institution and the curriculum. The UK's Higher Education Academy proposed solutions to gain support from HEIs for implementing sustainability, as well as to ensure that educators incorporate sustainability into their teaching. These solutions are presented below in Table 2.14.

Table 2.14: Solutions to the implementation of Education for Sustainable Development in higher education (Adapted from Dawe *et al.*, 2005)

SOLUTIONS
• Develop a credible business case for HE institutions, setting out triple bottom line benefits • Review and amend institutional mission and policy statements • Significant investment in staff development and capacity building • Development of credible teaching materials which are fully contextualised and relevant to each subject area • Create space for content through a rigorous review of existing curricula

In addition to these solutions, another commonly-viewed strategy is to establish interdisciplinary communities amongst educators for "idea sharing" and collaboration (Designers Accord, 2011; Perullos, 2013:58; Dripps, Nicholas, O'Byrne, 2015). While the above solutions speak specifically about how to support academia's transition towards sustainability, buy-in from both educators and students is considered vital for successful integration of sustainability into education (Blincoe *et al.*, 2010; Jones *et al*., 2010;

Broadbent, 2012; Wals, 2014). The following section will discuss the various ways of incorporating sustainability into education, with a focus on developing design graduates that are more conscious about contributing positively towards a sustainable future.

2.6.5 Design Education for Sustainability: training experts of the future

According to Gugg and Leube (2014:286&289), in order to promote the uptake of sustainable design practices, design education needs to encourage students to "see the responsibility they hold as future designers". Table 2.15 below presents four changes that Gugg and Leube believed should be made to design curricula to ensure that students contribute towards a better environmental, socio-cultural and economic future for all.

Table 2.15: Four proposed changes to design curricula (Adapted from Gugg & Leube, 2014:286)

1. A moral compass similar to the Hippocratic oath needs to be fully anchored in order to establish "good design".	**2.** All forms of underdevelopment and actual problem solving should once again become the focus of design.	**3.** Design education should become more 'place-based'; students should be made aware of actual problems in the field.	**4.** The methodological toolkit of the human sciences needs to be made available to design students.

These suggestions highlight two main approaches to sustainable education. The first is to grow the students' own personal set of ethics; and the second is to address real-life problems by using the surrounding "environment and community as a learning source" (Jones *et al*., 2010:42-43). The idea of establishing the students' sense of purpose through developing their personal ethics is supported by Benson and Napier (2012) as a solution to promote the concept of sustainability in communication design education. Through their experience of experimenting with different ways of teaching sustainability, they believe that the best solution is in "connecting issues of sustainability to the values of design students" (2012:213). Benson and Napier realise that most students are unaware of how their personal values, opinions and goals affect their design decisions. It is therefore important for students to determine their personal values and interrogate how these values connect to their design process, as well as to the larger environmental, social, cultural and economic context in which their design decisions are made (Fleming, 2013; Wals, 2014). Furthermore, if it is considered that a teacher's personal values and views about sustainability can influence the way in which the subject is taught, it becomes even more important for students to be able to critically evaluate information and engage with it on a personal level (Jones *et al*., 2010; Cotton & Djordjevic, 2011). Educators therefore need to guide this process by engaging the students in "reflective discussions" about their work, but also by contextualising sustainability as having relevance to their own lives and design practice (Cadle, 2011:8; Benson & Napier,

2012:200). Additional strategies for incorporating sustainability into communication design education are discussed below.

2.6.5.1 Communication design education: incorporating sustainability

While it is considered important to expose design students to the ethics and ideologies associated with sustainability, so too is exposing them to the technical aspects of sustainability (Green, 2007; Perullos, 2013; Dritz, 2014). For example, in order to understand the environmental impact of communication design, Benson and Fine (2010:7) believe that students should deeply explore the history of their discipline and the impacts it has had on the world. As suggested in Section 2.3.1, the authors also believe that the curriculum should enable students to gain in-depth knowledge of the material choices available to them, and the possible impacts of such materials. Students should therefore be encouraged to consider their role as mediators between design and production while also reflecting on the interconnectedness between their design decisions, the natural environment and the local community (AIGA, 2009; Benson & Fine, 2010; Perullos, 2013). Therefore, providing students with the bigger picture about sustainability is also important, hence educators would need to set projects that allow students to see how their work connects to a larger system of ecological, social, cultural, and financial concerns (AIGA, 2009; Thorpe, 2011). Even setting such projects, Perullos (2013) insists that a pivotal shift can only happen if educators give sustainability equal importance to the discipline's other design considerations, namely: typography, colour, image, composition, and concept development. In addition, students should be taught to use the power of visuals and words to communicate messages that motivate people to act with respect towards the environment and society (Benson & Fine, 2010; Thorpe, 2011; Boehnert, 2012).

Other proposed strategies include structuring courses in such a way that sustainability-related concepts, such as Cradle-to-Cradle and Biomimicry, can be addressed separately rather than overwhelming the students with complex information all at once (Park, 2010; Benson & Napier, 2012). Prescribing selective readings on these concepts is also suggested. Another strategy is to invite sustainability experts and design practitioners to engage with the students (Benson & Napier, 2012). According to Ainsworth *et al*. (2008), the potential of increased employability is one of the biggest motivating factors for students wanting to engage with sustainability. Therefore the impact of interacting with design professionals is significant. It proves that sustainability is not just a theoretical concept, but can be applied practically to solve design briefs. This illustrates that knowledge about sustainability can benefit students in their careers.

By facilitating the experience of applying personal values throughout the design process, and

by providing a greater understanding of sustainability, Benson and Napier believe that students will be empowered to make "more responsible, more sustainable design decisions, pushing the communication profession towards a more sustainable path" (2012:213).

The following table is a summary of how the previously-mentioned teaching resources and strategies for integrating sustainability into education are relevant to this study.

Table 2.16: Summary of teaching resources and key strategies and their efficacy for integrating DfS into communication design curricula

	RELEVANCE TO COMMUNICATION DESIGN		
	High Relevance	**Moderate Relevance**	**Low Relevance**
TEACHING RESOURCES			
DEEDS / SCALES		X	
Designers Accord	X		
LeNS			X
Teaching Guide for The Designer's Atlas of Sustainability		X	
PROPOSED STRATEGIES			
Collaborative learning	X		
Praxis-orientated learning linking theory and experience	X		
Significant investment in staff development and capacity building	X		
Development of credible teaching materials which are fully contextualised and relevant to each subject area	X		
Design education to be more 'place-based'; students to be made aware of actual problems in the field	X		
Connecting issues of sustainability to the values of design students	X		
Gaining in-depth knowledge of the material choices and the possible impacts of such materials		X	
Giving sustainability equal importance as other communication design considerations	X		
Structuring courses in such a way that sustainability-related concepts are addressed separately		X	
Inviting sustainability experts and design practitioners to engage with students	X		

In this section the literature has illustrated that the world, and in turn the communication design industry, is being faced with challenges of a changing environment, society and

economy. It is critical that education responds in order to adequately prepare students for these changes. Being taught the principles of sustainability will equip students with the ability to proactively respond, pre-empting these changes and innovating appropriate solutions. The current educational landscape is faced with many barriers prohibiting the receptiveness of incorporating DfS into the curriculum. These include the lack of knowledge about DfS and the lack of understanding about the positive impact it can have on the world. To overcome these barriers educators need access to adequate resources, in particular a definitive list of principles that can guide them on best practice. Collaboration with other educators and industry specialists is also imperative for advancing the integration of the subject. If done successfully, this will empower educators to make DfS relevant to the lives and values of students, encouraging the adoption of DfS as part of their own personal design ethos.

In this chapter the various sets of principles of sustainability and proposed strategies for integrating sustainability into design education derive from the experiences of designers and academics from the developed world. While many authors have motivated for "global best practices" to facilitate the advancement of sustainable communication design, Giard and Walker (2013:1) have an opposing view of global design standards; they suggest: "proposing universally applicable solutions is antithetical to a comprehensive understanding of design for sustainability." They believe that in order to be meaningful and effective, DfS has to be "attuned to place and context" (*ibid*). Agreeing with this sentiment, Crul and Diehl (2008:5) state that the needs of developing economies, such as South Africa, are "different and more immediate" than those of the developed world, requiring a "tailor made approach to Design for Sustainability". While it is important to keep abreast of international developments, it is equally important to understand if these global principles and practices can apply in a local environment. The next section will explore the nuances of DfS in an African, South African and Cape Town context.

2.7 Design for Sustainability: a local perspective

2.7.1 How design can address Cape Town's challenges

Cape Town is faced with escalating environmental, social-cultural, political and economic challenges. These include: rising temperatures; water and food shortages; dependence on nuclear and coal power; rising food, electricity and petrol prices; high youth unemployment; and the lack of formal housing. Through its designation as World Design Capital in 2014 (WDC2014), the city showcased how design can be used as a problem solving tool to tackle these issues. Described as a "city promotion project", the title of World Design Capital is awarded to cities that use design as a tool for social, cultural and economic development (Gilbert & Koblitz, 2011:13). With the theme of "Live Design. Transform Life." the year-long programme focused on the role of design in transforming the lives of Capetonians. Alayne

Reesberg, the CEO of the WDC2014 implementation company, Cape Town Design, describes the various impacts of the programme:

> *… through the more than four hundred and sixty projects, we have explored the application of design in enhancing lifestyles, finding solutions for sustainability, community improvement, education and skills development as well as connecting people through communication, transportation and social cohesion* (2015:13).

The WDC2014 showed recognition for the importance and relevance of design as a catalyst for positive social and economic change in Cape Town. It exposed the city's thriving creative industry and emerging student talent as a valuable asset to building a sustainable future for the city. Through two Western Cape Government-led initiatives, the legacy of WDC2014 is expected to live on. These initiatives are discussed next.

2.7.2 The Green Economy and design economy in Cape Town

In 2012 the Western Cape Government launched *110% Green*, an initiative that calls organisations to commit to building a Green Economy (Western Cape Government, 2015). With the desired outcome of improving the livelihoods of all Western Cape communities, 110% Green recognises that a Green Economy can only be achieved through innovation (*ibid*). According to Chick and Micklethwaite (2011:33), "design is key to innovation", which in turn is "key to economic competitiveness". Supporting this notion, the South African Department of Economic Development and Tourism identified design as an important contributor towards the country's economic growth (Cape Craft and Design Institute, 2012). In addition to setting up the 110% Green initiative, local government collaborated with the Cape Craft and Design Institute to develop the *Western Cape Design Strategy*. Recognising design as a key tool "to unlock innovation and drive competitiveness", the Strategy's objective was to use design to "catalyse economic growth and improve quality of life for all in the Western Cape" (Cape Craft and Design Institute, 2012:4).

The Western Cape Government recognises communication design as one of the top five disciplines with the potential to contribute to the local economy (Cape Craft and Design Institute, 2012:9). How then can the communication design industry contribute to government's agenda of building a Green Economy? In the following section, three Cape Town communication design agencies that promote themselves as practicing sustainability, illustrating the potential to contribute to the green economy, will be reviewed.

2.7.3 Sustainable Communication Design practice in Cape Town

Derrick, OgilvyEarth and Change Agents Collective are three communication design agencies that promote themselves as practising sustainability. Among the communication design industry in Cape Town, such agencies are by far in the minority. For examples of work created by these agencies, refer to the CD-ROM appended at the end of this thesis.

Derrick is a boutique advertising agency that opened in 2010. Its mission is to "create the most influential concepts, copy and business ideas driven by strategy that starts with sustainability as the foundation" (Derrick, n.d.). To achieve this the business adheres to *Triple Bottom Line* principles, ensuring that design solutions come at no cost to society or the environment, both now and in the future. It is the agency's philosophy not to work on projects that are "inherently unsustainable"; and while they consider the life cycle impacts of the materials they work with, they are also committed to offsetting their carbon consumption (*ibid*). Along with several offerings such as "Integrated Communications Strategy; Conceptual Ideation; and Design", the agency promotes "Sustainability Experience" as a valued capability. Derrick was behind the Electricity Saving Campaign for the City of Cape Town (see Section 2.4.2.1). Other clients include Marine Stewardship Council, recycling company PETCO, TreesSA and WWF-SASSI[4]. The agency has received many accolades, from being attributed for the increased traction of consumers' sustainable lifestyle choices, to their work being showcased as an example of persuasive environmental awareness advertising in UNISA's[5] coursework.

OgilvyEarth South Africa was started in 2010 as a division of Ogilvy & Mather (O&M), one of the largest marketing communications companies in the world (Oglivy & Mather South Africa, n.d.). OgilvyEarth is recognised as O&M's "global sustainability practice", and is part of an alliance with twenty offices across the world *(ibid).* The objective of OgilvyEarth is to "help brands uncover the leadership opportunity in sustainability" *(ibid)*. To communicate its unique offering to the wider O&M fraternity and to change the mindsets of people in the advertising industry, OgilvyEarth South Africa designed an internal, direct mail campaign with the message that brands needed to take on greater responsibility (see Section 5.2.3 for visuals). The message was shared through a series of posters, and the agency demonstrated how to practice responsibly by offsetting the campaigns emissions for double its carbon footprint (Fowler, 2015). In another self promotion drive, OgilvyEarth South Africa published *The Conscious Brand*, a book that explains the agency's philosophy: "advertising has a significant role to play in creating calls to action for behaviour change" (Zoom Advertising, 2013). Few examples of OgilvyEarth South Africa's work are available online, but according to an interview conducted with the team (see Chapter Five), clients include The South African National Biodiversity Institute (SANBI), World Wildlife Fund (WWF), Endangered Wildlife Trust, South African Breweries (SAB), Volkswagen South Africa and Valpré.

Change Agents Collective launched in 2012. Its aim is to inspire "clients, colleagues and communities to become Change Agents" (The Change Agent, n.d.). The Collective believes

[4] World Wildlife Fund-Southern African Sustainable Seafood Initiative.
[5] University of South Africa, the largest open distance learning institution in Africa.

that “to create positive social and environmental change we must clearly communicate solutions that prove change is possible, profitable and achievable” (*ibid*). Communication skills and services include: “Strategy; Creative; Digital; and Events” (*ibid*). The agency conceptualised, designed and curated the 2012 Sustain our Africa Summit, Expo and Festival; a platform for dialogue around innovation and tools for change in Africa. Creative work includes the design of custom publications and infographics that focus on educating people about complex issues and ultimately “help drive behavioural change” (*ibid*). The Collective offers clients access to a Sustainability Stock Library where they can purchase photographic images from categories including: “Climate Change; Social Issues; Waste and Recycling; and Activism” (*ibid*). Another offering is the Communications Masterclass, a half-day workshop to equip organisations to use communication as a tool to engage and inspire employees and consumers about a “brands sustainability journey” (*ibid*). A recent client is the Shanduka Foundation, a group that invests in social-economic development in South Africa.

A common theme identified by all of these agencies is the importance of effecting behavioural change amongst target audiences. This suggests that the greatest impact that the local communication design industry can have on sustainability is through messaging that can inspire change.

Few agencies in Cape Town are actively working towards closing the sustainability gap in the communication design industry. As discussed earlier in this chapter, integrating sustainability into education equips future industry leaders with the ability to fill this gap and contribute to the building of the Green Economy. The next section will look at the state of DfS education in both the greater African continent and the local South African context.

2.7.4 Design Education for Sustainability: the African context

Two conference papers written by design educators in Africa highlight the lack of a clear policy guiding the education of sustainability on the African continent. The first paper, *Design Education for Sustainability* (DEfS), looked at design courses offered at eight HEIs across Botswana, Namibia, South Africa and Zimbabwe (Moalosi *et al*., 2010). This paper uncovers the extreme lack of inclusion of the principles of sustainability into design curricula. The authors find that only two institutions – in Botswana and South Africa – visibly promote sustainable design courses, in Industrial Design and Fashion Design respectively. It is suggested, however, that issues relating to sustainability can be included in theory courses such as Professional Design Practice. This is considered an inadequate means to equip students for solving real-world challenges and for contributing to “the emerging sustainable or Green Economy” (Moalosi *et al*., 2010:816). In order to gain sufficient knowledge and practice acquired skills throughout the years of study, the authors propose that DEfS be

incorporated during the first year of a design course and beyond. Several methods for integration are recommended, including but not limited to: employing a life cycle design approach, and designing services instead of material products *(ibid).* In addition, LeNS Africa is recognised as an important platform for the continued conversation around educational transitions.

The second paper focuses on sustainability in the Kenyan design curriculum. The research looks specifically at The School of the Arts and Design (StAD) at the University of Nairobi. Very similar findings to the DEfS research paper were made. For example, educators were vaguely aware of the importance of DfS, and they felt ill-equipped to create and then teach courses on the subject (Ambole, 2011:52). The paper goes on to suggest that DfS should be integrated into all the design courses, and that educators should establish collaborative relationships with institutions worldwide that already practice DEfS successfully.

The above-mentioned papers argue that it is specifically design disciplines that are affecting the growing pressure on the environment, and that designers have a unique opportunity to change the way the world is designed for the better (Moalosi *et al*., 2010; Ambole, 2011). While these papers have offered several solutions to increase the general awareness and practice of DfS, the next section will look at how communication design education in South Africa is attempting to grow students awareness of broader sustainability issues.

2.7.5 Communication design education for sustainability: the South African context

The South African Department of Higher Education recognise HEIs as having a critical role to play in training students to be able to respond to the social, cultural and economic development needs of a transforming society (Maphosa, Mudzielwana, Netshifhefhe, 2014). Design education has a responsibility to respond to this call, and to equip students with the knowledge and the skills to "address the national imperatives of social cohesion, job creation and community engagement" (Chmela-Jones, 2013). While there is a dearth of literature on communication design education for sustainability in South Africa, two scholarly papers have investigated ways in which to evolve design curricula to meet the changing needs of industry.

Communication design lecturers from the Nelson Mandela Metropolitan University (NMMU) and the Vaal University of Technology (VUT) wrote these papers. Although the educators conducted independent investigations, they were both motivated by a nation-wide directive from the South African Council for Higher Education for all HEIs to re-curriculate their programmes to comply with the Higher Education Qualifications Framework (Cadle, 2011; Chmela-Jones, 2013). The lecturers saw this as an opportunity to move away from the traditional approach to design education by making it relevant to the changing practices in

industry. In order to develop an industry-responsive curriculum, Cadle and Chmela-Jones investigate future trends in the communication design industry. Drawing from the AIGA's forecast report, *Designer of 2015 Trends,* the educators identify a growing shift towards socially responsible design. "Collaborating with users" and "Designing for sustainability" are two trends that relate directly to promoting social consciousness amongst designers (Cadle, 2011:4). To respond to this, sustainability and human-centered design are seen as two critical subjects for inclusion into communication design curricula. Human-centered design is a creative approach to problem solving where designers collaborate with communities to overcome their challenges (IDEO, 2015).

Cadle (2011:8) acknowledges that due to media coverage, issues of sustainability and human-centeredness "are often implicit" in the educational environment. However, to advance students' engagement with these important design concepts, he believes that they "need to be given appropriate emphasis and consideration in a formal curriculum structure" (*ibid*).

Cadle (2011:7) associates these trends with a "new model graphic designer", a designer who embodies several core competencies. To prepare graduates to thrive in a challenging industry, educators must structure the curriculum to ensure that students meet these competencies. The competencies as defined by the AIGA's *Designer of 2015 Competencies* report, that speaks directly to "Collaborating with users" and "Designing for sustainability", are presented in Table 2.17.

Table 2.17: Designer of 2015 competencies (Adapted from AIGA, 2008)

Competencies required for designers to be able to collaborate with users and practice design for sustainability:
• broad understanding of issues related to the cognitive, social, cultural, technological and economic contexts for design; • ability to respond to audience contexts recognising physical, cognitive, cultural and social human factors that shape design decisions; • understanding of how systems behave, and aspects that contribute to sustainable products, strategies and practices; • ability to work in a global environment with understanding of cultural preservation; • ability to collaborate productively in large interdisciplinary teams; and • understanding of ethics in practice.

The objectives of the principles of sustainability are reflected in the above list of competencies, which set out to shape a design community that can tackle complex issues in creative ways. This further highlights the need for a comprehensive set of guidelines that educators can use in their teaching to properly prepare students for industry.

With an insight into the future needs of industry, Cadle proposes the following framework for

best practice in communication design education at NMMU. Table 2.18 presents the ten core areas that students need to be exposed to through the curricula.

Table 2.18: Guidelines for developing a best practice curriculum for the 21st Century (Adapted from Cadle, 2011:8)

• Breadth of knowledge • Collaboration • Critical thinking • Design principles • Design systems	• Human-centeredness • Interdisciplinarity • Sustainability • Technical skills • Technological integration

While this framework suggests what the curriculum should include, Cadle does not provide practical solutions to how this can be achieved. Chmela-Jones (2013) however investigates practical ways to promote the uptake of socially responsible design practices in the communication design curriculum. The proposed solution is the integration of a human-centered design process.

During the VUT students' first year of study, the focus is on developing "basic conceptual and technical skills", and they are taught to apply a "typical design process" to all briefs (Chmela-Jones, 2013:38). This process focuses on the design artefact as the outcome, without any consideration for possible negative impacts during the design process. To advance this design process to include a "socially responsible dimension", Chmela-Jones proposes that students rather adopt a "human-centered design process" (2013:40). Figure 2.12 presents both design processes, and highlights additional factors in the human-centered design process. These include: collaboration with users; awareness of the context in which the design will exist; constant consideration of the designs possible impact; and a focus on the social aspect of the design outcome rather than the aesthetics. To apply a human-centered design process, Chmela-Jones identifies the importance for students to be given briefs that address real-world problems, where they engage with real users with the objective of having positive social impact. At VUT this design approach was integrated into a five-week module themed around human-centered design. According to Chmela-Jones the students responded positively to this module, producing a variety of successful outcomes. Therefore, due to the adoption of the human-centered design process among students, Chmela-Jones believes that integrating socially responsible practices should become a core teaching and learning strategy (*ibid*). This is expected to advance the communication design curricula towards meeting the requirements, as set out by the Department of Higher Education, to contribute to a better future for all South Africans.

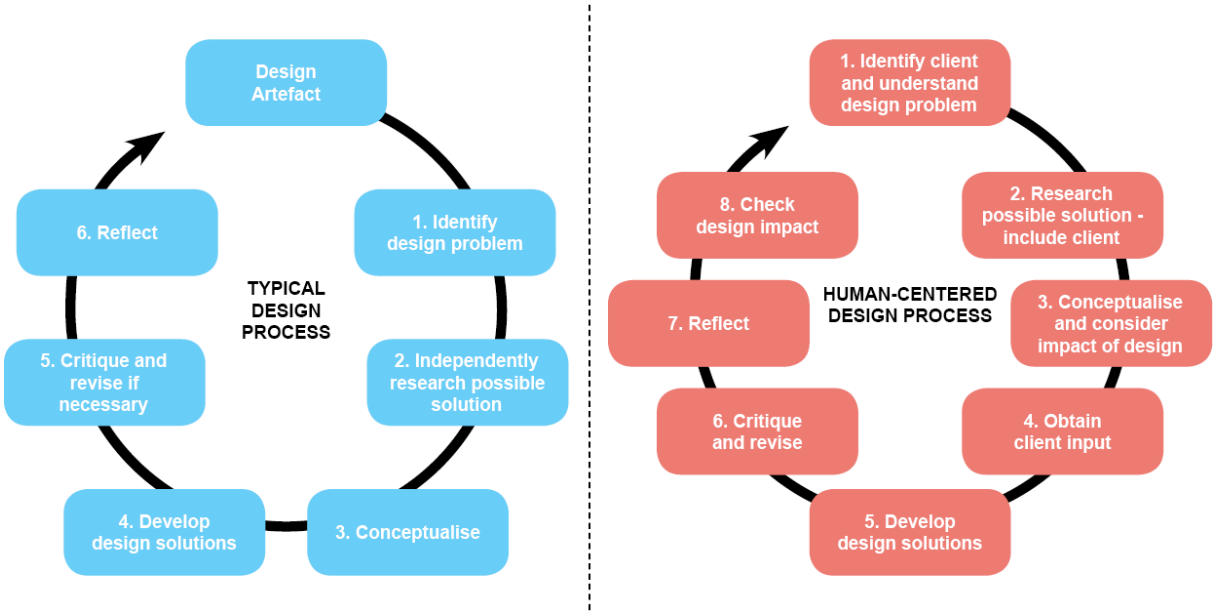

Figure 2.12: Typical design process and a human-centered design process (Adapted from Chmela-Jones, 2013:38&40)

These papers are relevant to this study because they highlight the importance of cultivating communication design pedagogy that promotes sustainable literacy amongst students. This is seen not only through providing knowledge of concepts related to DfS, but more importantly by giving students the opportunity to put these concepts into practice. While some design educators across Africa are confronting ways to update the curricula to formally include DfS, a lot more needs to be done. This is especially evident in the Cape Town educational landscape. The next section will look into the current offering of Cape Town communication design courses.

2.7.6 Communication design education for sustainability: the Cape Town context

A review of the course descriptions of the sixteen HEIs in Cape Town that offer communication design programmes revealed that only four promoted the inclusions of sustainability, or concepts relating to sustainability, such as socially responsible design. These HEIs are The Cape Town Creative Academy, Prestige Academy, Stellenbosch Academy and Stellenbosch University.

The Cape Town Creative Academy states that the "aim of the course includes developing an attitude of responsibility and a focus on sustainability within the practice of communication design", but does not specify how this is achieved (Cape Town Creative Academy, n.d.). At Prestige Academy, during third year, the module on Contemporary Local Visual Communication "explores media as a force of social change in contemporary practices regarding social visual communication in the pre- and post-apartheid era" (Prestige Academy, n.d.). Stellenbosch Academy addresses sustainability through a theory module

where “students are made aware of the power and responsibility that visual communicators have in shaping the way they treat humanity and the earth” (Stellenbosch Academy, n.d.). In the third and fourth year at Stellenbosch University “there is a strong focus on social responsibility and the role of the designer to become involved in sustainable solutions for real problems by working in cooperation with other departments, municipalities and communities” (Stellenbosch University, n.d.). These descriptions show that the inclusion of sustainability in communication design education does occur through different aspects of the courses, and at specified times. However, the lack of inclusion of sustainability training in the majority of communication design courses – including at the three HEIs investigated in this study – highlights a gap in education. It also echoes the current sustainability gap in the local industry.

The table below reviews the sixteen communication design courses on offer in Cape Town, and how sustainability either links or could link to their subjects.

Table 2.19: Sustainability links to the subjects/modules taught in the communication design courses offered at sixteen Cape Town HEIs (various, n.d.)

HEI, Course Name, Duration	Course Subjects/Modules	Link to Sustainability		
		Explicit Link	Practical Link	Theoretical Link
AAA School of Advertising Bachelor of Arts in Creative Band Communication with specialisation in Graphic Design or Art Direction **3 years**	• Advertising Research			x
	• Art Direction		x	
	• Computer software for creative application			
	• Consumer Behaviour			x
	• Graphic Design		x	
	• History of Art & Advertising			
	• Illustration		x	
	• Integrated Marketing Campaigns			x
	• Marketing			
	• Marketing & Advertising Planning Process			
	• Marketing Communication issues in Multicultural Markets			x
	• Media			
	• Photography in Visual Communication			
	• Typography			
	• Work Based Learning			
Boston City Campus & Business College Diploma in Media Practices – Graphic Design Stream **3 years**	• Academic Literacy			
	• Advertising		x	
	• Digital Media Convergence			
	• Entrepreneurship (optional)			x
	• Graphic Design Practice		x	
	• Graphic Design Process		x	
	• Media Skills			
	• Microsoft Windows, Word & Excel			
	• Professional Skills			
	• Television			
Cape Peninsula University of Technology National Diploma in Graphic Design **3 years**	• Communication Design		x	
	• Design Techniques		x	
	• Graphic Design Drawing			
	• History of Art & Design			x
	• Professional Graphic Design Practice			x

Cape Town Creative Academy Bachelor of Arts in Communication Design **3 years**	• Academic Skills • Animation / Illustration / Photography • Business Studies • Communication Design • Contextual Studies • Creative Software • Design Studies • Interaction Studies • Motion Studies • Visualisation Techniques	 x x 	 x x x 	 x x
CityVarsity School of Media & Creative Arts Diploma in Multimedia Design & Production **2 years**	• Contextual Studies - Media Studies & Visual Literacy, Media Law, Sound for MultiMedia & Internship • Digital Design • Electives: Web & Mobile App Development / Interactive Media • Graphic Design • Illustration • Scripting for the Web		 x x 	x
College of Cape Town National Diploma in Art & Design **18 months**	• Drawing • Electives: Photography / Graphic Design / Graphic Processes • Enterprise & Business Management • History of Art		x 	 x
The Design, Art Direction & Animation Academy Higher Certificate in Art Direction & Graphic Design **1 year**	• 3D Handcraft (for packaging) • Colour Systems • Digital Design Software Training • Drawing & Illustration • Graphic Design & Advertising History • Graphic Design & Layout • Print & Advertising Media • Print Methods • Professional Practice • Typography		x x x x 	 x x
Friends of Design Higher Certificate in Digital Design **2 years**	• 2D Animation • Adobe InDesign for Electronic Publishing • Digital Publishing • Desktop Publishing & Workflows • Film Production Processes • Finishing Art & Cross Media • Game Design Theory • Hand Rendering & Type Appreciation • Integrated Screen Design • Introduction to Sound Design Theory • Layout Design Principles & Techniques • LIVE Project • Motion Graphics • Professional Practice • Raster Image Editing • Vector Illustration Principles & Techniques • Web Technologies		 x 	 x
Inscape Design College Bachelor of Design/ Diploma in Graphic Design **3 years**	• For propriety reasons Inscape Design were reluctant to share details of their curriculum			

Midrand Graduate Institute Bachelor of Arts in Graphic Design **3 years**	• 3D Animation • Advertising Practical • Advertising Theory • Animation Workshop • Applied Colour & Design • Business English • Business Management • Communication Science • Copywriting • Digital Design • Drawing • English for Graphic Design • Graphic Design Studio • History of Graphic Design • Portfolio Preparation • Storyboards • Typography		x x	 x x x
Prestige Academy Bachelor of Arts in Visual Arts & Visual Communication Design **3 years**	• Contemporary Local Visual Communication • Contextual Infodesign • Creative Thinking • Design Business: Advertising & Promotion, Professional Practice • Design History: Photography & Print • Design Philosophy: Graphic Computer as Art, Photo as Art & Project Design • Entrepreneurship • E-Print Production • Graphic Design & Typography • Presentation Skills • Research Methodology • Research Project • Visual Imaging Studies: Drawing, Digital Illustration, Photo Manipulation & Photography • Work-Integrated Learning	x	 x x x	x x x x x
Red & Yellow School Bachelor of Arts in Visual Communications / Diploma in Graphic Design & Art Direction **3 years**	• Art Direction • Digital Design • Graphic Design • Illustration • Marketing Communications • Photography • Visual Studies • Work Integrated Learning		x x x 	 x x
Ruth Prowse School of Art Diploma in Graphic Design **3 years**	• Design & Advertising • Desk Top Publishing • Drawing • Extended Essay • History of Art & Design • Illustration • Photography • Printmaking • Professional Practice • Techniques & Reproduction		x x x	 x x
Stellenbosch Academy of Design & Photography Bachelor of Arts in Visual Communication **3 years**	• Continuing professional development • Creative Majors: Art Direction / Graphic Design / Illustration / Photography / Multimedia Studies • Discourse • Marketing • Visual Studies	 x 	x 	 x x x

Stellenbosch University Bachelor of Arts in Visual Communication Design **4 years**	• Computer & Repro Techniques • Graphic design • Illustration • Industrial Psychology • Interdisciplinary Visual Studies • Philosophy of Art • Philosophy of Culture • Photography • Visual literacy – Drawing • Visual Studies	 x x x x	 x x 	 x x x
Vega School of Brand Leadership Bachelor of Arts in Creative Brand Communications specialising in Visual Communication including Art Direction & Graphic Design **3 years**	• Brand Strategy • Creative Brand Communication • Creative Development • Critical Studies • Digital Media • Visual Communication		 x x	x x

Section 2.7 highlights the many challenges that are faced in Cape Town. Designers can play an effective role by using their skills to positively motivate people's behavioural change towards a more sustainable society. In addition, governmental policies such as the 110% Green present opportunities for designers to contribute to growing the Green Economy. Unfortunately, Cape Town agencies that integrate sustainability into their ethos are in the minority. This is also the case in local design education, highlighting the need for communication design curricula to be redefined in order to address the challenges of a changing industry and society. No local standards exist to guide how this should be done, identifying a massive opportunity to research ways of integrating DfS into communication design curricula.

2.8 Summary

This chapter discussed the importance of defining a list of sustainability principles that can guide communication designers to better practice. Although examples exist of how to implement sustainability, gaps have been identified in industry practice, and education has been highlighted as an effective way to train designers in DfS. We have seen the importance of educators being able to equip students with adequate knowledge and tools so that they can clearly understand and implement sustainability in a way that is relevant to their local environment. Chapter Three will examine the research design and methodology that is used to investigate the answers to the research questions that guide this study.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

In this chapter the research design is presented and the research methods used to the gather and analyse data are explained. Qualitative data collection methods have been used, the selection of which is based on fulfilling the overall objectives of the research.

3.2 Ontological and Epistemological Assumptions

Research is guided by a worldview or set of assumptions known as a paradigm (Killam, 2013). To clarify the researcher's perceived view of the world, the paradigmatic assumptions in this study need to be reviewed. Maree (2007:31) suggests that research is guided by three fundamental factors: ontology, epistemology and methodology. Ontology is concerned with the nature of existence, it asks: what is the nature of reality? Epistemology is concerned with the nature of knowledge, it asks: how do we know what we know? Methodology is concerned with the nature of research design and methods, it asks: how do we gain knowledge about the world (Killam, 2013)? It can therefore be understood that "ontology constructs the logic of epistemology, epistemology structures the nature of methodology, and methodology prescribes the appropriate types of research methods, designs and instruments" (Sarantakos, 2013:28).

As a design practitioner and educator, the researcher believes that sustainability is a critical issue in the advancement of the communication design discipline. Currently the local communication design fraternity does not significantly consider the environmental, sociocultural and economic impact of its work. This research argues that to achieve positive change in the industry, principles of sustainability need to form an integral part of communication design education. The reality of adopting sustainability principles in the context of communication design practice and education therefore needs to be interrogated.

Through this study the researcher aims to generate guidelines for learning and best practice in the context of communication design education. This study therefore sits predominantly within the interpretivist paradigm because the researcher attempted to interpret the phenomenon of integrating sustainability principles through people's subjective experiences and how they make sense of the phenomenon (Maree, 2007:59). The researcher was engaged subjectively in the research and therefore followed a subjective ontology. An interpretivist epistemology was adopted in which the researcher and the informants[6] were

[6] Throughout this study the term informants is used to describe the people who have important knowledge, and who are willing to convey information to the researcher (Berger, 2011). Informants include design educators, design students and design professionals.

seen as co-creators of the findings that emerged through their dialogue (Killam, 2013). Based on this, an appropriate research strategy was developed to conduct the research.

3.3 Research Methodology

3.3.1 Qualitative research approach

The study is guided by the strategies of a qualitative methodology. According to Sarantakos (2013:29), a qualitative research methodology "adopts a subjective perception of reality and employs a naturalistic type of inquiry". Regarding researcher involvement with qualitative research, emphasis tends to be placed on the active role of the researcher in the construction and the interpretation of data (Denscombe, 2007).

Qualitative research is used to gather data in natural settings and within close proximity to the informants, which allows the researcher to understand the meaning of the problem from the perspective of the informants (Sarantakos 2013). Whenever possible the data in this study was gathered in a natural setting, either at the workplace of the informants, or at the informants' place of study. In order to gain an in-depth understanding of why principles of sustainability were not effectively integrated into communication design curricula, different sources of information were accessed through the views shared by design educators, design students and design professionals, as well as through literature. This allowed triangulation to occur. Triangulation provides alternative perspectives on the problem being investigated (Denscombe, 2007). Because this research study relies not only on written content found in literature, but also on the opinions and experiences of multiple informants, triangulation is a means of corroborating the various findings (Maree, 2007). The next section outlines how the various data was collected.

3.4 Research Design

Research design is the "plan or blue print" of how the researcher intends to conduct the research (Babbie & Mouton, 2002:74). This study is guided by a qualitative research design developed in order to successfully answer the research questions and fulfil the overall objectives. The research design consists of five stages.

In the first stage an extensive literature review was undertaken to establish a clear understanding of the concept of DfS within the context of communication design. It was also used to evaluate the perceived importance of addressing sustainability issues in design education as well as in the design economy. The literature review further assisted in identifying any gaps within the existing knowledge relating to the research problem. During the second stage of the study three focus groups were conducted with communication design students. This was done in order to gather data about the students' awareness of and

engagement with DfS. In the third stage semi-structured interviews were conducted with theory and practical design educators, as well as with design professionals. Next, an online survey was conducted with design educators to rank a set of tentative guidelines that the researcher had developed for integrating principles of sustainability into local communication design curricula. At the final stage the literature was revisited. The researcher felt that it was important to stay current on the research topic, but also acknowledged that some time had passed since the initial analysis of written data. The focus was therefore an in-depth study of the latest developments in DfS within education and industry.

3.5 Data collection methods

Research methods describe the instruments used to collect and analyse data. Primary instruments – made up of focus groups, semi-structured interviews and an online survey – allowed the researcher to collect empirical data. These instruments assist in providing answers to the research questions that are dependent on gathering data from multiple levels (Creswell, 2008:153). The collection of theoretical data happened through the review of available literature, the secondary research instrument. The decision to use these different data collection methods not only ensured that researcher bias was reduced, but also contributed to the validity of the research.

3.5.1 Desktop review of existing literature

Integral to the research study, the literature review assisted in identifying “what is known” about the research topic, and “how it is known” so that the researcher can develop research questions around “what is yet to be known” (Conrad & Serlin. 2011:83). To enhance the authoritativeness and currency of literature, relevant published information was sourced from books, academic journals, conference papers and Internet-based resources.

In the first stage of the research, the literature review focused on investigating the background to principles of sustainability; the relevance of DfS in communication design practice and education; the potential barriers to teaching DfS; global and local communication design examples that implement DfS; and the presence of DfS within the local design economy. In the fourth stage of the research, the review of up-to-date literature aimed at presenting the current state of DfS within the communication design fraternity.

3.5.2 Focus groups with design students

Focus groups are considered useful when the researcher’s objective is “to explore attitudes and perceptions, feelings and ideas about a specific topic” (Denscombe 2007:178). Of value to the researcher is the opportunity of the focus group to provide an in-depth view of the collective opinion of a particular group on a specific topic (Maree, 2007). The researcher

believed that the empirical data gathered from this qualitative data collection method would provide valid insights into the students' level of understanding, interest and engagement with DfS.

The researcher conducted three focus groups with third year students from CPUT, RP and Vega. Lecturers from each HEI were contacted via email, at the beginning of the 2014 academic year, to request permission to conduct focus groups with their students. In the email the researcher explained the background to the research, outlined the objective of the focus group, and requested a minimum of five students be made available to participate in the focus group. The lecturers from CPUT and Vega advised the researcher to arrange the focus groups with the assistance of the relevant class representatives. The representatives' introduction to the researcher and the study topic was first made over the phone. The class representatives were then emailed the following: a background to the study; the objective of the focus group; an overview of the topics to be discussed; the format and expected duration of the focus group; possible dates; and a request for the class representative to select a diverse range of students, as well as a quiet venue. The researcher also highlighted that it was not compulsory for the students to participate, and noted that all informant names would be kept confidential. Except in the case of the RP focus group, the class representatives made the selection of the informants. At RP, where the third year communication design class only consisted of five students, the lecturer arranged for the whole class to participate in the focus group.

According to Denscombe (2007), the key to the success of a focus group depends on establishing a sense of trust within the group. To ensure a level of trust between the informants and the researcher, but also to comply with ethical standards, all informants were asked to complete a consent form. The form stipulated confidentiality, and requested permission to do an audio recording of the focus group (Appendix B). The focus groups were conducted at the respective campuses, not only for the students' convenience, but also because these were spaces that they were familiar with and comfortable in. A research assistant – who helped with setting up venues, managing the collection of signed consent forms, and capturing the non-verbal leakages during the focus group – accompanied the researcher. At each focus group University Research Funds (URF) were used for the provision of food and beverages.

The researcher took on the role of an active facilitator and informant observer during the focus groups. A discussion guide (Appendix D) was used to assist the researcher in managing the flow of the focus group, as well as to ensure that important topics relating to the research problem were explored.

3.5.3 Semi-structured interviews

Semi-structured interviews assist the researcher to elicit the subjective perspectives of selected informants (Lewin & Somekh, 2012). Such qualitative interviews allow the researcher to understand the key informants' opinions, feelings and experiences concerning the subject matter being investigated (Denscombe, 2007).

Eight interviews with design educators and five interviews with design professionals were conducted separately. Key informants were contacted via email, with an explanation of the research study and a request for their participation. Interviews were conducted at venues chosen by the informants, ensuring convenience and comfort. The considered selection of key informants ensured that valuable insights relevant to the research topic would be provided.

Similar to the focus groups, the researcher made use of an interview guide that was based on the research questions. The guide allowed the researcher to shape the discussion around the main topics that needed to be covered. The guide was tailored for both the educator and design professional interviews (see Appendix E). Open-ended questions were asked, in a flexible order, encouraging detailed responses. This also promoted informal discussions around interesting themes associated with the research topic. All interviewees signed a consent form giving permission to record each interview, and to use the findings in the research (see Appendix C).

3.5.3.1 Interviews with design educators

Interviews were conducted with lecturers who taught theory and those who taught practical subjects. The aim of the interviews with the theory lecturers was to get a better understanding of what content was taught at the different HEIs, and to discover if and when sustainability featured in the curriculum. The aim of the interviews with the practical lecturers, however, was to understand the level of engagement with sustainability in terms of practical application. By interviewing these educators the researcher hoped to find out if the theory and practical components of the courses were in any way aligned. It was also important to ascertain what prevented the incorporation of sustainability principles into their teaching. Overall, the researcher hoped the interviews would provide insights into the educators' interest, engagement and understanding of sustainability within the communication design discipline.

3.5.3.2 Interviews with design professionals

The aim of the industry interviews was to uncover the significance of DfS within the local design economy; and also to validate the literature relating to the inclusion of DfS within communication design practice.

The researcher compiled a summary document – highlighting any pertinent issues raised and recording any observations – for each of the interviews and focus group discussions. These summaries were referred to several times during the write-up of the findings.

3.5.4 Online survey

After all of the collected data was analysed, the researcher developed a set of tentative guidelines for integrating the principles of sustainability into communication design curricula. Using an online survey that was conducted with design educators from the three selected HEIs, the researcher was able to rank the relevance of the guidelines based on the educators' input. Denscombe (2007:31) suggests that this data collection method aids in collecting "purposeful and structured" information from targeted informants.

The survey was created in Google Forms. This online platform was chosen not only because it is free and user-friendly, but also because it allows the survey to be embedded into a personalised email, which makes it easy for the recipient to answer and then submit upon completion. Once submitted, Google Forms automatically organises the results into a spreadsheet and provides an analytical summary of the results. A trial survey was first sent to a few people who were outside of the research sample in order to identify and address any glitches. The survey was then emailed to the design educators, who were asked to complete it within five days. A response rate of seventy-five percent was achieved.

The survey, titled *Guidelines for Integrating Principles of Sustainability into Communication Design Curricula*, consists of twelve questions. A Likert scale was used for each question, allowing the informant to rank the guideline's relevance, which in turn helped the researcher to understand which principles are most important to integrate. Using the Google Form platform aided with the speed and accuracy of the data collection process. An example of the online survey and the analytical summary of the responses can be viewed in Appendix F.

3.6 Sampling

3.6.1 Population sample

This study is based in the city of Cape Town, in the Western Cape Province of South Africa. As the host city of the 2014 World Design Capital, and with the design sector driving social and economic change, Cape Town is recognised by the provincial government as a "design

hub" (City of Cape Town, 2014:7). According to a report published by the Western Cape Government, the communication design industry has been identified as having the potential to grow the local economy (Cape Craft and Design Institute, 2012). There are currently sixteen HEIs offering communication design courses in Cape Town (see Table 2.19). Course options range from full-time four-year or three-year degrees to two-year diplomas or one-year certificate programmes. Two of the HEIs are public universities while the rest are private institutions.

Table 3.1 presents information about the three HEIs that feature in this study: CPUT, RP and Vega. These were chosen because they vary in size, cost and focus. For example, Vega focuses on branding, whereas some of the subjects offered at CPUT and RP are similar.

Table 3.1: Three Cape Town HEIs featured in this study (Cape Peninsula University of Technology, n.d.; Ruth Prowes, n.d.; Vega School, n.d.)

HEI / General information	Course name / Description	Course duration	Course subjects over the 3 years	Average cost for 1st year	Average 3rd year class size
CPUT Largest public university in the Western Cape Houses one of the largest design faculties in the country Offers eight full-time design courses	**National Diploma in Graphic Design** Graduates are competent to design & produce visual communication at a professional level relevant to the formal market sector	Full-time 3 years	• Communication Design • Design Techniques • Graphic Design Drawing • History of Art & Design • Professional Graphic Design Practice	R21 695	42
RP Small private institution Offers four full-time courses, with one focused on design	**Diploma in Graphic Design** A multi-faceted course to give designers or illustrators a wide variety of professional skills & a thorough knowledge of visual communication	Full-time 3 years	• Design & Advertising • Desk Top Publishing • Drawing • Extended Essay • History of Art • History of Design • Illustration • Photography • Printmaking • Professional Practice • Techniques & Reproduction	R44 400	5
Vega Large private institution with four branches nationally Offers five full-time degree courses, with one focused on design	**Bachelor of Arts in Creative Brand Communications** Specialising in visual communication including art direction & graphic design	Full-time 3 years	• Brand Strategy • Creative Brand Communication • Creative Development • Critical Studies • Digital Media • Visual Communication	R71 900	20

In addition to consulting educators and students from the three HEIs, design professionals from five communication design companies were interviewed. These are described below.

Table 3.2: Communication design companies featured in this study (Broom, 2014; Blacksheep Design Studio, n.d.; Infestation, n.d.; King James, n.d.; OgilvyEarth, n.d.)

DESIGN COMPANY	General Information	Size
AGB Design Project Imagineers	Offers design consulting and communication design services	• Works from home • One full-time employee who collaborates with other independent contractors when necessary
Black Sheep Design Studio	Offers bespoke graphic design and web design services	• Office in Cape Town • Four full-time employees
Infestation	A full-service design studio that specialises in branding, publications and websites	• Office in Cape Town • Nineteen full-time employees
King James	An advertising agency that offers services across the following communication mediums: TV, radio, print, online and outdoor	• Offices in Cape Town and Johannesburg • Thirty full-time employees
OgilvyEarth South Africa	Services Ogilvy & Mather as its sustainability communications consultancy	• Part of a global alliance with offices in five continents, including one in Cape Town • Four full-time employees

These companies were selected because they are based in Cape Town, are different sizes, and offer a diverse range of communication design services.

3.6.2 Sampling techniques

Purposive sampling, a non-probability sampling procedure, was applied in this study (Sarantakos, 2013). This allowed the researcher to select informants who were relevant to the study. Informants were chosen specifically because they were seen as being representative of the larger target population, namely the Cape Town communication design fraternity (Maree, 2007).

Having worked in the communication design departments at CPUT and RP, the researcher was familiar with who the most relevant educators to consult with for this study would be. In the case of Vega the researcher contacted the department head, who advised which educators would be the most suitable. Apart from one industry professional who is also a communication design educator, the selection of design professionals was based on their roles and experiences at the aforementioned design companies.

3.6.3 Sample size

3.6.3.1 Focus group

Three focus groups were conducted with third year communication design students from the selected HEIs. CPUT was represented by eight students – four females and four males; RP by five students – two females and three males; and Vega also by five students – three females and two males. The researcher believes that the informants represented the general views of the larger, third year communication design population at these three HEIs.

3.6.3.2 Educators

Two communication design educators from each HEI were selected, one for the theoretical component and the other for the practical component of the course. In the case of CPUT however, two additional practical educators were consulted. The educators' sample group consisted of eight key informants – five females and three males. All educators had experience teaching at third year level. Those who were not exclusively involved in the third year curriculum taught modules at third year level.

3.6.3.3 Industry

Design professionals made up of five experienced designers and one strategist were interviewed. One of these informants was also an educator at CPUT and therefore contributed to both sample groups. Three females and three males were consulted.

3.6.4 Background of the informants

3.6.4.1 Informants from academia

CPUT Educators

Jill van Dugteren was the third year theory lecturer in the subject of History of Art and Design; and Wayne Coughlan taught Communication Design – a practical subject – in both second and third year. At the time of the interview, Coughlan was the curriculum officer representing the Department of Graphic Design.

Also representing CPUT was Bruce Snaddon, a Senior Lecturer in the Graphic Design department. Teaching at both graduate and undergraduate levels, he had served for a year as the department's original curriculum officer. In addition to offering valuable insights about the curriculum, he was approached for his insights into the potential educational legacy of the World Design Capital 2014 (WDC2014). At the time of the interview Snaddon served on the board of Cape Town Design NPC, the implementation company of the WDC2014; and was also the Chair of the Cape Town Design Network.

Another informant, Andrea Broom, was selected because she could offer unique insights

into both the education system at CPUT and industry practice in Cape Town. Broom had lectured in Communication Design and Design Techniques for twelve years, five of which she also fulfilled the role of BTech Graphic Design programme coordinator. Broom is cited in both the educator and industry findings chapters.

RP Educators

Wendy Morison was consulted as the Graphic Design department head. She taught Design, Advertising and Illustration across all levels. Part-time lecturer Marise George taught design theory, as well as most of the practical components of the course to third year students.

Vega Educators

The Vega students did not receive design theory as a subject, as was the case with the other two HEIs. Karen Welter, who rolled out the Brand Strategy, Channel Planning and CSR modules, as well as lectured on the subjects, was interviewed because she interacted with the Visual Communication students through the Brand Strategy module. Having completed a Masters degree at the Sustainability Institute, Welter also had in-depth knowledge about sustainability.

Shane De Lange was the senior Visual Communications lecturer, teaching the practical component of the course to third year students. He was also the national coordinator of the Creative Brand Communications degree.

3.6.4.2 Informants from industry

Al Luke - Black Sheep Design Studio

Luke, the founder and Creative Director of Black Sheep Design Studio, was selected because the services and scale of his design studio differed from those represented by the other informants. His list of clientele, such as The Green Building Council of South Africa and Tuffy (the manufacturer of recycled refuse bags), was also considered relevant to this study.

Andrea Broom – AGB Design Project Imagineers

At the time of the interview Broom had been working as an independent design consultant for a variety of clients for two years. As mentioned earlier in this chapter, Broom offered unique insights to this study because of her experience in both industry practice and education.

Christo Maritz - Infestation

Maritz is the owner and creative director of Infestation, founding member of the Cape Town Design Network, member of the Open Design Festival steering committee, and serves on the advisory board at CPUT (Infestation, n.d.). Maritz was selected as a key informant because of his active involvement, knowledge and passion for communication design; specifically

projects that impact Cape Town positively. His experience extends into the design education space through examining students' work and providing internship opportunities. Maritz also provided input on the curriculum development at CPUT.

Jessica Warner - King James

Warner was a graphic designer at King James advertising agency, where she worked in the Below the Line division. This meant that she designed mainly for print, working on briefs such as corporate stationery and point-of-sale devices. Before joining King James, Warner was a freelance design consultant collaborating with Biomimicry SA. Prior to that, Warner she worked for DTPR Concepts, a Cape Town-based graphic design agency whose main contract was to design visual merchandising for Woolworths. Along with her experience in the local communication design industry, Warner's interest in Biomimicry and associated insights into DfS made her a valuable informant to this research project.

Melissa Baird and Scott Fowler - OgilvyEarth South Africa

Baird was the sustainability strategist at OgilvyEarth South Africa, and Fowler the creative head. The interview with Baird and Fowler was significant to this research study primarily because they were representatives of OgilvyEarth South Africa, but also because of their combined experience in the communications industry. Baird had been immersed in communication about sustainability for several years. She was the founder and editorial director of *Life in Balance* magazine, as well as the editor of *Green Home* magazine. Both publications focus on conscious consumerism and promote sustainable lifestyles. Fowler's background was in graphic design and traditional advertising. Before joining OgilvyEarth he was an Art Director at the advertising agency Draft FCB.

3.7 Analytical Framework

3.7.1 Activity Theory

This study utilises Activity Theory as a lens for analysing the data. Activity Theory allows the researcher to examine the dynamics and highlight the tensions within the communication design fraternity in Cape Town.

Activity Theory is an approach to psychology that provides a method of analysing and understanding human activity. Russian psychologists Vygotsky, Leont'ev, and Luria developed the theory in the 1920s (Durepos, Mills, Wiebe, 2010). Activity Theory, also referred to as Cultural Historical Activity Theory (CHAT), has transformed over many years (Engeström, 2001).

In the first generation of the theory, the idea of mediation was created *(ibid).* Activity theory

focused on the individual (subject) and the task (object), and proposed that in an activity, artefacts (tools) mediate between the subject and the object. Figure 3.1 illustrates the elements of the first generation activity system.

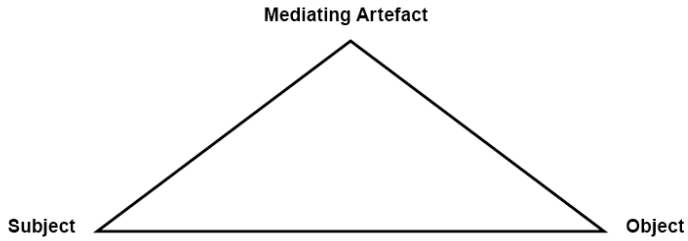

Figure 3.1: First generation Activity Theory (Kuutti, 1995)

Second generation Activity Theory, as visualised by Engeström in Figure 3.2, moved beyond the individual and was concerned with a collective activity system (Engeström, 2001). In second generation Activity Theory it is acknowledged that the activity takes place within a social context in which there are a community of actors, a set of rules and division of labour *(ibid)*.

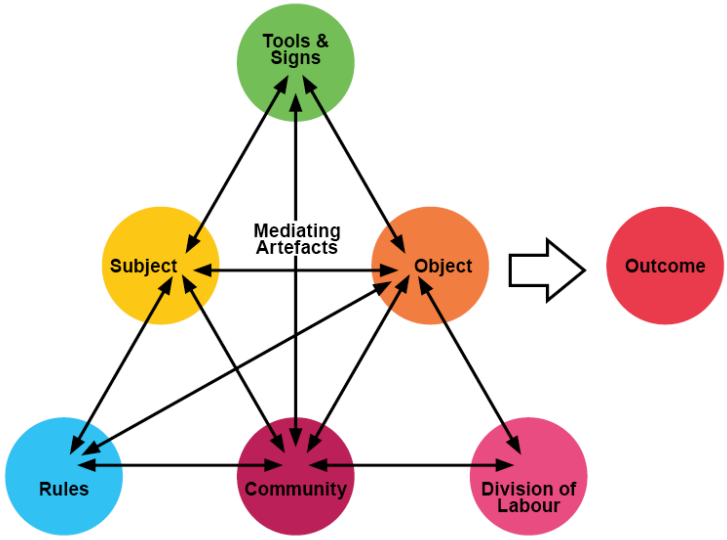

Figure 3.2: Second generation Activity Theory (Engeström, 2001:135)

As seen in Figure 3.2, the activity system now comprises of several elements; and it is the subject, tools, community, division of labour, and rules that all work together to make the objective or activity possible. The top triangle focuses on how the subject and the object relate to each other, and how their relationship is mediated by instruments. The lower level of the bigger triangle addresses how rules, the community and the division of labour also have an important role to play in mediating between the subject and the object (Durepos *et al.*, 2010). It becomes evident that it is the interaction and intersection of these elements that impact the activity, rather than just one element being considered as a crucial factor to the activity. The elements of the activity system are explained in Table 3.3 (Engeström, Brown, Engeström, Koistinen, 1990).

Table 3.3: Elements of an activity system (Adapted from Engeström *et al.,* 1990; Kuutti, 1995)

ELEMENT	DESCRIPTION
Subject	The individual or group whose point of view is taken in the analysis of the activity
The object (or objective)	The target of the activity within the system
Instruments	Internal or external mediating artefacts that help to achieve the outcomes of the activity
The community	Comprised of one or more people who share the objective with the subject
Rules	Regulate actions and interactions within the activity system
The division of labour	How tasks are divided horizontally between community members as well as referring to any vertical [or hierarchical] division of power and status
Outcome	The desired result of the activity

In this study Activity Theory is used to firstly identify the actors who are involved in the activities of teaching, learning and practicing DfS in communication design in Cape Town; while also looking into the broad relationships between the different actors and the different elements of the activity systems. Whereas Activity Theory is a rich theoretical framework, specific aspects of this analytical tool are used to zoom into the tensions within the activity systems in order to assist the researcher in identifying ways to promote the uptake of DfS. Focusing on the tensions between the elements of an activity system is "critical to understanding what motivates particular actions" and to "support the continued innovation of the system" (Barab, Barnett, Keating, Squire, Yamagata-Lynch, 2002:80).

In this study the elements of the activity system are as follows:

Table 3.4: Elements of the Cape Town communication design activity system (Adapted from Engeström *et al.,* 1990; Kuutti, 1995)

ELEMENT	DESCRIPTION
Subject	The actors in this category include: design educators, design students, and design professionals
The object (or objective)	To teach, learn and practice DfS in communication design
Instruments	The tools used to teach, learn and practice DfS
The community	HEIs, communication design industry, greater Cape Town community
Rules	• Design educators equip students with DfS knowledge and skills • Design students learn to incorporate DfS into their assignments • Design professionals incorporate DfS into their clients' briefs
The division of labour	• Design educators teach and research DfS, as well as facilitate collaboration with the other actors • Design students learn and apply DfS practice in academic and professional settings • Design professionals practice DfS, interface with clients and collaborate with academia
Outcome	To incorporate DfS into all communication design solutions

In Chapter Six three activity system diagrams illustrate how Activity Theory is applied to this study, and in Section 6.6.1 the main tensions are clarified.

3.8 Rationale for data analysis

A qualitative analysis is used, allowing the collected data to be transformed into detailed written descriptions or "thick descriptions" (Denscombe, 2007:248). The researcher is the primary instrument for the analysis and interpretation of the data (Maree, 2007). This allows the researcher to interpret the activities of communication design education and practice based on the informants' knowledge and perceptions of DfS as expressed during the focus groups and semi-structured interviews.

3.9 The process of data analysis

An inductive process of analysis is followed, meaning that the research findings have emerged out of the themes existing in the data. The process of identifying the themes is outlined below.

3.9.1 Transcribing the data

After each focus group and semi-structured interview the research assistant was supplied with a copy of the audio recordings on a memory stick, and was tasked with transcribing the data. The transcriptions were then shared with the researcher via email. During the initial exploration of the data, the researcher listened to the recordings while simultaneously reading the transcriptions to make sure they had been accurately transcribed, word for word. Once satisfied with the quality of the transcriptions, the researcher meticulously inspected the transcripts and began to assign codes to the data.

3.10 Coding strategy

The researcher examined the data against the research questions that guide the study. Each question was allocated a colour and the segments of data that relate to specific questions were marked with the appropriate colour. The data was then organised into the colour groupings associated with the research questions. The researcher then searched within the different groupings for links between the data and assigned further colour coding to recurring phrases, concepts and patterns in the data. The figure below illustrates how this coding strategy was used to analyse the first research sub-question – Why are principles of sustainability not widely incorporated into communication design curricula? See Appendix G for examples of how the other research questions were coded.

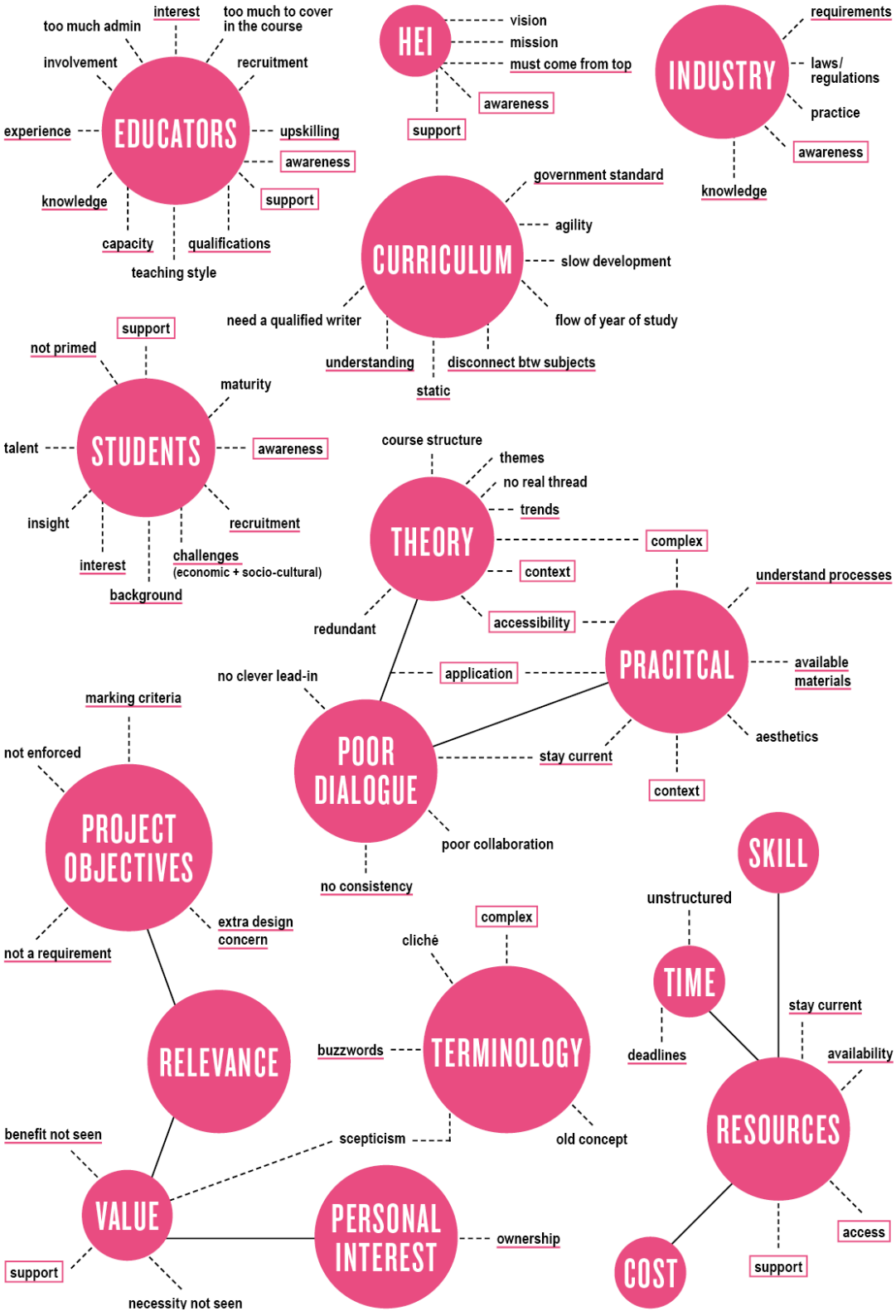

Figure 3.3: An example of the coding process that was used to analyse the first research sub-question

The next stage was to create categories under which the coded data could be summarised.

3.11 Arriving at the core categories

Activity Theory is used to further analyse the coded data into themes. Engeström's Activity Theory triangle (see Figure 3.2) is used as a heuristic for analysis. It assists the researcher to identify the various elements of the activity system being investigated, as well as the interactions and possible tensions between these elements. Key themes become apparent through the analysis, and similar themes are then grouped together into categories. The categories therefore emerge from the prominent themes that are identified in the data. In Chapters Four and Five the researcher presents a narrative of the findings within the relevant categories. In Chapter Six the interpretations of these findings are discussed and key concepts are presented.

3.12 Summary of core categories

The findings are presented over two chapters. These chapters capture the overarching themes of this study: DfS in communication design education, and DfS in the communication design industry. Within each chapter the findings are organised under the four main categories/themes that emerged from the data, namely: *exposure, barriers, solutions* and *relevance*. Exposure refers to the key actors' (design educators, students and professionals) level of awareness, understanding, interest, and connection with DfS. Barriers are concerned with the circumstances preventing the application of DfS within the actors' different communities of practice. Solutions allude to the possible ways in which DfS can be better integrated into both education and industry practice. Lastly, relevance refers to the perceived importance and efficacy of including DfS into communication design education and practice. Each category consists of several themes and sub-themes, which are presented in Chapters Four and Five.

3.13 Analysis of the online survey

Google Forms automatically fed the responses from the survey into a spreadsheet. A comprehensive summary of the responses was created using graphs to display the findings (see Appendix F). The spreadsheet and summary document can be downloaded in Microsoft Office Excel or PDF, thus making the data easily accessible. The researcher analysed the documents, and based on the rankings allocated by the educators, was able to rank the guidelines in order of priority. The findings of the online survey are discussed in Chapter Six, Section 6.7.

3.14 Ethical considerations

It is important for the researcher to act responsibility and to reflect on ethical issues when involving people in research (Potter, 2002). The key people concerned with this study are the informants and the researcher. To comply with ethical considerations, all informants

were required to sign a consent form to demonstrate their willingness to participate in the study (see Appendix B and C). The form clarified the purpose of the study, explained that participation was voluntary, and that the informants could withdraw from the study at any stage. Concerning the student informants, the form stipulated that their identities would remain confidential. Explicit requests were made to the educators and design professionals for their names to be revealed in this study, but if so required, information provided by these informants would be presented anonymously.

3.15.1 Ethical issues relating to informants

Research should be ethical especially when dealing with issues relating to the individuals involved in the study. The following ethical requirements were complied with as stipulated by the CPUT Ethics Committee:

- the study did not involve informants unable to give informed consent;
- the study did not require co-operation of a gatekeeper for initial access to the groups or individuals to be recruited;
- informants did not take part in the study without their knowledge and consent;
- the study with the research subject did not involve discussion of sensitive topics;
- the study did not involve invasive, intrusive, or potentially harmful procedures of any kind;
- the study did not involve prolonged or repetitive testing on sentient subjects;
- no financial inducements were offered to informants; and
- the study did not involve environmental studies which could be contentious.

3.15.2 Ethical issues relating to the researcher

The researcher practiced ethically by taking the following issues into account:

- the researcher did not show any bias during the collection and analysis of the data;
- relevant methodologies were used when conducting the study;
- the results of the report were truthfully revealed and without any bias;
- information was not obtained using adverse means; and
- the researcher attempted to uphold the expected code of ethics including, inter alia, the guidelines of beneficence, respect for human dignity and justice.

3.15.3 Ethical issues relating to the sponsoring organisation

Funding for this study was obtained from the CPUT University Research Fund (URF). The researcher clarifies that the study was in no way manipulated by the sponsor, nor was the research conducted for the sponsor. The research was conducted for academic purposes.

3.16 Summary

This study followed a qualitative research design. Empirical data was generated through engaging informants in focus groups, semi-structured interviews and an online survey. An extensive literature review was also conducted. In an attempt to interpret the informants' perceptions and opinions, the collected data was analysed using Activity Theory. As well as identifying the relationships between the various actors in the system (design educators, students, and professionals), Activity Theory was also used to identify any tensions in the activity system. Chapter Four presents, in detail, the findings from this qualitative research design.

CHAPTER FOUR
ANALYSIS OF FINDINGS: DFS IN COMMUNICATION DESIGN EDUCATION

4.1 Introduction

This chapter presents findings from data that was collected at three HEIs in Cape Town. The data was analysed using Activity Theory as a lens to identify key themes that emerged. As discussed in Section 3.12 of the previous chapter, four main themes were identified, namely: exposure to DfS within academia; barriers to incorporating DfS into the curriculum and design practice; possible solutions for promoting the integration of DfS into teaching and practice; and relevance of integrating DfS into the curriculum. Under each theme both the educators' and the students' perspectives are shared. From these main themes, thirty-four sub-themes emerged and these are presented in this chapter.

Firstly, the chapter looks at the varying levels of exposure of both educators and students to the concept of DfS. Secondly, it unpacks the possible barriers preventing greater inclusion of DfS into curricula. Thirdly, various solutions to promote DfS are discussed, and lastly, it looks at why education relating to DfS is considered relevant.

4.2 Exposure to DfS within academia

This section presents the educators' and students' awareness and contact with DfS at the selected HEIs. It looks at how the educators deal with the subject, in theory and practice, as well as the students' impression of how they learn about DfS. The study looks at one public HEI and two private HEIs. Each of these institutions offers a different focus on the discipline of communication design. One HEI focuses specifically on branding, the other on aesthetic skills such as illustration, and the third attempts to focus on all elements of communication design rather than on one area of specialisation. There is no clear similarity between the HEIs in terms of how they engage with DfS; and even though the private HEIs appear to have better access to resources, the understanding of and engagement with DfS is not advanced. Another difference between the HEIs is that the private institutions are predominantly fed by private high schools, while students from public schools mostly enrol at the public HEI.

4.2.1 Educators' level of awareness about DfS

In order to properly gauge the level of exposure to DfS within academia, the educators' experience with the subject, in terms of knowledge and application, needs to be clarified first. The educators from the different HEIs had varying degrees of awareness of DfS; there was a common view that the extent of this awareness was determined by their personal interest in the subject. Wayne Coughlan from CPUT (2014) stated: "Sustainability can be compared to digital apps, if the lecturer is into it then it becomes a personal driver." RP's Wendy Morison

(2013) supported this statement, and explained that engaging meaningfully with sustainability "starts with personal interest, that is how it was for me, I saw a place for it". Morison shared how her self-motivated participation in a short course in Biomimicry had provided her with valuable information relating to sustainability, which she could feed into her teaching. Similarly, Jill van Dugteren, also from CPUT (2012) had engaged in extra reading on the subject, which allowed her to take "a more critical stance on it". She elaborated, "I didn't want to just present them [students] with the pro version of sustainability, but also the implications" (*ibid*). While Vega's Karen Welter (2014) felt that proficiency in the principles of sustainability was important for understanding and engaging with the concept of DfS, having completed a Masters degree in Sustainability, she shared:

> *I definitely think that I have the edge because of the four years that I studied it, I know a lot. I have actually read all the reports and I'm not just doing the top line thing.*

In contrast to Welter, RP design lecturer Marise George (2014), who did not express a personal interest in the subject, explained her familiarity with DfS as being more to do with environmental issues:

> *I know the basics. To design something you look at reduce, reuse, recycling, at cost-effect, and the use of printers, papers and inks that are environmentally friendly*.

Another contributing factor to the awareness of the educators was the HEIs view of sustainability as having a place within design education. At Vega, an institution that focuses on branding, staff was required to be knowledgeable about all concepts that informed design practice, including sustainability. Shane de Lange's (2013) response to this was: "I feel that we have been ingrained with it, ad nauseam, by the head of the school". Agreeing with this sentiment, Welter (2014) attributed the educators' awareness about sustainability to Vega's founder, Gordon Cook, who "was always interested in brands that give back, good branding and good business". She said that Vega had developed this philosophy into the school's Healthy Brand model, explaining: "A healthy brand is transparent and a healthy brand gives back". The Healthy Brand has "become the Vega ethos" that guides the educators to include aspects of sustainability in the course (*ibid*). Therefore, while the educators were all familiar with DfS, their depth of knowledge on the subject differed depending on personal interest as well as the vision of the HEI. Furthermore, because educators interacted closely with students, they were able to share insights into the students' awareness of sustainability.

4.2.2 Educators perception of students' awareness about the concept of sustainability

Educators had noticed a growing consciousness amongst students about sustainability-related issues. Welter (2014) reflected on how there had been a massive shift in awareness over the past three years:

As the years progress, just because of society, they have all integrated green, organic and sustainable resources. They are much more savvy, I can't just show them basic movies anymore.

Welter stated that as an educator "you can be quite challenged because students are ready for it and interested in it" (*ibid*). Along with schools, some organisations such as advocacy groups, governments and even consumer brands seem to be promoting sustainability. As a result of this Morison (2013) noted, "they are just a generation that is more aware, it is introduced at school, so there is the awareness and grounding". Furthermore, Morison suggested that the first year students were "interested" in the topic and that "they enjoy the challenge of using less and using alternative materials – it stimulates their creativity to have limitations". Due to the students' awareness of sustainability, as perceived by the educators, it was also important to grasp what students were taught about DfS at the selected HEIs.

4.2.3 Educating students about DfS

Although the concept of designing sustainably has been in existence for well over a decade, education about DfS at the three HEIs only intensified during the mid-2000s. Van Dugteren (2012) confirmed that she had been covering the concept for a few years, however when she first started teaching at CPUT, "it wasn't called sustainability in those days, it was called Ecodesign, or Green Design".

Furthermore, there were different approaches to teaching DfS at the three HEIs. At CPUT there was an established theory module on the subject. This module was introduced to the communication design students during the second semester of their third year. Van Dugteren said this was because "in first and second year, the course is more of a survey course, dealing with tracing the history of design chronologically, and getting grounding" (*ibid*). She explained that, "from that grounding they move on to third year where it is more module-based. One of those modules happens to be on sustainability; we focus strongly on consumption and economic systems, which gives a grounding for consumer culture and how sustainability fits in with that". As part of the sustainability module, the CPUT students were prescribed weekly readings on which they had to submit a written response. The educator found this to be an important means of engagement because "then you're reading and writing, and you get a sense for applying the practical" (*ibid*). The readings changed yearly.

Vega's approach focused more on social and environmental aspects of sustainability. The educators suggested that sustainability was touched on in most of the modules, across all the years of study, but they also clarified that the underlying focus was on branding. De Lange (2013) stated that an understanding of sustainability "is a prerequisite" to the strategy

component of the course. Equally important, he also explained why and how sustainability was integrated into the practical component of the third year course:

> *When it comes to communication and everything to do with printing, they [students] need to think of things in the most resourceful ways; cost effective and impactive terms when it comes to carbon footprint*.
>
> *The third years have two projects that deal with the environment, the rest are social. We try to cut down on production, like with paper or any kind of environmental issues. For example, they [students] have to look at the use of water globally and develop a project around that, use recycled papers to make a publication, or come up with a campaign that uses the whole idea – but it's far less theoretical, it's far less upfront, it's more implied and practiced* (*ibid*).

At RP it appears that only the environmental aspect of sustainability is focused on. According to George (2014), design theory about DfS is not explicit because it is not a stand-alone module. Depending on the project, design theory had previously been introduced at second year level and focused on "carbon footprint; and looking at different aspects of it, such as water-soluble inks and aqua varnish instead of UV" (*ibid*). Morison provided an example of a packaging project, in the practical component of the course, which she had run with first year students:

> *We brought in principles of sustainability by looking at material options, making better choices, understanding how resource-intensive it is, and also looking at the concept of second life* (2013).

While focusing on different aspects of sustainability at various stages, all three HEIs did seem to be engaging with DfS to some degree. As a result of the different theoretical and practical approaches that they focussed on, educators used different strategies and tools for accessing and sharing information about DfS. These will be discussed in the following sections.

4.2.4 Strategies and tools used by educators for accessing and sharing information about DfS

The three strategies used by educators to encourage students to gain a deeper understanding of the concept of DfS were competition briefs, excursions and the use of a paper recycling box. Additionally, main tools used to access information about DfS were TED Talks, Twitter and books. These strategies and tools, which will be discussed in the sections below, ensure that students are exposed to the latest information about the subject.

4.2.4.1 Competition briefs

The most common strategy used by educators across all three HEIs was competition briefs. The briefs focused on various issues relating to sustainability and were supplied by local and international external organisations. Coughlan (2013) suggested that design competitions guided the educators on topical issues from an industry perspective. Examples of such briefs

included Student Gold Pack Awards, International Society of Typographic Designers Student Briefs (ISTD) and the American Institute of Graphic Arts Design Competition (AIGA). In 2011 and 2012 CPUT communication design students participated in the *Shift: Fresh Talent Sustainable Design Competition*. This competition formed part of the sustainability component within the theory module. As part of the module, students were taught about DfS and then given the opportunity to apply the knowledge gained to interpret the competition brief. Van Dugteren (2012) felt that this strategy formed part of the extended exposure to the subject; and because of the competition aspect, students had a more meaningful engagement with DfS. Participation in the competition was successful, with six of the students being named finalists in 2012.

At Vega, third year students had participated in the 2013 ISTD competition. With 'water and oil consumption' as the theme, the competition brief was used to expose students to the ways in which designers could promote and practice environmental sustainability. De Lange (2013) described how students approached the brief:

> *One student did vast scale research on how much water it requires to consume food. He handcrafted a publication from environmentally friendly materials. Details like that are important because if you are making it by hand, you're not using electricity. Another student did a poster campaign around oil, showing each country's oil consumption and how it impacts on global footprint*.

The above examples suggest that competitions are an important strategy for encouraging students to connect with the concept of DfS because of the incentives linked to the project. Excursions were also considered to be a useful strategy.

4.2.4.2 Excursions

RP uses excursions as a strategy to expose students to sustainable practices within the local design industry. Morison took the 2013 third year students to visit two companies that promote themselves as being 'carbon neutral'. The first was Deep Design, a branding, digital and print agency that focuses on green printing, which falls under the environmental pillar of sustainability. The second was Hot Ink*,* which offers design and printing services that consider the environmental impact of their work. According to Morison (2013), the students were told about "the printing process, kinds of paper options and the scope for Green Design". Furthermore, Morison thought that these visits were successful and said "they made a huge impact on them [students]". Some of the students interviewed seemed to support Morison's assertion by describing why an excursion to The Open Design Festival was beneficial:

> *All the designs were about sustainable design; they showed how it impacts the community, why it is necessary, what the need was and how they found the solution. It was great to see the economical, innovative designs and how they impact the whole life cycle of a design* (Student 10, 2014).

Although excursions had only been organised at RP, they are a valuable strategy to pursue because they give students insight into industry practice and put the notion of sustainability into context. Another strategy that RP educators applied was the use of a paper recycling box on campus.

4.2.4.3 Paper recycling box

RP uses a paper recycling box as a means of creating awareness about the importance of recycling paper waste. A recycling box is placed in the communication design studio for student use. The students acknowledged the value of this strategy as it encouraged them to think about the consequences of their design activities during the development and execution phases of a project. The box allowed the students to see the amount of resources they wasted throughout the design process. Student 11 (2014) confirmed the relevance of the box by explaining, "the illustration and design lecturers always want us to think about designing green and thinking about the amount of paper, that's why we have a recycling box".

The above-mentioned strategies prompted students to realise the practical applications and implications of DfS in a real context, and its potential benefits to the environment and society. In the next section, tools that are used to access information about DfS are discussed.

4.2.4.4 Videos

CPUT and Vega use videos to expose students to interesting aspects of sustainability and DfS. Van Dugteren (2012) and Welter (2013) agreed that videos were valuable tools and that screening documentaries such as *The Story of Stuff*, *An Inconvenient Truth* and the *11th Hour* proved useful. Both educators, however, acknowledged that such videos were becoming dated. Consequently, they also used TED Talks presented by industry specialists to inform students about various issues relating to sustainability. These videos were sourced freely online and were considered by Van Dugteren to be "very useful as the students really respond to them" (2012). The students agreed that videos, including TED Talks, were the most effective tools used by educators to inform them about DfS (Student 1,2,3,5,8,12,14,17&18, 2014). Backing this up was Student 15 (2014) from Vega:

> *We watch a lot of TED Talks in Brand Strategy and Critical Studies. One can learn a lot, it's like watching an industry professional. They show different speakers so we learn different lessons. We learn a lot from what people have to say*.

This suggests that videos presented by industry experts are a useful tool for helping students make sense of complex concepts such as DfS. Social media is another useful tool for accessing the latest information about DfS.

4.2.4.5 Twitter

The theory educator at Vega used Twitter as a tool to disseminate important information relating to current thinking and practice of DfS. Welter (2014) used Twitter as a "useful digital resource" for engaging and sharing information with students on the subject. "If I find anything current, I'll feed it to the students", Welter explained. She also emphasised that Twitter was "a fast way to share reputable information" (*ibid*). This social media platform had only been utilised by Welter, unlike the use of books, which were recognised by the majority of educators as the most accessible tool for gaining information about DfS.

4.2.4.6 Books and readings

An important tool used by the educators at CPUT and RP to source information on the subject are books found in the campus libraries. Van Dugteren (2012) and Morison (2013) listed the most popular tiles: *Cradle to Cradle*; *Green Graphic Design; Sustainable Graphic Design: Tools, Systems and Strategies for Innovative Print Design;* and *Design for Sustainable Change: How Design and Designers Can Drive the Sustainability Agenda.* According to Morison (2013), books are "user-friendly", they provide easy access to information as well as a variety of examples. Students engage more with a subject if information about that particular subject is easily accessible. The RP students said that they accessed "books on Green Design" from the campus library, and used them as a primary source of information (Students 10,11,12&13, 2014).

According to Van Dugteren (2012), however, information about DfS became outdated quickly, making her rely on current readings sourced from journals, as well as from relevant websites to keep up to date. This suggests that educators need to keep up to date with the latest developments in the discipline in order to incorporate sustainability into the course and design briefs.

4.2.5 Educators perceptions of linking sustainability to design briefs

Certain aspects of sustainability appeared to be included into communication design briefs, with a focus on environmental and societal issues. Concern was nevertheless raised about categorising these briefs under sustainability because this was seen as being influenced by what is fashionable in the media. De Lange (2013) expressed his concerns: "I am very sceptical about buzzwords. I wouldn't say this project is a sustainability project, however all the projects we do in a year have something to do with NGOs or NPOs." Therefore, even though the terminology was not used in the practical component of the Vega course, the briefs did call for an awareness of principles relating to sustainability. As an example of this, De Lange (2013) spoke about a social cause campaign that had exposed students to the socio-cultural aspect of sustainability. The campaign was the outcome of The Brand

Challenge module where third year students from all disciplines – namely strategy, copywriting and communication design – worked together on briefs for real world clients. The objective of the project was to use a newspaper brand to help bring awareness to the plight of Zimbabweans:

> *We took on The Zimbabwean [newspaper] as a client for a four-week project in which the students got so involved that when they pitched it to The Zimbabwean, they [students] were all almost in tears. The project was conceptualised as a fully-fledged campaign called 'Project Unity', as part of which a truck would travel through South Africa. There would be various technological devices that Zimbabweans [nationals] would have access to; most notably they could phone home. Next they would communicate their plight or their views through social media, because technology may not be freely available to them* (*ibid*).

This project highlights students' enthusiasm and commitment to working on briefs that address real issues that are relevant in the local context. By creating an agency-like structure, students were given the opportunity to develop solutions to overcome a complex socio-cultural problem, in collaboration with students who had different skill sets. According to Welter (2014) The Brand Challenge did not only give students a taste of what to expect when entering industry – in terms of working in teams and for a client – but it also encouraged students to realise that "the idea to solve a problem, or to fix a brand can come from anywhere, it could be an environmental intervention or a social intervention". Having said that, Welter maintained that depending on the problem needing to be solved, sustainability principles might not be applicable to all communication design briefs:

> *It could become sort of cliché, they [students] need to be able to work across different brands and not just on typical sustainable issues. They need to be able to solve any problem a brand has, whether it is a deeper problem, a prettiness problem, or a design problem. So a specific creative brief to come up with a logo and payoff line for toothpaste would not really have any relevance* (*ibid*).

This suggests that students should be encouraged to address the specific objectives of every brief on a case-by-case basis, and only apply a sustainable approach when appropriate. Another perception about linking sustainability to communication design briefs was that it poses the risk of projects becoming complex. Coughlan (2014) described a third year CPUT practical project where students had to design a digital magazine for the iPad. The theme of the magazine had to focus on sustainability. Coughlan admitted that the outcome of the brief was not hugely successful. He attributed this to the "complexity of the brief", specifically referring to the challenge of conceptualising around the theme, generating unique content, as well as understanding the relevant software. He said that for such a project to be a success "you would have to give them [students] sufficient resources and time, which the programme never allows for" (*ibid*). Therefore, for students to meet the requirements of DfS briefs, they need to be provided with enough support, and this includes educators ensuring that the deliverables for each brief are realistic.

Although some briefs encourage students to investigate DfS more than others, the students do seem to be given opportunity to consider the environmental and social aspects of sustainability to some degree. While this section focused primarily on the educators' perspective of DfS education in the context of Cape Town, the Section 4.3 below will look at DfS education from the perspective of the students.

4.3 Students exposure to the concept of sustainability

As mentioned in the previous section, the term sustainability has been referenced widely by different sectors of society. For this reason, most students arrive at HEIs with some level of awareness about the concept. The majority of the communication design students said that they had "first come across the term in high school" (Student 1,2,4,5,12,14,15,16,17&18, 2014). Some students explained that they had learnt about it in the "design class" at their high school (Student 15,16&18). However, a third of the students claimed to have first heard about it when they "got to university" (Student 6,7,8,9,10&11, 2014). Besides those students who had taken design as a subject in high school, the rest of the students agreed that they were first exposed to the concept of DfS at tertiary level. In contrast to the other students' recognition of sustainability and DfS, Student 8 (2014) from CPUT revealed: "I actually do not know much about sustainability, this is the first time that I am hearing so much about it." This suggests that due to the students' backgrounds, and more specifically, where they had attended high school, their knowledge of sustainability as a design concept varied. Although the educators indicated that students had been given some opportunity to engage with DfS, it was important to further understand what the students' impression was of what they had been taught about this concept. This will be presented in the following sections.

4.3.1 Learning about DfS

The consensus amongst the students was that there had been no specific training on DfS, in theory or practice, since they had begun their tertiary studies. It must be noted that at the time of collecting data, all the students were in the first term of their third year. Also, the CPUT students had not yet participated in Van Dugteren's sustainability module. Regardless of this, these students had completed two years of the communication design course, and from their experience thus far, they stated that education about DfS was "very hidden" and that there were "no lectures on it" (Student 2,3,5&6, 2014). However, both the CPUT and RP students mentioned that a few packaging projects had touched on sustainability, but they added that during these projects the educators did not actually teach them about DfS. Instead, as Student 2 (2014) explained, they had to look for information about DfS themselves:

> *Only when there is a packaging project and it relates directly to sustainability, then they [educators] will quickly give you a little information, but then you have to find out more yourself.*

Similarly, Student 12 (2014) from RP stated: “I won’t say we had training, but last year we had a brief on packaging where we had to work on a green design.” To further clarify this point Student 10 (2014) said: “We haven’t been taught, but we have been asked to research ourselves.” By connecting DfS with packaging projects it suggests that the students would have looked into the environmental aspect of sustainability by considering the materials used, as well as the potential reuse of the design.

As far as the Vega students were concerned, they were taught about the theoretical implications of sustainability for businesses and brands, but not about the practical implications for the communication design discipline. Student 18 (2014) explained that during their first year the students were “taught about the Vega Healthy Brand principles, which has a hint at sustainability”. The students stated that there had been “more of a business and branding focus on it, as opposed to a visual communication and design focus on it” (Student 15,16&17, 2014). Critical Studies and Brand Strategy were theory modules in which “sustainability came up a lot” (Student 14,16&17, 2014). According to Student 16 (2014), at the time the Critical Studies module was “about environmental sustainability, but it focuses on media and how it affects our way of thinking as consumers”. Concerning how sustainability featured in the Brand Strategy module, Student 17 said, “it is not about DfS, but more business sustainability and how you can keep a business transparent and healthy, and keep it going for a long time” (2014). While the theory modules exposed students to the various aspects of sustainability and how the concept relates to branding, in terms of the practical component of the course *S*tudent 17 said: "If you choose to use sustainability in the Visual Communication module it is purely by choice, and if you see an opportunity in a brief” (*ibid*). Student 14 (2014) explained that a possible reason for this was because “sustainability is not stressed as a prerequisite for our designs, and it is just always in the background”.

At the three HEIs the students had some level of contact with sustainability, whether in the theory or practical component of the course. For any related module or brief, the students had to access information about various aspects of the concept. As mentioned in Section 4.2.4, the educators used strategies and tools to expose students to DfS. While the students had shown support for some of these, they also shared an additional example of a useful tool that they used to conduct research into DfS – the Internet.

4.3.2 Using the Internet as a tool for learning about DfS

The Internet is a valuable resource for acquiring information about DfS. Accessible on all the HEI campuses, this resource was considered by the students to be the “easiest place” for finding information on DfS (Student 1,3,4,6,11,13,16&18, 2014). When conducting research for a project, students are most interested in seeing inspiring examples, therefore visual

websites, namely Creative Block, Pinterest, Béhance and Tumbler were mentioned as sources where students from all three HEIs searched for DfS inspiration. At CPUT the educators also made use of the Internet to direct the students to information about specific subjects. The students gave the example that on every practical brief they would be supplied with a “few website links” relevant to the subject of the brief (Student 6,8,10&11, 2014). If the brief touched on DfS, the links would act as a starting point for the students to access information about sustainability.

Based on what the students had said about the exposure to DfS in their different courses, it was evident that they had not yet worked on many practical briefs linked to the concept. Nonetheless, in the next section the students discuss how they had applied their knowledge of DfS to their practical work.

4.3.3 How students applied sustainability principles to their design solutions

The students from all three HEIs mostly associated sustainable solutions with environmental concerns. At RP, other than working on a project where they had to use existing packaging and “recycle it into something new”, the students shared two different scenarios where they had considered environmental sustainability (Student 12, 2014). Student 9 described that the Illustration class, during their second year, had gone on an excursion to Kirstenbosch Botanical Gardens where they had learnt about “the extinction of plants and trees to create paper, and the amount of energy used in the process” (2014). The students were then given a brief with the theme of plant and tree extinction, and they had to illustrate their interpretation of the theme onto ceramic plates. This project was an opportunity for the students to use their design skills to create awareness about an environmental issue. The second scenario related to the physical impact of their design solutions. Student 10 (2014) spoke about using materials responsibly:

> *When we have to print stuff we know not to use too much ink because the more material is left raw then the easier it is to biodegrade and reuse. Also, it is costly to the environment to use a whole lot of ink because it’s using up resources*.

Amongst the CPUT students the choice of materials, such as recycled paper, was the most common environmental consideration for their design solutions. For example, in their second year the students had been given a fictitious packaging brief for Woolworths. The objective was to “promote sustainability through the materials used” (Student 1,3,4&6, 2014). To meet the sustainability requirements of the brief Student 3 (2014) said that she had "used Cape Liner paper, which gave that organic feel”, and then added that “some people used recycled papers”. Furthermore, Student 1 (2014) stated that at the time of the focus group she was working on a project about “sustainability in design”. She was the only student from the CPUT group that had chosen the Branding elective; hence she was the only one working on

that brief. She explained that the brief focused on integrating environmentally responsible materials into the design solution:

> *We have to rebrand an energy drink and design a point of sale device, but through sustainable means. We could use LED lighting or solar panels for lighting our in-store advertising* (*ibid*).

The above-mentioned examples from both RP and CPUT suggest that students were only given briefs that explored the environmental aspect of sustainability. DfS had not been a requirement in the Vega practical briefs. However, Student 15 (2014) shared an example of how, and when they had chosen to incorporate sustainability into their design solutions:

> *If we had to design integrated campaigns, then sustainability came up as a concept. It came up in the execution, like the materials that you used. You could also use it [sustainability] as a concept for social impact. For example there was one project we did last year for a company that supplied bicycles for kids in Africa, using old discarded bicycles, that was the whole idea of giving back*.

Therefore, rather than just applying sustainability principles that address environmental issues, other aspects such as society, culture and economy can be considered when trying to strengthen the conceptual development of a design solution. Coupled with the knowledge they had personally gained about sustainability, the students' exposure to related practical projects or theory modules gave them the confidence to share opinions about what contributions they thought communication designers could make towards practicing sustainably.

4.3.4 Students perception of how communication designers could most effectively practice DfS

The students' views of how communication designers could contribute positively towards the environment, society, culture and the economy differed somewhat to how they had personally addressed sustainability in the projects mentioned in the previous section. While the students acknowledged that responsible design decisions could lessen the negative impact on the environment, the majority of students believed that it was the designers' skill to communicate important messages that would make the most significant contribution to society. The CPUT students expressed that in terms of DfS, the "biggest impact of communication design was the positive social impact" (Student 1,2,3,4&6, 2014). Furthermore, Student 2 (2014) suggested that, "being communicators we should be more focused on the message that we bring, more than the product we design". A student from Vega shared a similar opinion, but this opinion was informed by what she had learnt at high school, rather than at the HEI:

> *Sustainable design, and what I have learnt from high school, is not about what you print on, or the ink you use, or what you have executed in the end. It is the message that you are sending and what impact that has made on people's lives, or on nature, and how that message continues to carry itself along* (Student 15, 2014).

More in line with what the students had been exposed to at their respective HEIs, they believed that the second biggest contribution of communication designers was concerned with the "impact on the environment" due to the use of materials (Student 10,11&13, 2014). To address this, the students suggested that communication designers should select "reusable and recyclable materials" (Student 2,5,10,11&16, 2014). According to Student 12 (2014), in order to lessen any negative effects on the environment, the designers should consider the necessity of the design, as well as the life cycle impact of their design solutions:

> *It's about the intended use; when you make something that is completely useless, it is just going to be thrown away and will create more rubbish. Rather make things that are really mindful so that the packaging can be reused or recycled, or it's biodegradable or just really minimal*.

While Student 9 (2014) agreed that the environmental aspect was important for communication designers to consider, he had a more holistic view of the discipline's contribution towards DfS. He said: "I think it [communication design] has impact on each and every aspect of sustainability." Together with the above-mentioned statements about social and environmental impact, this statement suggests that most students could see the potential for communication designers to make a positive impact by practicing DfS. However, some students expressed the opinion that DfS was more applicable to other design disciplines, and that realising a sustainable outcome would ultimately be determined by whoever had commissioned the design. Students 10 (2014) elaborated on why she was not convinced that the discipline could significantly consider sustainability:

> *I do not think that much can make communication design sustainable besides using recyclable paper and less ink, and having something written that says 'recycle me'. In industrial design it's a big part. It only really applies to us when we are doing packaging design, because we are using materials and creating awareness through our designs, but then that will also depend on the client. So it would be irrelevant if you were working on a cellphone brand, because how would you make the focus environmental awareness*?

Similarly, two of the Vega students also made reference to DfS being more applicable to industrial design because they felt communication design is "largely an aesthetic thing, just online or printing on paper" (Student 14&15, 2014). In addition, both Student 17 (2014) and Student 18 (2014) argued that the "background of the company" and its "brand image" would ultimately determine the design solution. They believed that if the company they were designing for "was not a sustainable company, there is no point in trying to show that through design" (*ibid*). By questioning the applicability of DfS without having been given the opportunity to explore the various approaches to sustainability beyond environmental sustainability, it suggests that students do not clearly understand how they can implement DfS into their own work. Furthermore, the different views expressed by the students about how DfS can influence design practice suggest that their education was not convincing in terms of the importance of sustainability in communication design. Coupled with the fact that

not many briefs allow students to engage with DfS, other factors also appeared to influence the realisation of DfS within academia. These barriers are presented in the following sections.

4.4 Barriers to better incorporating DfS into the curriculum

This section looks at the circumstances that inhibit educators from actively incorporating DfS into their teaching. These include the perceived lack of requirement for DfS knowledge; the educators' lack of experience and capacity to engage with the subject; and the lack of available specialists to draw knowledge from.

4.4.1 Educators are not required to teach DfS

While DfS seemed to be included in the theory component of the CPUT and Vega courses, in the practical component none of the three HEIs regard it as a key area of concern, nor a prescribed learning outcome. According to Coughlan (2014), "if you look at what the student must learn in a project, then sustainability is not one of those listed requirements". Furthermore, based on his experience as a re-curriculation officer, Coughlan noted "sustainability has not surfaced" in the re-curriculation discussions (*ibid*). This shows that DfS is not seen as a teaching requirement at CPUT. Broom (2014) was of the opinion that "if sustainability is not linked to the curriculum in stone, they [educators] will not include it into their teaching". Morison (2013) supported this idea, she believed "teaching it would have to be forced because there isn't a natural gravitation towards sustainability". This suggests that only by embedding DfS into the curriculum will educators promote it amongst the students. Along with the teaching requirements set out by the HEI, industry requirements were also considered to be a deciding factor as to whether DfS should be included in the curriculum.

4.4.2 DfS is not perceived by educators as being important to the communication design industry

An objective of all the HEIs is to ensure that students are equipped to meet industry requirements upon graduating. Morison (2013) believed that amongst the educators "sustainability is not yet recognised as being important because it is such a new concept in industry and is not being enforced". As a result of the perceived lack of requirement from industry, the educators were not convinced that having an in depth knowledge about DfS would improve the students' employability. According to Welter (2014) "sustainability is still a niche in industry, so the chances are that it won't matter if students are not knowledgeable about it". A similar view was shared by George (2014): "I do not think that it would necessarily count in their favour, unless the company they want to work for is already green or inclined to go green."

Furthermore, Coughlan's (2014) opinion was that the addition of DfS into the curriculum was dependent on whether or not educators felt that it was "trending" in the communication design industry. He elaborated on this point:

> *If sustainability is not communicated in the media, if the so-called 'big designers' are not talking about sustainability, then it has taken a backseat; so our choice of sustainability as a topic has also taken a backseat* (*ibid*).

Therefore, if educators perceive DfS to be unimportant in industry practice, they will not see the necessity of including it into their teaching. Another reason why educators are not teaching more about DfS is because of their lack of experience with the subject.

4.4.3 Educators' lack experience with DfS

Educators first need to be equipped with the knowledge about a subject before they can impart that knowledge onto students. According to Broom (2014) the educators' knowledge and experience with DfS will determine whether they incorporate it into their teaching:

> *If the educators who run the courses do not have the knowledge and have not had the experience of being involved with sustainability themselves, they're not going to include it in the curriculum.*

Morison (2013) agreed with this assertion, and believed that the educators' confidence in teaching a subject was linked to their familiarity with the subject:

> *A lot of people steer away from something when they are not confident; a lecturer will feel that they need to be an expert in the subject and many steps ahead of the students*.

Morison also shared insights into her level of knowledge of DfS, and the subsequent implication of this:

> *I know that my knowledge is limited, especially when it comes to practical applications. I may know a bit about the theory of DfS, but not the practical solutions, so I don't feel that I am able to equip them [students]* (*ibid*).

It is clear from the above statements that having experience in a subject impacts on the educators' ability to confidently teach that subject. While there are ways for educators to become better informed about DfS – such as through reading journal articles – many feel that they do not have the capacity to stay up to date with the latest developments.

4.4.4 Educators lack capacity to incorporate DfS into their teaching

Various demands on the educators' time impacted on their capacity to not only stay informed about DfS, but also to develop interesting ways of integrating it into the communication design course. In Snaddon's (2014) opinion there was "not enough capacity amongst the lecturers to include it into the curriculum". He stated: "It would have to be a case of bringing in specialists." Coughlan (2014) felt that the lack of capacity was due to there being "so many

meetings and other distractions keeping us from staying up to date and teaching the students". While at RP, George (2014) felt that the current teaching requirements of the course prevented greater inclusion of DfS. She said:

> *Sustainability is not as integrated as it should be. There are so many things to focus on and get across to the students; we struggle just to get them up to speed with the basics of design* (*ibid*).

Because educators were kept busy and were therefore not able to gain the experience needed to teach DfS, industry specialist would be an effective way to bring that knowledge into the course, however it seemed that there were not enough skilled people to call on.

4.4.5 Lack of access to industry specialists

Involving design professionals proficient in DfS was recognised as way to tackle the subject, however it seemed that in Cape Town there was not a vast pool of knowledgeable people to draw from. Morison (2014) said, "firstly it is difficult to find people with the skill to teach sustainable design, secondly it's about working around their availability". Even if accessing specialist was possible, educators felt that there were other factors that would influence the students' responsiveness to engage with the subject, these factors are discussed in the following section.

4.5 Barriers to better incorporate DfS into the students' practice

Although DfS is not fully integrated into the communication design course at the three HEIs, both the educators and students had intimated that the students did have a level of awareness about sustainability. However, this did not necessarily result in the students considering the impacts of their design solutions. The next section discusses why the students do not attempt to integrate DfS more into their work. It first looks at the educators' perception of the students' capability to practice DfS. Secondly, it looks at the reasons given by the students to explain why they did not actively practice it. Their answers were focused mainly on practicing environmental sustainability.

4.5.1 Students' backgrounds influence their ability to engage with DfS

Communication design students come from diverse backgrounds, with some facing challenges that impact on their ability to meet the requirements of the course. George (2014) had noticed a difference in the approach and ability of students from under-resourced backgrounds. She said:

> *The students don't have the resources to do projects, or to buy materials. They sometimes don't have money to get to college, and they can only use the facilities here. Some live in squatter camps, under rural conditions. One student was behind because he had no electricity at home; so there are definite challenges for these students*.

Furthermore, the students' backgrounds can also affect how they connect with concepts such as DfS. Morison (2013) and Broom (2014) believed that the "socio-economic" reality of some of the students impacted on their attitude towards DfS. Based on her experience of teaching students who faced such challenges, Morison (2013) explained:

> *When they live in an environment where they are already struggling and just to have is an issue, they aren't concerned about sustainability*.

According to Broom (2014), who had taught both locally and abroad, there was a difference in the level of preparedness between international and local students to connect with DfS:

> *Overseas the students are primed to engage with DfS because they have come out of the right schooling background. Here, our students have too many other issues. I have noticed the terribly difficult set of social circumstances and economic struggles that students have; so you can't just engage with them like you would normally engage with other students about sustainability*.

This suggests that not only does the students' backgrounds and schooling influence their knowledge of sustainability, but also their receptiveness to actively engage with it as designers. Therefore, educators need to be cognisant of this in order to present the concept of DfS in such a way that it becomes accessible and relevant to the students. This includes making sure that DfS is not just considered as a theoretical concept, but one that can be applied to design practice.

4.5.2 Challenge of applying the theory of DfS to design practice

The theory educators from CPUT and Vega did not believe that the students were able to successfully transform their knowledge of DfS into practical solutions. Van Dugteren (2012) expressed concern that the teaching of DfS was "too theoretical", she said:

> *Having the knowledge, they [students] understand the implications theoretically, but practically what are they actually doing? How are they imagining that their designs can intervene to inform people to change their actions, or be better for the environment?*

Welter (2014) expressed a similar point of view:

> *I would argue that it's just a concept. It is not like they [students] have resources, like a guidebook of design materials. They don't know how to exactly implement sustainability. They don't have a deeper understanding of applying it*.

These perceptions show that although students have a level of awareness about sustainability, they do not have enough reference material or knowledge to apply relevant, practical solutions in their work. Based on what the educators teach, students interpret what design concepts are critical to engage with. The next section will discuss how the lack of emphasis on DfS has contributed to the students' apparent lack of consideration of how their designs solutions can impact the environment, society, economy, and the local culture.

4.5.3 Students do not perceive DfS as a necessary requirement

Unless specified in certain packaging briefs at CPUT and RP, DfS did not appear to be a requirement in any of the HEIs practical briefs. As a result, the students knew that they would not be penalised if their solutions did not adhere to sustainability principles. At Vega, the students explained that integrating DfS into their work was "not compulsory or a necessity", and it would only appear in their design solutions if they were personally interested in it (Student 15,16&17, 2014). Confirming what De Lange had said in Section 4.2.5 about not placing emphasis on sustainability as a design approach, Student 14 (2014) stated: "The lecturer is not going to ask if you have thought about the sustainability of your design." Furthermore, Student 6's (2014) opinion was that the reason they did not consider DfS at CPUT was because "they [educators] do not mark us on it, we only work on what is required from the mark sheet". Similarly, other students' felt that "sustainability tends to be an added extra" and they did not have enough "time to research extra ideas or other solutions" if they were not going to be marked on it (Student 2,3,4,5,13,15,16&18, 2014). Since DfS was not a marking criterion at any of the HEIs, the students did not feel that it was necessary to consider it. However, the students also raised the point that the educators did not motivate them to engage more with the different aspects of sustainability.

4.5.4 Lack of encouragement by educators for students to adopt sustainable practices

Whether through project briefs or practical day-to-day examples such as recycling, the students believed that it is the educators' responsibility to promote sustainability throughout the course. Student 18 (2014) stated: "Sustainability is not something we consider because educators don't talk to us about it all the time." The CPUT students agreed with this and they explained that the educators "do not drive the concept of sustainability into our minds" (Student 2,4,5&6, 2014). As a basic example, these students complained that recycling was not promoted in the communication design department. Student 4 (2014) explained: "We are throwing away so much paper; the amount of paper we waste is like a whole forest." In Student 2's (2014) opinion "this will just continue because nobody is explaining why it is bad to waste paper". It is clear from the above comment that the students feel educators should promote responsible practices in order for them to be made more aware of the impact of their actions. This supported what the RP students had mentioned in Section 4.2.4.3 about the effectiveness of being encouraged by the educators to consider paper wastage.

Additionally, the students felt that they should also be encouraged to consider the environmental impact of their design concepts. Student 6 (2014) commented on the lecturers' perceived level of concern regarding DfS solutions:

> *If we had a concept for an environmental design [that considered sustainability], but they [lecturers] thought our secondary concept was better, even if there was no sustainability, there would be no question, they would say just go for the second concept.*

Student 1 (2014) supported the above statement:

> *It is almost as if it is not considered to be a factor; we can design anything on anything, there is no limit to what the design can be made of, there is nothing that says it must be sustainable.*

This highlights the lack of concern for responsible materials choices as another reason why the students are not designing with a greater mindfulness for the environment.

4.5.5 Lack of knowledge about appropriate materials

The choice of materials does not only influence the ultimate look of a design, it also determines the environmental impact. The students felt that they should be exposed to information about sustainable materials. Student 5 (2014) said:

> *There is not enough information about how to practice sustainably; maybe certain materials are better, they [educators] should say to us 'use these materials'.*

According to the Vega students they did not know how to "execute sustainable solutions" (Student 14,15,16,17&18, 2014). It was argued by Student 15 (2014) that:

> *As designers we do not know how to be sustainable in a material sense. We are only taught to do it in a business sense and in the strategy side of things.*

To support this point Student 17 (2014) stated that when it came to understanding production processes and materials available in industry "it is like a big dark hole that we would like to know about, but no one seems to know". Furthermore, Student 16 (2014) added that "we could have an amazing idea, but then we don't know how to execute it because we don't have the resources to design sustainably". The students therefore identified the lack of information about materials as a big gap in the teaching of DfS. However, even if this information was made available to the students, the expense of using such materials was perceived as an additional barrier.

4.5.6 Cost implications of using responsible materials

The students believed that "sustainable materials are costly", and that they "cannot afford to produce designs in a sustainable form" (Student 1,3,4,6,10,12,13,15&18, 2014). Concurring with this sentiment Student 12 (2014) said:

> *We could have ideas to produce green designs, but we would have to consider the cost of the paper and the ink, and also where the best place to print is; but we don't have the money to do all these things.*

In addition to this Student 9 (2014) explained "most of the time the problem will be having transport to actually get to the places where you can find these materials". The reality of short-term material costs overshadows the students' interest in choosing sustainable materials for their projects. This backs up what the educators said in Section 4.5.1 about how the students' backgrounds can interfere with their receptiveness to practice DfS.

While the students' willingness to actively engage with DfS was influenced by the above-mentioned factors, in the next section both the educators and students offer suggestions to not only deal with these challenges, but also to promote DfS.

4.6 Possible solutions for promoting the integration of DfS into teaching and practice

This section presents strategies proposed by both educators and students for advancing the education and application of DfS within academia. It first looks at practical ways to supply them with relevant information such as through workshops and guest speakers. Then it focuses on how to promote the practice of DfS amongst the students using strategies such as incorporating DfS into the course from first year, having a specific mark allocation, using real life briefs, group discussions, group projects, and internships. The proposed solutions will encourage educators and students to gain more experience about DfS.

4.6.1 Educators gaining more knowledge about DfS through support from the HEIs

As mentioned in Section 4.4.3, educators need to be well informed about DfS before they will feel confident to include it into their teaching. Although De Lange (2013) believed that "it is the educators responsibility to access information about sustainability", other educators felt that the HEIs should assist them to gain this knowledge. According to Coughlan (2014) "the institution has to help equip us [educators] to teach about it, possibly through staff sustainability workshops". Similarly, Morison (2013) felt that "information has to be made accessible to the educators and this will only happen with continued support from the institution". She also supported the idea of workshops as a means to gain experience in DfS:

> *Workshops would be best – covering the theory, but then applying it practically so that they [educators] can see how to put sustainability into practice.*

Also regarding the accessing and sharing of information about DfS, George (2014) suggested an online tool for educators from all HEIs:

> *We need a platform where design educators come together and openly ask questions about sustainability. If we share ideas we can assist each other to keep in touch with what we should be teaching.*

While some educators took it upon themselves to keep up to date with information about DfS, others believed it should be up to the HEIs to provide them with information about the subject. In addition to the suggestions about attending workshops and accessing information online, inviting guest speakers was seen as another way for educators to grow their knowledge on the subject.

4.6.2 Including presentations by guest speakers as part of the curriculum

Implementing sustainability into the curriculum in itself is not enough. It needs to be taught in such a way that students can understand the concept in the context of industry. According to

Snaddon (2014), “in the end it is not just about including sustainability into the curriculum, it is about how it is taught”. Furthermore, Broom (2014) believed that the “role of an educator is not to teach everything, it is to set up the right environment and bring in the experts”. The Vega educators supported the idea of involving industry specialists to share the latest knowledge on the subject. De Lange (2013) explained the benefits of this:

> *We regularly invite different industry professionals to come and speak. It’s quite a relief because it gives lecturers a bit of a breather. Because we don’t have to always present, we can rather consult the professionals.*

Based on this experience Welter (2014) suggested, “institutions should have decent guest speakers that they invite to keep the lecturers and the students up to date.” The Vega students encouraged the idea of bringing in guest speakers to talk about DfS. Student 15 (2014) described why this was a good idea:

> *Being inspired by them, seeing what the industry is doing and hearing their opinions on how to execute designs sustainably would be great. It’s a different outlook as opposed to just sitting in a classroom and looking at pictures on the Internet all day for inspiration.*

Although Morison had expressed in Section 4.4.5 that it was a challenge to find suitable design professionals, the above statements indicate that it is a worthwhile strategy to pursue. By inviting design professionals to speak about DfS it would not only inspire the students, but also aid in informing educators about the latest sustainable practices. Another strategy would be to integrate the thinking into the course from first year.

4.6.3 Early introduction of DfS to students

The educators were confident that exposing students to DfS principles during in their first year of study would positively influence their approach to design. The following statements illustrate that the educators agreed that DfS should be introduced early:

> *If any big changes are going to be seen, integrating DfS would need to happen in first year because that is when students have little or no idea of what the subject is, so whatever they are exposed to is going to affect them* (Coughlan, 2014).

> *Unless you instil a philosophy and culture of that from day one, you’re not going to influence change. If they come out of school and their first sense of design is that it is about people, profit, planet; they will understand its importance* (Broom, 2014).

> *The sooner they are exposed to it the better. First year is the best time to introduce it because you are introducing them to the concept of communication design and they must understand that sustainable design isn’t an alternative, it’s actually the way that they should think. So if it is integrated and embedded as part of how they conceptualise right from the absolute starting point, then it will form part of all the considerations and decisions they make* (Morison, 2013).

Furthermore, Morison also believed that DfS “shouldn’t be a separate module, it should be integrated into all aspects of the course from the start” (*ibid*).

Similarly, most students thought that issues of sustainability should be introduced at the beginning of their studies. The CPUT students expressed that "sustainability should have been taught in our first year" (Student 1,3,5&6, 2014). While Student 18 (2014) agreed, he also identified what students should learn upfront about DfS:

> *We should be taught from the beginning to understand what sustainability is and what to consider so that we can easily incorporate it into our designs. We should also understand what difference designing sustainably could make*.

Therefore, from the start of the students' academic career DfS should be recognised as a core consideration to their design process. In addition, students need to understand how practicing DfS could positively impact their lives and their community.

4.6.4 Encouraging students to think about DfS in their own context

For students to appreciate the necessity of practicing DfS, they need to see the benefit it will have on their immediate surroundings. Morison (2013) stated: "If students cannot personally connect with why sustainability is important, it will be meaningless to them." She advised, "for them to learn why it is relevant and beneficial, they would need to apply the learning to their own context". Similarly, Van Dugteren (2012) said, "they need to focus their design solutions on the local environment, economy and social upliftment because it has to be real for them". Furthermore, Morison (2013) observed that students approach problems "in a Western way that was disconnected to their daily lives and didn't consider their reality". Therefore, to encourage contextually relevant solutions Morison recommended the following approach:

> *It's about asking students what would make a difference in their lives. If something is to have a second use, what would a sustainable solution be, what would be valuable in their own homes* (*ibid*)*?*

This suggests that in order to really engage with DfS and recognise its importance, students need to develop a personal connection with the concept. This will ensure that sustainability is relatable to their context. Working on briefs that tried to address real life problems was seen as another way for students to connect with the various aspects of sustainability.

4.6.5 Incorporating briefs that address real life issues into the curriculum

Two CPUT educators acknowledged the potential benefit of incorporating real life, social cause briefs into the curriculum. Van Dugteren (2012) said: "Real life design interventions always work to inspire students." To accommodate these kinds of briefs Coughlan (2014) recommended the inclusion of more "sustainability focused competitions" into the curriculum. He said that design competitions "encourage educators and students to go into the real world and work with real world problems". Working on such briefs could expose students to how design can be used to address environmental, socio-cultural and economic issues. From the students' perspective, working on real life briefs would help them to see how their designs

could make a “real impact on society” (Student 1,3&5, 2014). In addition, Student 2 (2014) expressed, “we would have more enthusiasm and be encouraged to work so much harder”. This suggests that real life briefs would motivate students to better understand the positive contribution their work can make.

Regardless of the kinds of briefs students are given, they need to meet the objectives of each brief in order to pass. If specific marks are assigned to DfS solutions, the students will be incentivised to comply.

4.6.6 Allocating marks to DfS solutions

Students consider the mark allocation in a brief as significant as it outlines what is important for them to achieve in the project. For this reason Welter (2014) felt that marks should be allocated for DfS solutions:

> *The students actually need to be driven to fix a problem, so sustainability has to be a criterion on the brief because that’s where they get their marks.*

The CPUT and Vega students supported the idea of using marks as a tactic to promote DfS. Student 14 (2014) stated: “If sustainability was mentioned in the brief and I could get marks for including it, then I would do it; I want to get good marks.” Alternatively, Student 4 (2014) suggested, “there should be a penalty if we don’t include it, then it gives us a good reason to add it”. Apart from marks, the students proposed other strategies that they felt would assist them in becoming more familiar with the DfS and consequently encourage them to integrate it into their practice. These are discussed in the following sections.

4.6.7 Exposing students to appropriate visual references

Seeing examples of existing designs inspires students. In order to spike the students’ interest in DfS, Student 14 (2014) stated: “Lecturers mustn’t preach about it, they must show us visuals.” According to Student 18 (2014), they “learn a lot by looking at previous successful campaigns or other visual executions”. The CPUT students felt that regularly seeing “great examples of sustainable design” during the briefing sessions would be very useful (Student 1,2&6, 2014). They proposed that visual inspiration did not only have to be in the form of images, but could also include “TED Talks about sustainability” (Student 3,5,6&8, 2014). This illustrates that including appropriate visual references would be an effective strategy in connecting students with DfS. In addition to visual stimulation, engaging in dialogue about DfS was considered as a way for students to become more confident in their understanding of the concept.

4.6.8 Groups discussions and group projects

Participation in discussions about DfS was seen as a useful way for students to ask questions about the subject, share their views and learn from the opinions of others. Validating this idea, Student 17 (2014) from Vega said, “the teaching method that is successful, especially for this kind of topic, is consultations with the lecturer”. The Vega students explained that they would often break into small groups, with the educator leading the discussion. Student 15 (2014) explained, “this allows for discussion of ideas, constructive criticisms and feedback around the table”. Agreeing with this statement Student 18 (2014) said, “I think the discussion approach works well because you don't just have the lecturer telling you that this is sustainability”. In contrast, Student 1 from CPUT felt that:

> *With each project it is just about what they [educators] want us to hear, and we do not get a chance to express ourselves. It would be great if everyone could participate in a conversation about sustainability because everyone has an opinion and it is useful to hear it* (2014).

Furthermore, students from all three HEIs proposed that working in groups could encourage them to come up with appropriate sustainable solutions for their projects. They explained that group work would help to overcome “time limitations to research different sustainable solutions” (Student 1,4,6,12&14, 2014). Besides sharing the workload, Student 6 (2014) saw the benefit of group work as learning from the various strengths of the team members. She said: “Some people are really good at thinking about concepts, others are stronger designers and maybe some understand sustainability better; so there is a good balance.” The statements mentioned above demonstrate that group work and group discussions would increase the students’ engagement with DfS. Along with group activities, the students also expressed that they should acquire practical skills through workshops and in-service training.

4.6.9 Gaining practical experience through workshops and internships

Students from all three institutions agreed that the hands-on approach of workshops would be the most valuable method to learn about DfS. Student 12 (2014) explained: “Workshops would be good because there would be visual stimulation and we would get the practicality of it.” The majority of students agreed “having practical workshops on sustainable design would be useful” (Student 4,5,10,11&16, 2014). Furthermore, Student 3 (2014) suggested “regular workshops about sustainability would help to remind us and keep us on track”. It is clear that the role that workshops play in educating students about DfS can be beneficial. Also relating to practical learning, the students at CPUT stated that “gaining experience through internships” at relevant design companies would be useful (Student 1,2,3,5&8, 2014). Insights gained from internships would help both the students and educators to understand what is practically required in industry.

The next section discusses how the perceived importance of teaching and learning about DfS was directly linked to what was thought to be happening in the local communication design industry.

4.7 Relevance of integrating DfS into the curriculum

This section looks at if and why educators and students thought that incorporating DfS in the curriculum was important. While there was a perception that not enough is currently being done in industry, a shift towards more sustainable practices was anticipated and therefore education about DfS was perceived as relevant.

4.7.1 Students can help progress industry practice

Compared with other design disciplines such as interior design, the local communication design industry has not significantly adopted DfS practices. Van Dugteren (2012) identified the lack of implementation in industry as an important reason for greater inclusion of sustainability principles in the curriculum. She said:

> *If I compare the awareness of sustainability in the communication design work placement with interior design, although they are aware of it, the materials and processes are not in place yet in industry. So it makes you feel like you should be doing something extra in terms of informing them so that in the future they will be the ones informing industry, and it will change. There needs to be quite a strong focus on terminology such as 'change agents' and 'catalysts for change'; and how designers can actually shift people from awareness to action because that is where the significant failure is.*

This suggests that if students are exposed to appropriate information and inspiring examples of DfS within their discipline, once they graduate they would be prepared to challenge industry to practice more responsibly. While Van Dugteren believed that industry was too slow in realising the importance of practising sustainably, other educators believed that this change would happen soon.

4.7.2 Students need to be equipped to manage in a changing communication design industry

It is important to understand the design context that students will enter into in the future. While the educators perceived that industry did not yet demand graduates who are experienced in DfS, it was thought that this would change in the near future. According to Morison (2013):

> *Change is going to happen in industry whether they want it or not. Businesses will be forced to be more compliant and energy efficient, so designers will have to be able to function in that environment*.

Furthermore, Morison stated:

> *The measuring post of what makes a competent designer is changing. Educators must realise that sustainability is a requirement, they must see the necessity of the skill and then they have to help equip the students* (*ibid*).

This suggests that educators should integrate DfS into their teaching in order to prepare students for imminent changes in industry. As part of equipping students to enter industry, they need to understand the role of a communication designer.

4.7.3 Students must adapt to the changing role of the communication designer

As the industry changes, so too does the responsibility of the designer. Morison (2013) believed that it was important for students to be made aware of how the role of the communication designer was evolving:

> *The most important thing is to define what it means to be a communication designer because the role has evolved incredibly over a very short space of time. Print methodologies have changed, technology has changed, and designers are starting to be appreciated as experts who advise clients on best practice. It has become a very complex role because of the reality that what they design will have an impact on the environment and societies.*

To conclude this point Morison said:

> *Education should allow students to find their place within this changing discipline so that they feel empowered to come up with good solutions* (*ibid*)*.*

The institutions therefore have a responsibility to guide students on how to practice DfS so that they will develop the confidence to fulfil their required role in industry. Further explanations of why DfS should be incorporated into the curriculum are shared below.

Although the communication design industry has adapted to technological advancements by producing many digital solutions, it continues to be a predominantly print-based discipline. As a result the practical component of the communication design courses focus mainly on print (De Lange, 2013; Coughlan, 2014; George, 2014). Understanding that the printing industry has a negative impact on the environment, Coughlan (2014) felt that students should be made aware of the responsible material choices available:

> *When I think about sustainability and design I think about paper and inks. So that is why information about sustainability should be added to the course, because students need to know that some inks are now water-based and some papers and printers are more eco-friendly than others*.

Morison (2013) agreed with this point, adding that students should "learn about possible restrictions to the materials and the inks that can be used". Since the students will be producing printed designs they must be encouraged to consider the environmental impact of their work. However, DfS is not only concerned with the environment, and students must also be exposed to the socio-cultural and economic responsibilities of the communication designer. According to Welter (2014) students should understand the connection between

sustainability and ethical approaches to design. She said:

> *We [educators] need to explain that in terms of design, sustainability is also about ethical investments, or designers choosing their clients. If they are going to be ethical, they are not necessarily going to choose to have a tobacco client.*

Therefore, before they enter industry it is important to teach students that practicing sustainably also means being conscious of the ethical implications of their design decisions. While some educators expressed that design education needed to adapt to future industry requirements, it was also important to gain insights into the students' perception of whether or not more education about DfS was needed.

4.7.4 Students perceive DfS to be a requirement in communication design practice

The students assumed that they would be expected to be familiar with DfS upon entering industry. Student 5 (2014) believed that "sustainability needs to be implemented properly into the course because in this day and age we have to design sustainably". Some students felt that they would be at a disadvantage for not being trained in DfS. According to Student 6 (2014), "the fact that we can't design sustainably will probably hinder us". Making a similar point Student 15 (2014) said: "We would be more prepared for the real world if we knew how to execute our work sustainably." The above statements suggest that in order to meet industry requirements, students need to learn more about how to apply principles of sustainability in their work.

The following figure is a visual summary of this chapter. It looks at four categories including exposure to DfS, barriers to adopting DfS, solutions on how to increase adoption of DfS and the relevance of DfS in communication design education. Each category includes key findings that have been grouped together into the most relevant themes as indicated in the circles under each category. The size of the circle represents the importance of the theme, larger circles being primary and the smaller circles secondary and tertiary themes. The lines illustrate how all of the themes are interconnected.

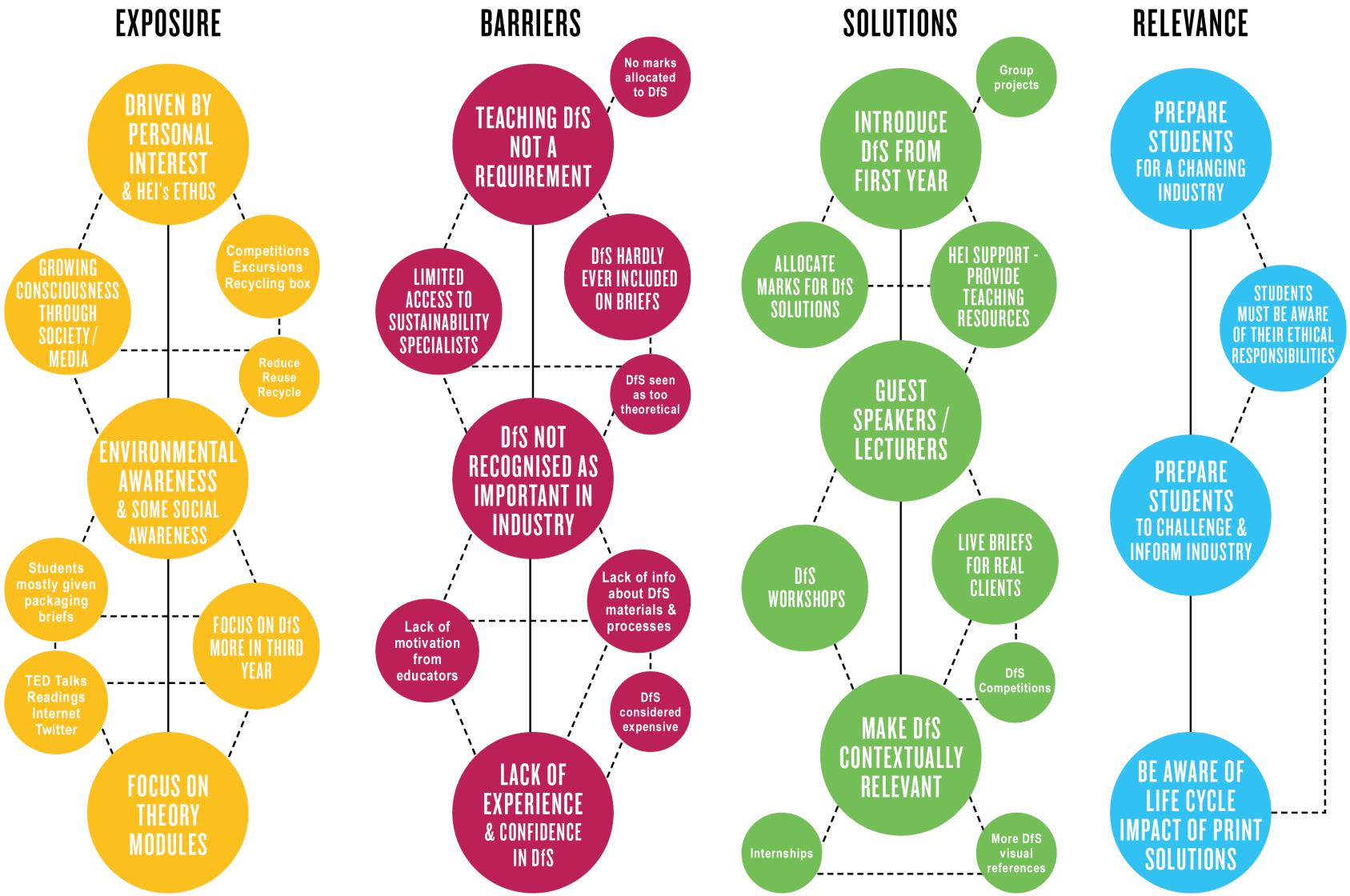

Figure 4.1: Visual summary of DfS in communication design education

4.8 Summary

Educators and students have been exposed to the concept of DfS, however their awareness and experiences seem to vary. Nonetheless DfS is viewed as having a place within communication design curricula. Although they agree that certain barriers prevent greater inclusion of DfS into their teaching and practice, the informants were able to suggest solutions that could improve the experience of learning about and practising DfS. Several informants believe that exposure to DfS education would better prepare students for entering the industry. The findings from industry about the demand for DfS are presented in Chapter Five.

CHAPTER FIVE
ANALYSIS OF FINDINGS: DFS IN THE COMMUNICATION DESIGN INDUSTRY

5.1 Introduction

This chapter presents findings of the data collected from six design professionals. Along with providing information about their experience with DfS in the local communication design industry, the design professionals also shared their opinions about the importance of including DfS in design education. As in the previous chapter, the findings have been grouped according to four key themes. Firstly it looks at industry's exposure to DfS. Next it discusses the barriers to including DfS in industry. Then it suggests possible solutions for promoting the integration of DfS into industry practice and design education. Lastly it looks at the relevance of including DfS in the curriculum. There are fifteen sub-themes presented under the main themes.

5.2 Communication design industry's exposure to DfS

This section presents the design professionals' understanding of and engagement with DfS. It looks at examples of how industry attempts to integrate sustainability principles into their daily work, as well as the need for informed design graduates. The design professionals represent different communication design agencies. As described in Chapter Three, although the agencies all offer a similar range of communication design services, they differ in their approach to design and the scale in which they work. Only one agency, OgilvyEarth South Africa, promotes itself as having a sustainability focus.

5.2.1 Industry's understanding of how DfS applies to communication design

Amongst all of the design professionals the view was that communication designers do not fully understand how to apply sustainability principles to their work. According to Melissa Baird (2014) from OgilvyEarth, "sustainability is such a new arena in this industry, we are still feeling our way". To further illustrate this point she made the following analogy:

> *It is almost like how digital was when the Internet first arrived. Designers are thinking, 'we know we need this, but we have no idea what sustainability actually means for our industry'* (*ibid*).

Two other informants supported the notion that the communication design industry was not yet sure how to integrate sustainability. Infestation's Christo Maritz (2014) said:

> *We don't have a clear understanding of what sustainability means and how actually to bring it into our daily jobs; we don't know what to do differently*.

Scott Fowler from OgilvyEarth (2014)[7] said:

> *Designers don't understand sustainability as a whole. A lot more must be done to promote it on the communication design side of things.*

Even if the designers had a basic understanding of the concept of sustainability, Black Sheep Design Studio's Al Luke (2014) suggested that this general awareness would possibly only influence their choice to design with more environmentally responsible materials:

> *We are knowledgeable about sustainability, but no more than the average person. We know about recycling and we are using materials with this in mind, but nothing more*.

Furthermore, since Andrea Broom from AGB Design Project Imagineers re-entered the industry as an independent design consultant in 2013 after twenty years of teaching, her experience was that "industry operates in the same way, except that there is definitely an awareness of social responsibility that was not there before" (2014). The above statements therefore suggest that there is a level of awareness about the environmental and social aspects of DfS, and that it is being considered to some degree. However, the industry is not confident in how best to implement sustainability practices into the communication design discipline. If industry is not actively engaging with DfS, this raises the question of whether there is a demand for graduates who are informed about DfS.

5.2.2 Minimal need for communication design graduates knowledgeable about DfS

While a basic awareness about sustainability could be seen as an advantage, design agencies mainly consider technical skills above anything else when recruiting communication design graduates. Maritz (2014) explained: "I don't look at their experience with sustainability, I look for two skills, the actual technical design skill and the communication skill." Similarly Luke (2014) said that it was "not important to see sustainable design when I look at portfolios, it's about the quality of the work". However, Luke did think, "a basic knowledge and understanding of it would be good". According to Jessica Warner from King James (2014), the need for graduates to be informed about the concept "depends entirely on the agency, but at King James, with regards to sustainability, it doesn't feature at all as a requirement". In contrast OgilvyEarth, an agency that focuses on communicating sustainability messages, looks for applicants with an interest in sustainability. Fowler (2014) described an ideal design candidate:

> *Their technical capability of design and illustration is a must. An ideas-driven designer who can come up with innovative solutions, and obviously have a passion for the whole sustainability cause and the whole way of thinking*.

[7] The most recent email correspondence with Fowler (2015) states: "*OgilvyEarth has been put on hold until further notice. We are hoping to start it up again as soon as there is a need. Too few people have adopted the correct way of thinking and maybe SA or the advertising industry is not quite ready for it yet."*

Therefore, unless a design agency's vision is to practice sustainably, graduates applying for jobs are not required to have any experience of DfS. It is assumed however that if a student's portfolio does show an interest in DfS and is visually and technically strong, it will not count against them. Even though only OgilvyEarth promotes itself as being focused on practising sustainably, the other agencies were also able to share insights into how sustainability is being interpreted through their work.

5.2.3 Examples of how industry integrates sustainability considerations into its practice

Other than Warner from King James, all the other design professionals were able to provide examples of how various aspects of sustainability had in some way been considered in their work. While most professionals shared their strategic approach to integrating sustainability into their practice, OgilvyEarth and Black Sheep provided examples of actual work they had created. For more inspiring exemplars of sustainable communication design created by some of these agencies, refer to the CD-ROM appended at the end of this thesis.

At OgilvyEarth the agency focused on "bringing proper sustainability communications to this country, but in a way that really generates social change*"* (Baird, 2014). According to Fowler (2014), this required careful consideration of every aspect of the work they produced:

> *Where we come in in this big space is that we are helping clients tell an authentic sustainability story. We come up with creatively strong strategic directions for clients and then question and measure everything before we put communications out there.*

While the OgilvyEarth informants were unable to share current examples of their work due to their strategic nature, they discussed two campaigns, one local and one global, which illustrate their drive to promote sustainability. Fowler (2014) explained that recently the bulk of their work was focused on "leading an internal campaign" to educate the wider Ogilvy South Africa workforce about OgilvyEarth's ambitions to integrate sustainability practices into the whole agency (see Figure 5.1). This campaign was discussed in more detail in Section 2.7.3 of Chapter Two. Additional visuals, explaining the text used in the campaign, can be found on the CD-ROM appended to this thesis.

Figure 5.1 OgilvyEarth's 'What if a poster could change the world' campaign (Fowler, 2015)

The agency is affiliated with a global alliance and Hopenhagen[8] is an example of a campaign where OgilvyEarth South Africa collaborated with their New York counterpart to promote awareness about a climate change conference (see Figures 5.2 and 5.3). Baird (2014) described the impact of the campaign:

> *We did a massive campaign with OgilvyEarth New York for Hopenhagen, Cop15. This was an example of how a governmental organisation, UNEF, went to a communications organisation, OgilvyEarth, and said 'help'. We created a great campaign, and whereas before nobody knew that Cop15 was a climate change conference, there were 6 million people worldwide who participated in the campaign*.

Figure 5.2 Hopenhagen poster series (Ogilvy & Mather Greece, 2009)

[8] For more information about the Hopenhagen campaign visit www.ogilvyone.gr/blog/hopenhagen-a-global-campaign-un-ogilvyearth

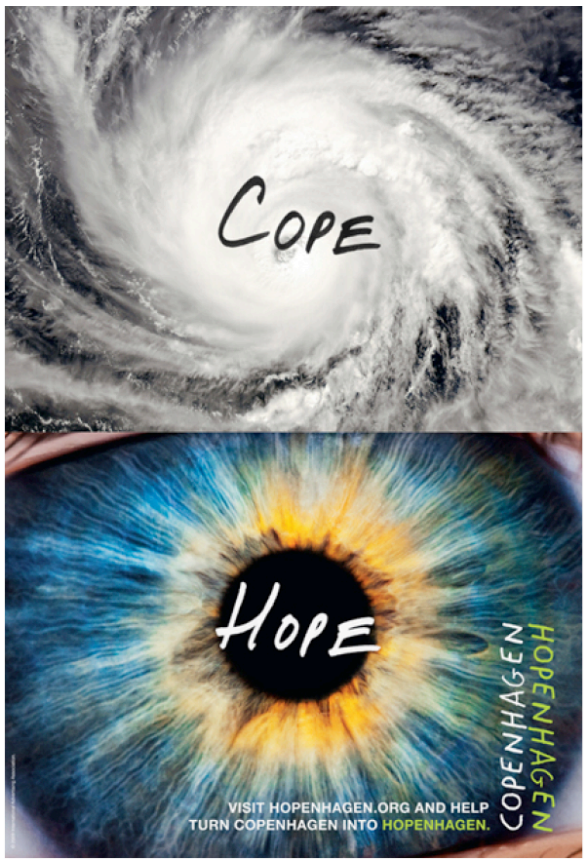

Figure 5.3. Hopenhagen poster series (Ogilvy & Mather Greece, 2009)

This campaign illustrates the potential of communication design to create powerful messages that can raise awareness about important issues, but also encourage people to act. While only the above two examples of OgilvyEarth's work were shared, the campaigns showed that the agency was conscious of how their work could impact society, the environment and the economy.

At Black Sheep, the design studio serviced a variety of clients and their associated brands. While it did not promote itself as having a focus on sustainable solutions, some of the studio's work did address the environmental aspect of DfS. Significant to this thesis was the work Black Sheep created for three brands that, in various ways, promoted environmental awareness amongst these brands' consumers.

The first was the conceptualisation and design of an environmentally friendly take-away pizza box for *Primi Piati,* a national restaurant chain (see Figure 5.4). Luke (2014) described the concept:

> *We came up with the idea of reusing the box; to plant something in it after you've eaten the pizza. We wanted to encourage people to give back. We went to Sappi and asked what kind of sustainable paper options they have. They have a packaging stock that once planted, the paper just naturally disintegrates. So we used this stock and designed the box to include tips on planting, pruning and cutting*.

This project is an example of how designers can motivate for responsible behaviour from consumers by not only selecting environmentally friendly materials, but by also guiding consumers on how to reuse packaging. Reflecting on the *Primi Piati* project, which was completed in 2009 Luke said, “we were definitely the first people to push that idea; I think we were ahead of the curve” (*ibid*). This statement suggests that even though the industry is not clear on how to address all aspects of DfS, some designers have been considering the environmental impact of their work for several years.

Another project that included an environmental message was a brief for Tuffy, a local manufacturer of refuse bags (see Figure 5.5). The initial brief was to assist Tuffy to visually communicate the environmental credentials of the product. However, the brief later developed into a packaging design brief. Luke explained the process:

> *The client had said to us they wanted to insert something into the packaging that would educate people about the fact that Tuffy bags are made from recycled material. So we came up with an infographic that was going to be printed and slotted in with the black bags. Subsequently it did not happen, but then we pitched on designing the packaging. We then took the infographic from the leaflet we were going to insert and applied it to the packaging of the bags (ibid).*

By designing the packaging to include the infographic, the designers did not only communicate the brand’s environmental message, but they were also able to reduce the amount of materials and printing processes needed, therefore reducing the design’s environmental impact and cost. The two projects mentioned above highlight that even though clients may request a certain solution, such as a take-away box or a printed flier, designers have the ability to create environmentally responsible alternatives to what is expected.

In contrast to the previous examples, the next project shows that even if a brand’s focus is to promote environmentally friendly practices, it does not necessarily mean that they will insist on such an approach with the production of their own collateral. The project was to design *The Green Lease Toolkit* (see Figure 5.6), a print publication for *The Green Building Council of South Africa* (GBCSA). According to the GBCSA website, this client is a non-profit company that “promotes green building practices” (The Green Building Council of South Africa, n.d.). When asked if the client had requested that the environmental impact of the design, materials and production of the book be considered, Luke (2014) responded: “They actually did not, but I know for a fact that all the paper we chose was FSC*.”* While Black Sheep met the brief and used environmentally certified stock, the studio could have motivated for a more appropriate and innovative solution. If communication designers are not familiar with the ways in which to implement environmentally sustainable solutions beyond the selection of paper, such as reducing the ink coverage, using vegetable-based inks, and avoiding adhesives for binding, they will not be able to present clients with better alternatives.

Figure 5.4 Primi Piati pizza box (Luke, 2014)

Figure 5.5 Tuffy packaging and infographic (Luke, 2014)

Figure 5.6 Green Building Council of South Africa Green Lease Toolkit (Luke, 2014)

At Infestation, Maritz (2014) saw the design studio's involvement in city-related projects as well as their support of local suppliers as its main contribution towards practising sustainably.

> *It is part of our business focus to be socially aware and to be active in our community. We have just realised that we play a role in our community and our community is the City of Cape Town, so we lean towards projects that benefit the city. We believe the commercial aspect of what we are trained to do can be applied within a social context without it being free or pro bono work. So that is the most powerful way that I feel our work reflects sustainability* (*ibid*).

In addition to working on local projects Maritz explained, "we have made the decision to try and support local business and manufacturers as much as possible" (*ibid*). This suggests that Infestation considers both the socio-cultural and economic impact of the agency's work. By supporting local businesses they are directly contributing towards growing the local economy.

Lastly, Broom (2014), an independent design consultant, explained how her main approach to designing sustainably was to reduce the production of print collateral, therefore lessening the environmental impact and cost of design:

> *What I always insist on is that clients don't do any printing because they can actually get away with no printing. For me it's about looking at it in a holistic way and asking, 'Do you actually need this?' I would actually only do long-term printing, like store signage. The client will say 'let's build a new stand', and I'll say, 'we've got one from last year, let's refurbish it'. Clients think they need a lot of printing, and they are very grateful when you tell them that they don't because they are saving money. But, referring to one client who has a nasty product that is not sustainable, I can just balance it out by not going overboard with their marketing.*

However, in contrast to Broom's approach and the other sustainable approaches discussed in this section, Warner's (2014) experience of working in an advertising agency revealed that no action was being taken towards practising sustainably:

> *At King James sustainability is not thought about in the slightest and it's never discussed. There is no consideration for environmental impact in the actual designing process, it's all about what's the cheapest, fastest, and the most beautiful looking solution.*

Adding to this point Warner said, "we waste an unbelievable amount of resources at the agency because of how much we print" (*ibid*). Besides King James, the examples given by OgilvyEarth, Black Sheep, Infestation and AGB Design Project Imagineers suggest that the industry is engaging with DfS in various ways. This includes: creating environmental awareness; reducing the amount of materials used; selecting environmentally responsible materials; and supporting local businesses. The approach to integrating aspects of sustainability into their work depends largely on the design agency's offering and the needs of the clients they service. As suggested by Broom, the simplest approach for communication designers to design sustainably is to reduce the amount of printed collateral. The next

section will look into this occurrence to find out if it is in fact industry's concern for the environment that is driving this change.

5.2.4 Reduction in print demands

At Black Sheep and Infestation, a common finding was that there had been a substantial reduction in the amount of communication design briefs that required printed solutions. According to Luke (2014) this was an indication that the industry was becoming "more environmentally aware", but he also stated that it was driven by the increasing cost of printing:

> *The amount of printing that we used to do compared to the amount that we do now – the printing is almost non-existent. Even with brochures, we are designing them to be printed, but most of the time they are rather being emailed and downloaded off websites. With the price of paper going up and the price of printing going up, it is expensive for clients to print* (*ibid*).

Maritz (2014) has experienced a similar scenario with the design and production of annual reports. He said: "The print version is now an adaptation of the digital one, whereas usually the digital version was an adaptation of the print." Furthermore, he explained "it is very seldom that we can justify printing and we would not force clients to print". Maritz believed that this was not driven by environmental consciousness; rather it was due to cost and the effectiveness of digital.

> *The evolution of digital, not as a reaction to sustainable challenges but just as a technological explosion of communication means, has taken away the need for paper in a lot of cases (ibid).*

Whether the industry is driven by technology or cost implications, there is action being taken to reduce the amount of print collateral. However, Luke (2014) believes that "printing will never stop, clients are not going to stop printing items like business cards". Therefore, because certain elements will continue to be printed, the industry will continue to impact the environment. While Broom, Luke and Maritz were designing less print collateral; the industry still does produce printed work. Because of this it is important to understand what decisions industry is making to avoid or lessen the negative impact of their printed work. The most common thing the informants identified in this regard was their paper selection, although again it came down to the cost of the paper.

5.2.5 Factors influencing the choice of papers

There are many paper options available to designers and they will select the most suitable option for each job. When it comes to choosing the most environmentally responsible option there are various factors that come into play. In Broom's (2014) opinion, designers relied on printers to assist them in selecting the least harmful paper:

The industry does not have the understanding of what the most responsible materials are to specify. Most of the agencies would just say 'please give us your most sustainable material', and leave it up to the printer. So the printer may say it is the greenest option and they would just trust that.

This suggests that industry expects to be guided by the printers instead of designers actively researching what the best material and print options available are. However, according to Maritz's (2014), choosing paper would not radically affect the environmental impact of a printed design because the paper options available to industry were all in line with global environmental specifications.

The paper merchants have figured out that the designers do not buy paper that is not FSC, so now the only paper you get has got that stamp of approval. Choosing certain papers is not a special add-on anymore; we are beyond that curve.

While it was understood that reputable paper suppliers such as Antalis, Papersmith & Sons and Sappi do supply FSC certified stock, some papers are still more environmentally responsible than others. At King James, the designers sourced papers from these suppliers, however Warner (2014) explained that the selection of paper wasn't based on its environmental credentials, but rather on aesthetics and cost:

We use suppliers like Antalis and Sappi, so the paper is FSC approved and sometimes a percentage is recycled, but most of the time it is not chosen because of how green it is – it's more about if it feels nice. Ultimately the choice of paper is determined by the budget; or if the client says that a job has to be environmentally friendly, then we would use a specifically green type of paper. But unless it is stipulated in the brief, there is never any kind of environmental concern about the paper we use.

Similarly, Luke's (2014) experience of selecting paper was determined by budget and the desired look and feel of the final design:

For us using recycled paper is a nice thought, but it is still so expensive. The recycled paper costs almost double what normal paper costs and clients hardly ever have the budget for that. Also, it gives a nice finish, but you don't want an uncoated paper for every job.

In contrast to Luke and Warner's experience with clients' paper demands, OgilvyEarth's Baird (2014) explained: "A lot of our clients do request certain types of environmentally friendly paper.*"* In addition, the agency also urged their clients to use the most responsible options available. Fowler (2014) gave the example of a recent design brief where he had selected a specific 'tree free' paper stock:

I'm working on a corporate identity for clients and I'm insisting on using Stone paper[9]*. Regardless of the cost, that's what I'm pushing for. It is expensive because there are very few suppliers. I don't think that is a reason to default to the old way of doing things. I think that these kinds of materials should really be costed into the campaign*.

[9] Stone paper a biodegradable paper made from stone offcuts and non-toxic resin, it contains no wood fibres www.stonepaper.co.nz

This statement suggests that designers have a role to play in choosing the best material options available. Baird (2014) elaborated on the importance of persuading clients to use the best materials available:

> *Designers have to ask clients if they want a campaign that is cheap and environmentally costly, or are they wanting a cost effective campaign that has longevity and stands for certain principles? It is a big issue. I know that some of the greenest companies still procure their paper from China, and it's not FSC. That is where a designer has to push back. That is where, within a company like ours, we would say 'no this is the wrong thing.' It's like printing a 'save the paper' campaign on paper – it makes no sense*.

Depending on the ethos of the agency, designers either select papers that meet the requirements of the brief, or they insist on using the best options irrespective of the cost. In Chapter Four the students stated that using sustainable materials was costly; the statements mentioned above confirm this assertion.

In Section 5.2 the design professionals highlighted the lack of understanding of how to apply sustainability principles, as well as the cost of certain materials, as factors that impacted their ability to practice DfS. In the next section other barriers that restrict the practice of DfS will be discussed.

5.3 Barriers to including DfS in industry

This section looks at why the local communication design industry is not actively engaging with the various aspects of sustainability in their work. The barriers include the cost associated with environmentally friendly materials; the lack of sustainable print and production options; the demands of clients; and confusion around the terminology.

5.3.1 Economic reality faced by the local communication design industry

Financial pressure and the perceived value that design can add to business were seen as contributing factors towards industry's lack of practicing DfS. Maritz (2014) voiced concern about the current economic climate within the local industry:

> *Looking at Cape Town as a design industry, behind the scenes we are really struggling. We are suffering and clients are paying less and less because they don't see the value of design.*

Maritz believed that this impacted on designers' motivation and ability to integrate more sustainable practices into their work. He said:

> *A big barrier to practising sustainably is money because our industry has to fight very hard to just be acknowledged as adding value. That makes it difficult for us to be responsible, or even to differentiate who we are from a sustainable point of view because it can be more expensive to design in this way; so I think that is the biggest challenge* (*ibid*).

Even supporting local suppliers, which is an important business decision for Infestation, is a challenge. Maritz expressed that "our need for money and our survival mode is very strong, so we have to fight very hard to support local" (*ibid*). Luke (2014) shared a similar view about the clients' budget being the deciding factor in a project's outcome: "Clients will cut corners wherever they can; at the end of the day they try and save money wherever possible." Furthermore, Baird (2014) believed that the misperception of what a sustainability approach attempts to achieve resulted in the design industry not seeing the value of sustainability as a business driver:

> *The problem is that the business case is not very well understood. Industry thinks sustainability is just environmental rah-rah. Sustainability is not just about the environment, it is also about improving society and the economy. It's actually driving innovation and new ways of doing business.*

The above statements suggest that both the communication design industry and the businesses they service do not yet understand the benefits of a sustainable approach to design. As Baird pointed out, sustainability does not only address environmental concerns, it can also contribute positively towards economic issues. Therefore, a gap exists to fully integrate DfS into the local industry, and this gap is influenced by clients' demands.

5.3.2 Client's demands determine the designer's approach to incorporating DfS

Clients approach designers with needs and objectives that must be met or problems that must be solved within an allocated time and budget. While designers will attempt to provide clients with the best solution to the brief, the demands of the clients influence the design's final outcome. At OgilvyEarth, even though they push for the most sustainable production methods, client's demands are seen as a barrier to achieving the best possible sustainable solutions. Baird (2014) explained the agencies experience:

> *Within the group we try as much as possible for best practice, but then some of our clients demand the best price, so unfortunately that is the gap. We can tell our production team to make sure that they use soy-based ink and FSC paper, but the gap between intention and action can fall through because of lack of money, lack of will, or limited time frames.*

A similar challenge occurred at King James. Warner (2014) agreed that clients were the deciding factor in terms of a design's outcome addressing sustainability issues. She also felt that if there were not demands from clients, industry would not motivate for better solutions.

> *At an agency a lot of decisions have already been made by the time the brief reaches the designer. So in terms of sustainability, it definitely has to come from a higher directive. Clients must say that 'we want this to be more sustainable', because nobody in our industry is going to take the initiative and push for sustainability. Designers don't want to make extra work for themselves or for the agency. Our clients never request sustainable solutions to their briefs, so it will also be very difficult for designers to change the system of how things are done. In a big company like ours we need the driving force to come from the financial clout, which is the client* (*ibid*).

As seen in Section 5.2.3, some of the design professionals did produce examples of integrating sustainability into their work. However, the ability to produce more examples of such work is driven by clients' objectives. This supports what the students had argued in Section 4.3.4 about a design's outcome being determined by the client who commissioned the work.

In Broom's (2014) opinion, the only way that sustainability will become standard practice in the communication design industry is if clients demand it, or if designers convince their clients and suppliers that adhering to sustainability practices is essential:

> *Demand always creates a market. So if clients are demanding from printers, manufacturers and producers the most sustainable options, or if designers push for the demand, then there will be a supply. But until there is that demand, it wont happen.*

Although clients appear to hold a lot of control over a design's final outcome, the suppliers that designers choose to work with also have an influence on the design. Suppliers such as paper merchants and printers play an important role in assisting designers to realise the final execution of their design solution. Therefore, if the suppliers are not able to provide them with appropriate materials and better processes, designers will not be able to implement sustainable solutions.

5.3.3 Lack of service providers supporting DfS

While designers determine the concept and visual direction of each brief, they rely on available materials and production processes to execute their designs. If the industry that supplies communication designers can not provide better alternatives, this will impact on how the industry as a whole progresses. According to Baird (2014), there are not enough service providers championing sustainability:

> *From a production perspective, there are a lot of things that can prevent us from practicing sustainably. We need to have a lot more products available, and have service providers lead the way. A lack of leadership in sustainability from the relevant stakeholders is one of the key challenges that we as a communications industry face.*

Broom (2014) supported this view. In her experience of working with printers, depending on the vision of the leaders in the printing company, there was generally a lack of concern for sustainability:

> *I always make a point of asking printers what happens to their waste. Some are aware, but with most it is the last thing on their minds. The whole ethos of the company depends on management and how they run the company.*

Again this suggests that the different role players in the communication design industry are not aware of the potential benefit of practicing sustainably. A reason for this lack of

awareness could be because of confusion around the terminology, and the misconception about what sustainability means for this industry.

5.3.4 Terminology is complex, inaccessible and misunderstood

Many of the design professionals thought that the term sustainability was complex, loosely defined, and not perceived as relevant to communication design. Baird (2014) said: "It is such a broad term to explain; sustainability needs to be broken down considerably." Maritz (2014) agreed that the word itself was complex and could be intimidating to designers. He suggested that different terminology be used to encapsulate the real meaning and application of the word:

> *Designing sustainably is difficult because it [sustainability] is such a big word. You actually give up before you try because you think that you will never tick all the sustainability boxes. I think that we should rename it. It is a very foreign term to engage with. It has been polluted and I don't think they can clear that water* (*ibid*).

Warner (2014) also felt that the term was not clear and that designers did not easily connect with it nor see its relevance:

> *Sustainability is such an overrated, overused word; like 'climate change', 'organic' and 'green.' Not everybody understands it in their own personal capacity. So if designers are not educated about how designing sustainably can positively affect society, it means nothing to them and they wont take it on.*

As a result of this lack of understanding, Warner felt that there was a "general lack of interest in the system of designing sustainably". This means that designers do not consider the life cycle impact of their design decisions:

> *When designers go, 'I have a great idea for tin packaging'; understanding what that actually means is important. They must consider where the tin comes from and where it is going to end up after the package has been used. Currently, in industry there is no education of how the system works* (*ibid*).

Supporting Maritz's previous suggestion of rethinking the terminology around design and sustainability, Warner's proposal is that "DfS should be renamed 'systems design' because essentially that is what sustainability is" (*ibid*). Furthermore, Warner believes designers have a perception that sustainability is associated with a certain aesthetic and they do not want to associate their work with the term:

> *If you say sustainable design, designers think that it is organic, bark, itchy and scratchy; and they don't want to design that way. So there should be a shift between sustainable design being seen as a hessian-canvas look, and rather as just having been made in a better way. Design can be sustainable in so many ways; it can look sexy* (*ibid*).

This suggests that designers only link the environmental aspect of sustainability to communication design, but even this link is limited by their perception of what it should look like. According to Baird (2014), the term DfS should not be linked to only one aspect of

sustainability. To illustrate this point she gave an example of how the terminology can be misused:

> *Sustainability is not a 'greeny' thing, and part of our biggest hurdle is getting past that mindset of 'it's all about green'. That is where the communication about sustainability has not helped. For example, Eurocar claims to be sustainable just by recycling their billboard, but this does not make them sustainable* (*ibid*).

The lack of clarity around the term sustainability results in the concept of DfS not being seen as important to communication designers' work. In the next section the design professionals suggests ways to overcome the above-mentioned barriers, including possible ways to encourage students to champion DfS.

5.4 Possible solutions for promoting the integration of DfS into industry practice

This section presents the possible ways in which the industry sees the practice of DfS advancing. It is divided into two parts. First it looks at how to encourage industry to integrate sustainability thinking into their work, such as by offering incentives and identifying change agents to lead the way. Secondly, it looks at how to empower students to become the change agents needed to drive DfS in the industry.

5.4.1 Motivating industry to practice DfS through monetary incentives and personal benefit

As with all industries, the local communication design industry relies on investment to grow – investment mainly in the form of money, but also the investment of people's energy and skill. Therefore, for sustainability to become more of a focus in industry it needs to be seen as being able to contribute to the economy and to the community as a whole. According to Baird (2014), change in industry will happen "as soon as we can start to unlock the real social value and economic value of practicing sustainably". A similar opinion is shared by Warner (2014), but she emphasises that money would be the main incentive:

> *The biggest factor in changing someone's mind, therefore changing their behaviour, is showing how sustainability could benefit them. We really need to communicate the benefits of changing the current design system. It doesn't always have to come down to money, but also how this alternative process could positively affect a person's lifestyle. Ultimately though, it's about portraying the benefit in a way that highlights economic sense because it all comes down to money*.

Luke supports the above statement. He believes that saving money would be the biggest motivator in trying to get the local design industry and its clients to actively engage with DfS:

> *Tax rebates would definitely be an incentive. If I could get a tax rebate for printing a job on environmentally friendly paper, that would be awesome. It would just change designers' focus and they would make a concerted effort to find the right paper because they'd know they'd be getting something out of it. Even if it weren't a tax rebate for me but for the client, then the client would push for it. A financial incentive is the only thing that would work* (Luke, 2014).

Furthermore, Luke proposed that tools that could assist designers to make better, more cost effective design decisions would encourage sustainable practices:

> *If we had sustainable design tools tailored for our industry I would definitely consider using them, especially in terms of cost. For example, if I'm shown what the most efficient designs are for packaging, then why wouldn't I apply them? Tools would make designing sustainably simpler, but more importantly, they could help to figure out how to save the client money* (*ibid*).

The above statements suggest that if industry and its clients see economic benefit in designing sustainably, this approach to design will increasingly be supported. Another way to incentivise designers to engage with DfS could be to award them for such work. Fowler (2014) explained that awards drive the creative industry:

> *Awards for this specific category would be a good way to get designers to create campaigns that actually have results and can be measured for their sustainability impact. Designers, art directors and writers want to be involved in producing campaigns that could be awarded. The awards should not just be for advertising campaigns that get a single message across, but also campaigns that actually attack a problem, solve a problem, and have an outcome*.

In addition to being incentivised by winning awards or saving money, another possible solution to motivate for the uptake of DfS can be if industry has inspiring people to lead the way.

5.4.2 Designers need to lead the way in industry

As mentioned by Broom (2014) in Section 5.3.3, those in leadership direct a company's vision. Therefore, for any significant change to happen in the communication design industry, Baird (2014) believes that the push for sustainability "needs to start from within an organisation". She added that in order to drive innovation, "there have to be visionary leaders in industry, and designers have to become the change agents within the organisation" (*ibid*). One way that designers could initiate change would be to "take a proactive approach by presenting the most sustainable options to clients" (Fowler, 2014). Other than the projects shared by OgilvyEarth and Black Sheep in Section 5.2.3, throughout this chapter the design professionals suggest that most client briefs do not include sustainability objectives. For that reason Fowler argued, "designers need to push sustainability into a more forward-thinking space because it's not necessarily ever going to be included in the brief" (*ibid*).

While the design professionals think that industry can be motivated to change through incentives such as money and awards, designers first need to understand how the change towards sustainability can be implemented. In the next section the design professionals discuss how it is equally important to encourage communication design students to learn about and implement sustainability.

5.5 Possible solutions for promoting the integration of DfS into pedagogy

Based on their industry experience and their awareness of the knowledge gap in terms of DfS, the design professionals shared ideas on how to better integrate DfS into the curriculum. Ideas included the collaboration with industry through internships and excursions; introducing live briefs for actual clients into the curriculum; students working in cross-disciplinary groups; and accessing the latest information about DfS online.

5.5.1 Industry should play a role in educating students

To advance the practice of DfS, more dialogue is required between members of the communication design fraternity in Cape Town. Baird (2014) put forward that increased discourse between industry and academic institutions about issues relating to sustainability would foster change:

> *The whole principle of this way of thinking is looking at a collaborative mindset. The more people talk, the more connections that are made, the easier that it is going to be to implement DfS. It's long overdue*.

Furthermore, Maritz (2014) believed that industry had the responsibility to share knowledge and skills with students:

> *Industry also has a role to give back. As an industry we must recognise that we have a role to play in educating students. Industry has to be more responsible and more proactive. Sustainable also means one day when you are in a place where you can give your skills back then do so.*

As was suggested by the students in Section 4.6.9, providing internship placements was also a solution that the design professionals recommended. Maritz said that at Infestation, "the collaborative space we have created for students is internships". Baird (2014) thought "internships at companies like OgilvyEarth should be a component of the curriculum". Luke (2014) supported this idea, specifically for students who were interested in DfS:

> *If students have a passion for sustainability in design they should intern where they know that company is practicing DfS. They can have a desire to design sustainably, but if they don't learn from the right people, it will never happen.*

This illustrates that collaboration between industry and academia should be encouraged so that educators and students can keep up to date with what is happening in industry, but also so that momentum in the discourse around DfS is gained. Other suggestions for integrating DfS into communication design education are discussed next.

5.5.2 Using knowledgeable teachers, online resources, live briefs and industry visits

Echoing what the educators had expressed in Chapter 4 about how to effectively teach about DfS, Baird (2014) believes that "there has to be experienced teachers who can teach sustainability, or specialists who can do modules". To assist educators to expose students to this way of thinking, Warner offered four different approaches that could be taken. Firstly, she

recommended TreeHugger, a website that promotes sustainable design innovation, as a useful resource for gathering information about DfS. Warner (2014) used TreeHugger to "keep up to date with any interesting developments in this field". Based on her experiences with the website, she shared an idea of how it could be used as a tool to assist with the teaching of the subject:

> *Once a month there could be an in-depth review on a particular TreeHugger article. Students could team up to discuss the article and share their views. This would open up dialogue about the subject and encourage students to look deeper into it* (*ibid*).

The second suggestion was to give students the opportunity to work on "more integrated projects with students from different disciplines so they can learn to look at things from different perspectives" (*ibid*). These should be live projects for real clients, which can help students to develop an understanding of "how to work creatively within constraining briefs". Similar projects were conducted at Vega during the Brand Challenge module (see Section 4.2.5). Warner believes that such projects will better prepare students for industry, where they can "be entering into integrated working environments". She explained, "once they have a better idea of what to expect in industry, they will have a better idea of what they want to change and achieve as designers" (*ibid*).

Another suggestion for how students can learn about how the industry operates is to visit the places where designs are transformed from a digital concept into a physical form. Warner (2014) believes that students will gain the "most valuable insights by going to the places where designs are produced". Warner elaborated:

> *Regardless of what your typography looks like, regardless of what paper it's printed on, knowing what you're designing for in terms of the process is so important and so interesting. Once you have been into a printing house and you understand the process, you suddenly design with that in mind* (*ibid*).

This illustrates the importance of educators using various teaching strategies to expose students to how industry operates. While internships at forward-thinking design agencies would be a valuable experience, students must be taught about the life cycle of a piece of design, right from the start of a project through to the final execution of a concept.

In the next section the design professionals explain why they think students should be informed about DfS, and therefore why it would be a relevant subject to include in the curriculum.

5.6 Relevance of including DfS in the curriculum

This section looks at why communication design professionals think that educating students about DfS is important. Adapting to a changing business environment and evolving design industry; inspiring the industry to change; and using communication skills to promote

sustainable behaviours were seen as the main reasons why students should be taught about DfS.

5.6.1 Students should be prepared to practice DfS upon entering industry

The design professionals believe that it is important for the future state of the communication design industry to include DfS into the curriculum. According to Maritz (2014), the industry "has to find ways of talking about our social and environmental consciousness and the effects of the work that we do on our community". He felt that the best way for this to happen would be if "students start to interact with sustainability during their studies". Maritz elaborated on how he thought sustainability should be integrated into communication design education:

> *Sustainability should not be taught separately, it should actually be in every brief. For example, there shouldn't be an option to design using paper from trees that aren't replanted. There shouldn't be design that doesn't have sustainable consciousness. But, the brief should determine how big the consciousness is. It should be the first and last paragraph of every brief, because then students have to deal with it, and that is how they will learn. It is also not a topic then, it's not a once-off course. It should be integrated completely into the curriculum* (*ibid*).

Although both Maritz and Luke previously stated that design applicants do not require experience in DfS, they do think it is becoming increasingly important for students to be familiar with the concept. From Luke's (2014) perspective, students able to show that they can practice DfS is going to become a necessary skill in industry:

> *Sustainability isn't just a trend; it feels like it is becoming an essential, especially when it comes to printing. So it should be part of the curriculum, and it would be effective in interviews if students had a few projects in their portfolio where they show that they can put sustainability into practice. They shouldn't just use buzzword; their work should speak for itself (ibid).*

Warner (2014) agrees: "Incorporating sustainability into the curriculum is a good idea." Since designers at King James do not practice DfS, her view was that students needed to learn how they could influence industry to practice sustainably. Part of this learning needed to expose students to how their work could impact on a larger system:

> *Sustainability is all about systems, and DfS is about designing within systems. Students have to understand the greater system that they work in in order for their solutions to be designed in the best way. If they are taught to think and design in this way they'll be able to challenge things in the companies that they join, and also in the companies that they form. It will be very difficult to move into a company and challenge the design process if they aren't able to offer an alternative way of doing things (ibid).*

Furthermore, Fowler (2014) believed that educators played an important part in shaping students' interest in issues relating to sustainability.

> *It is the students coming out of college who should be asking questions about sustainability, that is where the educators play a huge role. It is that phase of their*

education that is going to be hugely influential. This thinking must inspire them as they move into agencies; they must want to practice responsibly.

The above statements illustrate industry's belief that students needed to be equipped with knowledge and practical skills in order to design sustainably, but also to be empowered with the skills to support their future colleagues to practice sustainably. While the local industry is not yet actively engaging with DfS, the changing business world and the changing communication design industry were seen as reasons why this approach would become more important.

5.6.2 The industry is changing

Across all sectors of business, including the communication design industry, Baird (2014) believed that significant change in attitude and action, towards sustainability, would happen in the next few years when they started to be pressurised:

There will be legislation and multifaceted pressure on all areas to operate sustainably – pressure on municipalities, on businesses, on brands and on our industry. It's increasing more and more, in two to three years the landscape will change considerably and designers will have to adapt.

Specifically relating to changes in the communication design industry, Fowler (2014) spoke about what he expected would happen:

In industry there is definitely going to be a full circle way of thinking. There will be an opportunity to lead through creativity; to come up with better, more efficient ways of doing things; less resource-intense ways of doing things. It's going to be a natural way of design and we can be forerunners of this entire movement, so students must be prepared for this change.

Adding to Fowler's statement, Baird said:

Designers will probably look back in ten years time and ask, 'wow, did we really use that much paper to make that box that ended up in the landfill?' They need to add that section to the thought process. When you look at the full life cycle of a design, it is about upcycling not just recycling. It's the biggest design trend and you would have to be half dead if you were not realising this was coming as a next big driver of change (2014).

The above statements suggest that the industry is going to change and in order to positively contribute to that change students need to be empowered with knowledge about DfS. An important way that communication designers can contribute towards the sustainability agenda is to use their skills to communicate important messages in a way that is accessible to people.

5.6.3 Industry's influence and responsibility for sharing information

OgilvyEarth recognised the skill of designers to communicate information in effective ways as being important in the drive for promoting sustainability. Speaking about the role of the

communication design industry Baird (2014) said, “our role as communicators is to take all this information about sustainability and translate it into relevant, quick messages”. Relating to the work produced at OgivlyEarth, Baird continued:

> *It’s all very well and good to have a great strategy for how to tell a sustainable story, but the importance of communications is that you have to have these creative magicians who can unlock the strategy and turn it into campaigns that people can understand* (*ibid*).

Fowler (2014) agreed, giving reasons why he thought the creative industry “has a big opportunity in this space”:

> *Creatives must be the leaders in building awareness of sustainability because they have been telling stories since the beginning of advertising – stories that are compelling, stories that evoke emotion out of the target audience. Whether they make you smile or make you laugh, or make you feel something deeper, or they create arresting pieces of work. People want to see dynamic, arresting imagery, headlines which speak to them in their specific lives and really form a connection with it. Using those skills for good, that’s a huge amount of power to be able to wield. That is why looking at the creative industry is so important, because we can basically take sustainable business objectives and strategies and translate them into compelling campaigns that move people to act (ibid)*.

To further emphasise the importance of communication designers’ engagement with DfS and promoting sustainability practices through their work, Baird (2014) stated:

> *Spreading the message of sustainability is absolutely pivotal. In this country the opportunity for social change is absolutely linked to environmental custodianship. I believe there is great opportunity for our industry; we are at the tipping point. We have to keep talking more, and spreading it more, because creativity can change the world!*

This statement suggests that if communication designers can use their skills to encourage people to be more environmentally responsible, they will not only be contributing to the preservation of the environment, but to positive social change as well. Therefore communication designers can apply their skills to creating stories about sustainability that people understand, or to shape complex information into messages that people respond to. Educators need to ensure that students are aware of the power of effective communication.

The following figure is a visual summary of this chapter. It looks at four categories including exposure to DfS, barriers to adopting DfS, solutions on how to increase adoption of DfS and the relevance of DfS in local industry. Each category includes key findings that have been grouped together into the most relevant themes as indicated in the circles under each category. The size of the circle represents the importance of the theme, larger circles being primary and the smaller circles secondary and tertiary themes. The lines illustrate how all of the themes are interconnected.

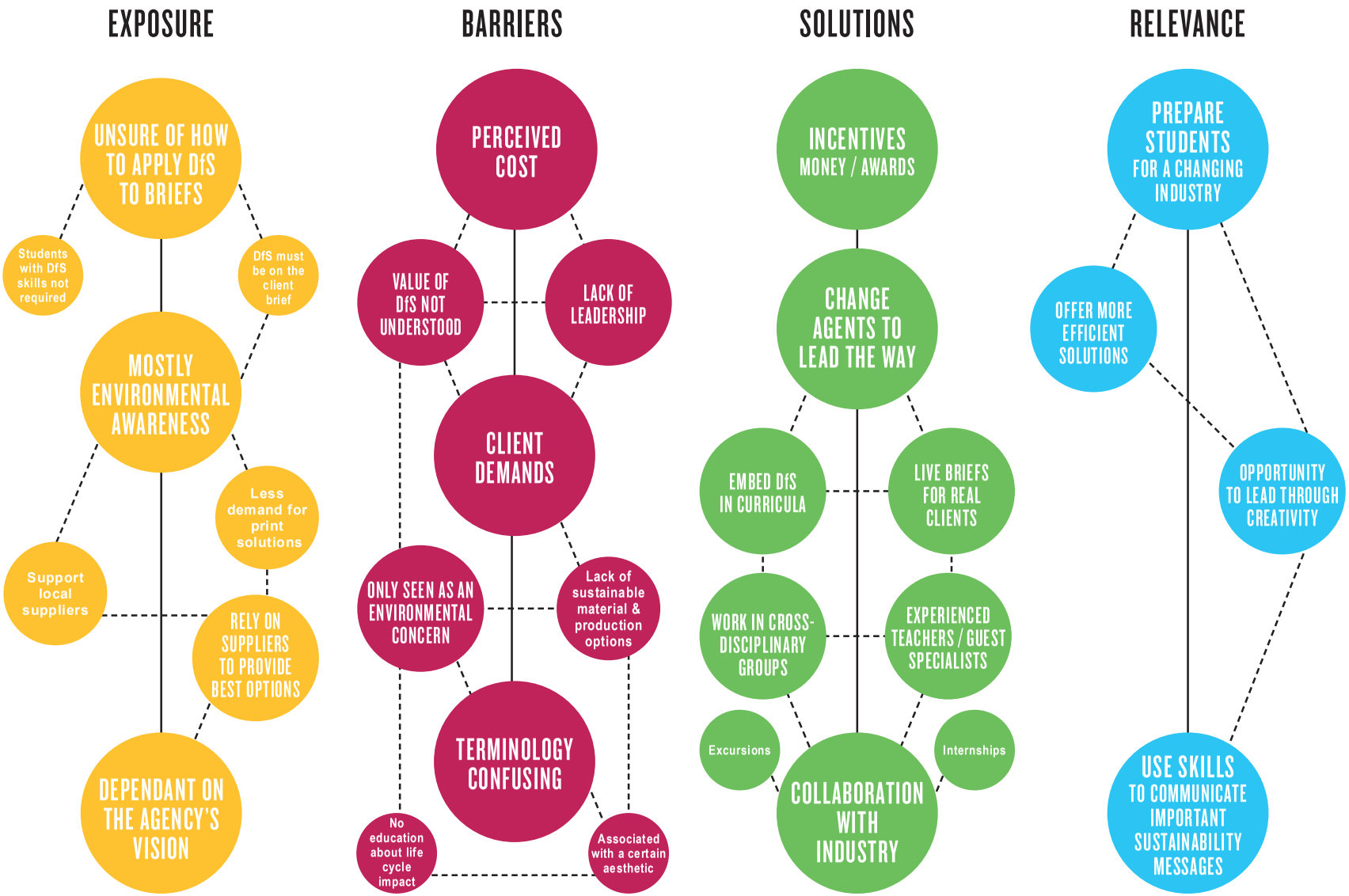

Figure 5.7: Visual summary of DfS in the communication design industry

5.7 Summary

In this chapter the study looked at if, and how, the local communication design industry is incorporating DfS into its practice, as well as what shifts need to happen in order to drive sustainable change.

While practical examples were shared, these focused almost exclusively on the environmental aspect of sustainability. Even though some examples proved that powerful messaging could create awareness about environmental issues, the majority of informants believed that environmental impact was driven by material choices and the quantity of printed work. This highlighted that the industry does not have a broader understanding of how applying principles of sustainability can contribute towards innovative solutions that address environmental, sociocultural and economic factors.

Even though it was stated that one of the bigger agencies did not consider DfS at all, and that it produced a large amount of print waste, the majority of informants agreed that industry had drastically reduced its printing output. It was clear however that the motive behind this was cost reduction, rather than environmental concern. While economic viability is a component of sustainability, the demand from clients to reduce design and production costs was in fact recognised as the main barrier preventing the advancement of DfS. This was because supporting local suppliers and specifying sustainable materials was considered too expensive and was therefore disregarded. This emphasised that the long-term social and economic value that DfS can bring is not understood.

Although it was said that incentives such as industry awards would encourage greater adoption of sustainability principles across the industry, the majority of informants argued that designers would only consider DfS practices if their clients demanded it. In contrast, some of the informants believed that it was up to the designers to take the initiative to insist on DfS solutions and lead the change. Currently designers do not have the knowledge to challenge suppliers to provide them with better alternatives, but rather accept what is available as the only option. Once again this highlights the importance of an informed industry to confidently challenge the status quo. They must become visionary leaders and convince clients that there is a better way to practice while also focusing more attention on their ability to communicate important messages that can build awareness of sustainability issues and inspire people to act.

The findings revealed that only one agency currently saw the necessity of recruiting graduates with an interest in DfS. However, all of the informants recognised that the industry would need to adapt to a changing world and therefore believed that it was important for

students to learn about DfS. Furthermore, the informants recognised educators as playing a crucial role in equipping future industry leaders to drive the sustainability agenda. The next chapter will discuss the main findings from both Chapters Four and Five.

CHAPTER SIX
DISCUSSION OF FINDINGS

6.1 Introduction

This chapter will discuss the main findings that address the problem regarding the lack of integration of principles of sustainability into the communication design curricula. The discussion is informed by the data collected through interviews and focus groups with the three main actors in this study: communication design educators, communication design students and communication design professionals. Using Activity Theory as a lens, the researcher was able to capture relevant information about the activities that these three categories of actors were engaged in: teaching, learning and practicing DfS in the Cape Town communication design fraternity. Answers to the research questions were guided by an investigation into the dynamics, and particularly the tensions, between the interactive elements in these Activity Systems (see Section 6.6). These answers are grouped under the four main categories that were used for analysis in Chapters Four and Five: *exposure*, *barriers*, *relevance* and *solutions*. Under these categories the discussion highlights how the objectives of this study were subsequently addressed. This chapter ends with a discussion about proposed guidelines for overcoming the tensions in the activity systems and for integrating DfS into communication design education.

6.2 Exposure to principles of sustainability

By looking at the key actors' exposure to principles of sustainability, the researcher was able to evaluate the level of awareness of sustainability within the Cape Town communication design fraternity. In addition, the insights gained from understanding how the actors connected with the subject offered guidelines for how best to integrate principles of sustainability into curriculum.

6.2.1 Communication design educators' and students' awareness of sustainability

On the question of what the level of sustainability awareness amongst communication design educators and students is, the educators' awareness of sustainability equated to their personal level of interest in the subject. Those with greater interest had a broader understanding of how the four pillars of sustainability related to communication design. Others had a narrow view of sustainability that relates only to environmental issues associated with printing and packaging. While the majority of educators displayed an awareness, this fact was mitigated by the small sample size interviewed (see Section 3.6.3.2). Between the theory and practical educators at the three HEIs, their interest in DfS differed, and this in turn influenced the students awareness. Unless the students learnt about DfS at school, their understanding was largely determined by what information they were exposed to at their respective HEIs. The common finding was that DfS relates to how design

impacts the environment. This was directly related to the types of briefs the students had been exposed to, where the choice of materials was seen as having the biggest impact. Even so, there was very little knowledge about the sustainable material options available to communication design practitioners. However, there was a perception amongst the students as well as the design professionals that such materials were expensive, and thus inaccessible. This shows that students were not being encouraged to explore alternative materials and production methods. DfS requires innovation, and students should use the academic space to challenge existing practices and experiment with alternative ways of designing (Ainsworth *et al*., 2008; Bhamra & McMahon, 2012). Furthermore, there was limited understanding amongst the students of the life cycle impact of their design solutions. Environmental sustainability is not just concerned with the materials selected for packaging. The designer must consider the amount and type of ink used to print the package, the production processes involved in making it, the mode of transportation to deliver it, and the recyclability of the package at the end of its lifespan (Dougherty, 2008). A holistic life cycle analysis of the package is required in order to measure the designs real impact on the environment. By just focusing on the materials used the students' view of sustainability will remain superficial.

Equally as important as environmental consideration, the communication designer has the power to positively influence people's behaviours towards a more sustainable lifestyle. Although lessening a design's environmental impact is important, communication designers can go beyond this one-dimensional approach by addressing the socio-cultural and economic aspects of DfS. While a few students had commented on the positive social impact that communicating important messages could make, this was not the general view. Furthermore, the students made no connection to communication design's potential contribution to economic sustainability. Therefore to expand the students' understanding of DfS, and to advance design solutions that consider environmental, sociocultural and economic challenges, the HEIs need to offer a more holistic and comprehensive view of sustainability.

Adding to the confusion around DfS, both the educators' and the students' use of terminology was inconsistent. The terms Ecodesign, Green Design, sustainable design/DfS were used interchangeably, further highlighting the misinterpretation of the term as being exclusively related to environmental issues. This illustrates the lack of understanding of what DfS actually means in the context of communication design. Even the design professionals stated that the term was too complicated, and hence designers did not know how to practice sustainably. As stated by Perullos (2013) and Dritz (2014), there is an urgent need for a clear definition and a set of standards to guide the communication design industry forward.

Academia is best positioned to be the bridge between industry and education in defining and implementing a structure in which this can successfully take place. To this end, in 2012 CPUT established DfS as one of seven institutional *Research, Technology and Innovation* niche areas. As DfS is already a niche area, this shows that CPUT itself could now promote the development of sustainability standards (Cape Peninsula University of Technology, n.d).

6.2.2 Students' exposure to DfS throughout their studies

With reference to the question of what stage students are currently introduced to the concept of DfS at all three HEIs, the curriculum did not officially include DfS. No rules existed about how or when to include sustainability into the practical component of the course. Although there were a small number of projects that exposed students to the conceptual and practical considerations of designing sustainably, the scope of these projects was informed by the educators' personal knowledge. As a result the majority of briefs only involved environmental issues. Even when the theme of sustainability had been included in the brief, the students confirmed that they had not received any practical training on DfS. Whether the brief was to reduce the environmental impact of packaging or to create awareness around an environmental issue, the students would have to research the subject of DfS themselves. Whereas students must be self-motivated to tackle any brief, a standard introduction of how principles of sustainability apply to communication design would motivate them to incorporate DfS and assist them in better understanding it.

The HEIs had different approaches to introducing sustainability into the theory component of the course. From first year, Vega presented sustainability in theory subjects to teach students about the effectiveness of using strategy to drive change in business and to develop 'healthy brands'. However, the data proved that students did not make a connection between the theory and the implementation of sustainability into practice. As such they understood the benefit of incorporating sustainability into business strategy, but were unable to apply this knowledge to their design solutions. This disparity in integration between theory and practical impacted the students' view of DfS. In contrast, during the last semester of third year, students at CPUT were taught a basic theory module on sustainability that covered the concept broadly. According to the theory lecturer (Van Dugteren, 2012), this theory module was linked to a practical project – the Shift: Fresh Talent Sustainable Design Competition. This implementation of DfS in theory and practice was noted as being a more successful way in which to engage the students about sustainability. At the time of conducting this research, the CPUT students who were consulted had only just entered third year and had received no significant information on the subject other than through two packaging briefs in prior years. It is clear from the research that in order for students to gain better exposure to sustainability, the subject needs to be simultaneously incorporated into both the theory and the practical

teaching of students. In order for this to improve, the curriculum at HEIs will need to be relooked and redeveloped.

6.2.3 Engaging with principles of sustainability

With respect to what the level of engagement is with principles of sustainability amongst educators and students, all three HEIs implemented the subject of sustainability in varying degrees. The level of engagement with sustainability directly correlates to the level of exposure to the subject. Both CPUT and Vega include theory and practical, whereas Ruth Prowes only includes practical projects in its curriculum.

According to the practical design lecturer (De Lange, 2013) at Vega, in addition to briefs that engaged the students in environmental issues, they were given projects that dealt with social issues. This shows that the engagement went beyond the environmental to include socio-cultural aspects of sustainability. However, these projects were not framed within the context of sustainability; as such, the general understanding of DfS remained focused on the environmental pillar.

Because sustainability was mostly considered to be focused on environmental issues, the educators did not consider it important to incorporate the subject into all briefs, and in turn, the students did not consider it important to integrate into their work. When the subject was included in specific briefs, the students did not go beyond considering basic environmental solutions such as using less ink, specifying recycled paper, or conceptualising a reusable design. Furthermore, none of the three HEIs dedicated marks to DfS other than in the few specific briefs that included the environmental aspect of the subject. If students are not going to be rewarded for integrating sustainability into their designs, they will not be motivated to explore alternative solutions.

It is clear that the curriculum's engagement with sustainability remains limited. For the most part, incorporating DFS relies on the self-motivation and personal initiative of either the educators and/or the students. It is important to encourage students to engage with the principles of sustainability in a holistic way, and to understand how the different aspects of sustainability impact one another. This could be achieved by setting briefs across both the theory and practical domains that show how the different pillars of sustainability are interconnected.

6.3 Barriers to better incorporating DfS into the curriculum

With reference to the question of why principles of sustainability are not widely incorporated into communication design curricula, there are two main reasons. The first is that educators

do not recognise sustainability as a requirement in the curriculum. The second is that communication design educators do not have sufficient knowledge to teach about DfS.

As revealed in the data, educators believed that the local communication design industry was yet to adopt a holistic sustainable approach to their practice. It was therefore not seen as a requirement for students to be knowledgeable and skilled in this area. This highlights a perception by educators that they must follow industry's lead. If industry does not demand students with DfS experience, they will not supply this knowledge and skill. Moreover, education institutions should be experimental spaces that are driven by knowledge (Maphosa, Mudzielwana, Netshifhefhe, 2014). If the knowledge has evolved to the point where it is required that sustainability be discussed, then HEIs are failing in their mandate. Instead of being leaders, they are effectively followers; and this will not advance the industry towards a more sustainable path.

What's more, the data shows that educators are not equipped with specialist knowledge about how communication design can address environmental, socio-cultural and economic challenges. This then speaks to the lack of proactiveness of the educators to keep abreast of the latest developments within their field. Whether or not the HEI's ethos is to champion sustainability, educators have a responsibility to impart knowledge to students about global best practices (Jones *et al*., 2010; Perullos, 2013). In this case it would be informing students about how the communication design industry can practice sustainably.

6.4 Relevance of integrating DfS into the curriculum

With regards to why principles of sustainability should be incorporated into the curriculum, the main reasons were driven by a need for change and the ability to adapt to change. While this thesis set out to look at ways that communication design education could be more responsive to industry, the research discovers that the local industry is yet to effectively action sustainability into practice. Robertson (2014) agrees that this is a problem. She believes that in order to ensure a sustainable future, there needs to be significant change in thinking and practice across all sectors of society; namely industry, governments, education and civil society. Consequently, a proactive approach is needed to move the industry forward, and to prepare communication designers to adapt to the needs of a rapidly changing world. According to Fuad-Luke (2009:27), *Design Activism* is an important movement that attempts to "create a counter-narrative aimed at generating and balancing positive social, institutional, environmental and/or economic change". The communication design industry urgently needs change agents to lead the way. To ignite change, communication designers should recognise their potential role as design activists. The students of today will be industry's future leaders, and if properly prepared, they can fulfil this role effectively. By

integrating principles of sustainability into the curriculum, students will be equipped with the knowledge and the skills to become successful agents of change.

According to the data, educators and design professionals believe that the communication design industry has an important role to play in contributing to a better future. This can be achieved in a number of ways, such as: assisting businesses to meet their communication objectives in the most responsible way; growing a competitive industry that can contribute to the design economy; and inspiring change in people's behaviour by communicating important information that builds awareness about sustainability issues. Currently the local industry does not actively take on these responsibilities. With no standards in place to guide the industry to practice sustainably, the uptake of such practices is driven by the self-motivation of individual designers and the demands of their clients. Most designers do not know how to integrate DfS practices into their work beyond reducing the amount of materials used to execute a brief. This reduction of materials was not only seen as an environmental benefit, but also a cost saving for the client, which in itself links to the economic benefit of sustainability. As stated by Maritz (2014), in an increasingly challenging economic climate, communication designers need to convince clients that they are adding value. This highlights the need for students to be taught about the real environmental, social and economic value associated with practicing DfS.

Students entering industry must be confident in their ability to provide clients with strategic, sustainable solutions to any brief. This will require a unique skill set as well as a holistic view of sustainability where the life cycle impact of every design solution is considered. By providing clients with solutions that use environmentally sound materials and productions processes, create positive social impacts, and support local suppliers, Ferraro-Fanning (2013) supports the researcher's argument that the designer is offering the client an opportunity to build stronger relationships with their conscious consumers.

Besides impacting local business, designers need to understand what positive effects they can have on their own communities. In Cape Town, one of the greatest challenges is the lack of primary resources such as water and electricity. Through creating engaging messages, designers have the ability to communicate with local communities, motivating them to address these challenges (Simmons, 2011; Shea, 2012). It is important that students are taught about DfS in the context of the challenges faced by their own communities and environments.

While emphasis was placed on the importance of skilled students, design professionals also recognised that educators had a role to play in inspiring students to champion DfS, thus

transforming industry. Educators need to use the principles of sustainability to teach students how to address all aspects of the subject. This will ensure that students are equipped to become the change agents required to progress industry.

6.5 Solutions for promoting the integration of DfS into teaching and practice

On the question of what strategies can be applied to promote the uptake of sustainability principles, Activity Theory proved valuable as a lens to identify what was used by the three categories of actors in teaching, learning about and practicing DfS. See Section 6.6 for a detailed description of the three Activity Systems for design educators, design students and design professionals. By looking at the different elements of the three Activity Systems – namely the tools, rules and division of labour – the researcher was able to identify appropriate strategies and tools, as well as guidelines, of how design educators and students can better incorporate principles of sustainability within their practice.

6.5.1 Strategies to promote the uptake of sustainability principles

For students to take on DfS as a strategy in all of their work they first need to be exposed to information about the subject, and then to be given the opportunity to practically apply what they have learnt. The proposed strategies include the following:

- introducing DfS as a core principle from the outset;
- exposing students to information about DfS;
- allowing students to practically engage with DfS; and
- collaboration amongst diverse design actors.

6.5.1.1 Introduce DfS as a core principle from the outset

A strategy that was supported by both educators and students was to introduce the concept of DfS in the first year of the communication design course. It should be integrated into both theory and practical aspects of the course right from the beginning rather than being taught as a separate module. The educators believed that if students were introduced to DfS at the same time as other design concepts, it would influence the students' approach to problem solving, and DfS would become an inherent part of their design process. Early introduction of DfS will ensure that all students have a foundation upon which they can develop their skills. This is backed up by Perullos (2013), who found that “students need multiple exposures to things before it becomes a habit or methodology for them”. Also, if DfS is incorporated into every design brief, students will not see it as an extra design concern.

According to the educators, the only way this inclusion will happen is if DfS is embedded in the curriculum. This inclusion needs to be supported by the HEI rather than it being driven by the personal interest of the educators. To strengthen the students’ engagement with the

concept, the HEIs should use the learning space to promote sustainable lifestyle choices. For example, the RP students are encouraged to use a recycling box, making them aware of their paper consumption. Such initiatives make students aware of the impact they have on their immediate environment. This leads to the idea that students will make a deeper connection with DfS if it is seen as being relevant to their own lives, motivating them to incorporate this design strategy into their own processes (Crul & Diehl, 2008; Chick & Micklethwaite, 2011).

6.5.1.2 Expose students to information about DfS

DfS is a complex concept, and as important as it is to introduce the subject in the first year curriculum, it is critical that educators find engaging ways to unpack the concept to their students. As Giard and Walker (2013) point out, DfS is an ever-evolving field, thus information shared with students needs to be kept current. The educators had used several strategies and tools to expose students to information about DfS. TED Talks were popular because they offered a wide variety of sustainability-related content, and because students enjoyed watching videos. Students explained that they also responded positively to seeing visual examples of how DfS can be implemented into communication design practice. To gain insights into local industry's sustainability practices, educators and students suggested inviting guest speakers and attending excursions. Relevant speakers can include industry champions and activists for the sustainability cause. Excursions can include visits to agencies and production houses where design work is produced. Not only will these activities inspire the students, they will also ensure that the educators remain abreast of industry practices. Based on the data, this study confirmed the willingness of design professionals to work closer with HEIs to promote DfS discourse.

Exposure to industry will also give students an insight into the life cycle of a designer's work. Students will need to gain further knowledge about the material options available to them in order to better understand the entire life cycle impact of their work. Students identified the lack of knowledge about sustainable materials as a gap in their education. It is important for educators to find ways to expose students to this information. Workshops and presentations by industry suppliers were seen as effective strategies to make this happen.

6.5.1.3 Allow students to practically engage with DfS

Once equipped with this information, students need to be able to apply their knowledge practically. Working on live briefs for real clients was seen as an effective way for students to practically engage with DfS. Such briefs will allow students to better understand what role they play in society, and what impact they can make on the world around them. In addition to live briefs, educators saw the participation in sustainability-themed design competitions as a

useful exercise. The incentives associated with competitions were seen as motivation for students to put DfS into practice. As revealed in the data, to actively integrate DfS into practice, design professionals need to be driven by incentives. These incentives include financial benefits and recognition in the form of industry awards. In the context of academia, the most tangible form of incentives are the marks allocated in a particular brief. In order to encourage the uptake of sustainability practices, educators and students agreed that it would be important to include DfS as a rubric for assessment.

6.5.1.4 Facilitate collaboration between diverse design actors

The data highlighted the importance of engaging students in dialogue about DfS. For this to happen collaboration is critical. Educators must provide a platform for collaboration, and this can happen in various ways. For example, group projects can be initiated where students work in cross-disciplinary teams to address a social issue in the local community. Such collaboration will inspire knowledge sharing amongst peers, and according to Papanek (2000), only cross-disciplinary teams can properly serve the real design needs of the world. Collaborating with industry was seen as an important way to bring the conversation about DfS into a real world context. As previously mentioned, industry can contribute to the academic space by getting involved through presentations and excursions. In addition, they can extend their offering by providing internships to students. As expressed in the Hanover principles (see Table 2.1), it is important to "seek constant improvement by the sharing of knowledge" (Braungart & McDonaugh, 1992:5). With the awareness, knowledge and skills the students acquire through DfS-specific dialogue, they will be better equipped to integrate sustainability practices into their work.

6.6 Summary of tensions within the teaching, learning and practice activity systems

The discussion above has highlighted several tensions that exist in the Activity Systems. These tensions provide insights into why HEIs in Cape Town do not effectively integrate principles of sustainability into the communication design curricula, thus resulting in students failing to address the environmental, sociocultural and economic impact of their design solutions. The following three figures provide a detailed breakdown of the different Activity System elements for each of the three categories of actors in this study: design educators; design students; and design professionals. As discussed in Section 3.7.1, it is important to identify the tensions in an Activity System, and Activity Theory was found to be a suitable lens for highlighting such tensions. The main tensions relevant to this study will be explained in Section 6.6.1.

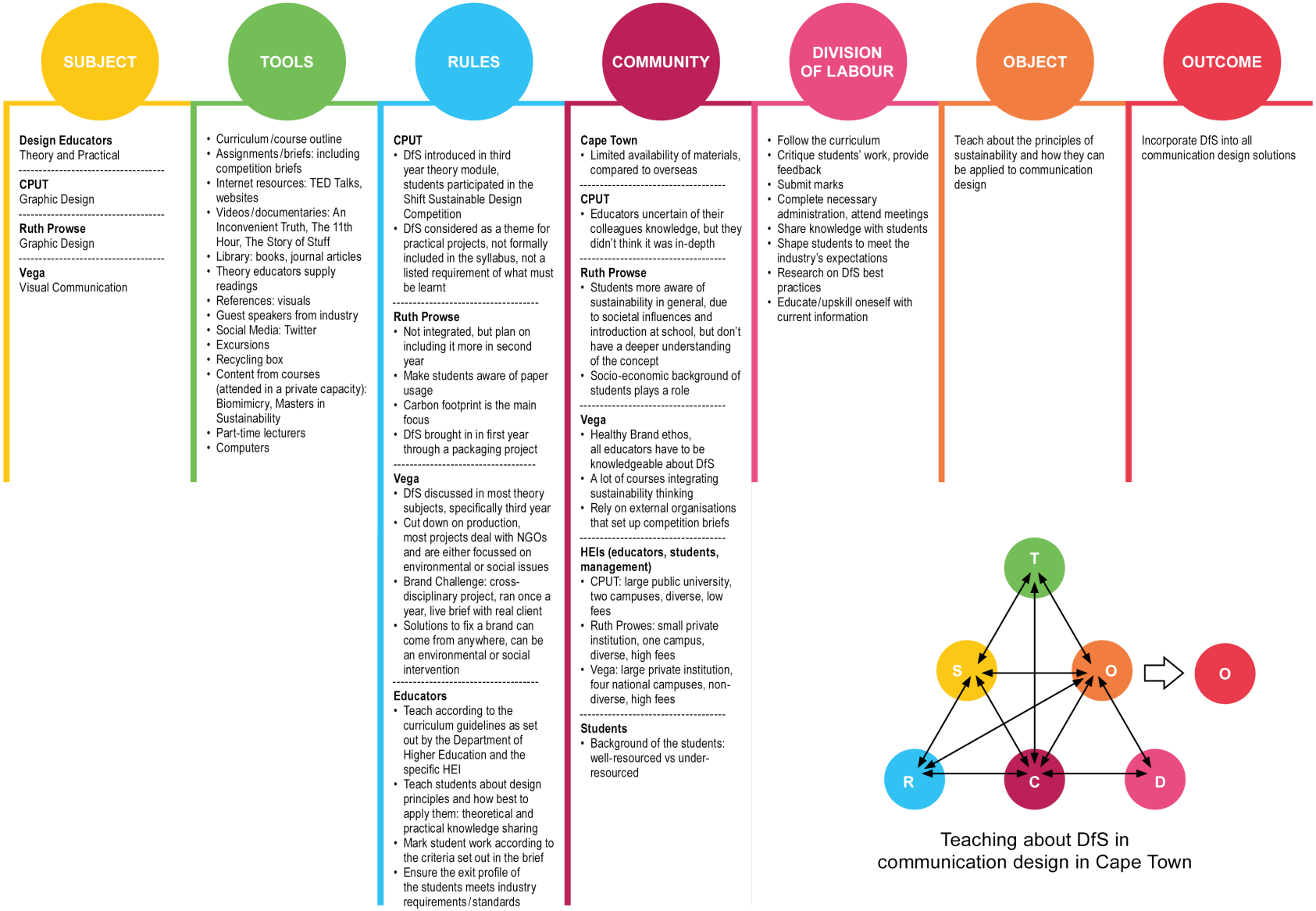

Figure 6.1: Design Educators' Activity System

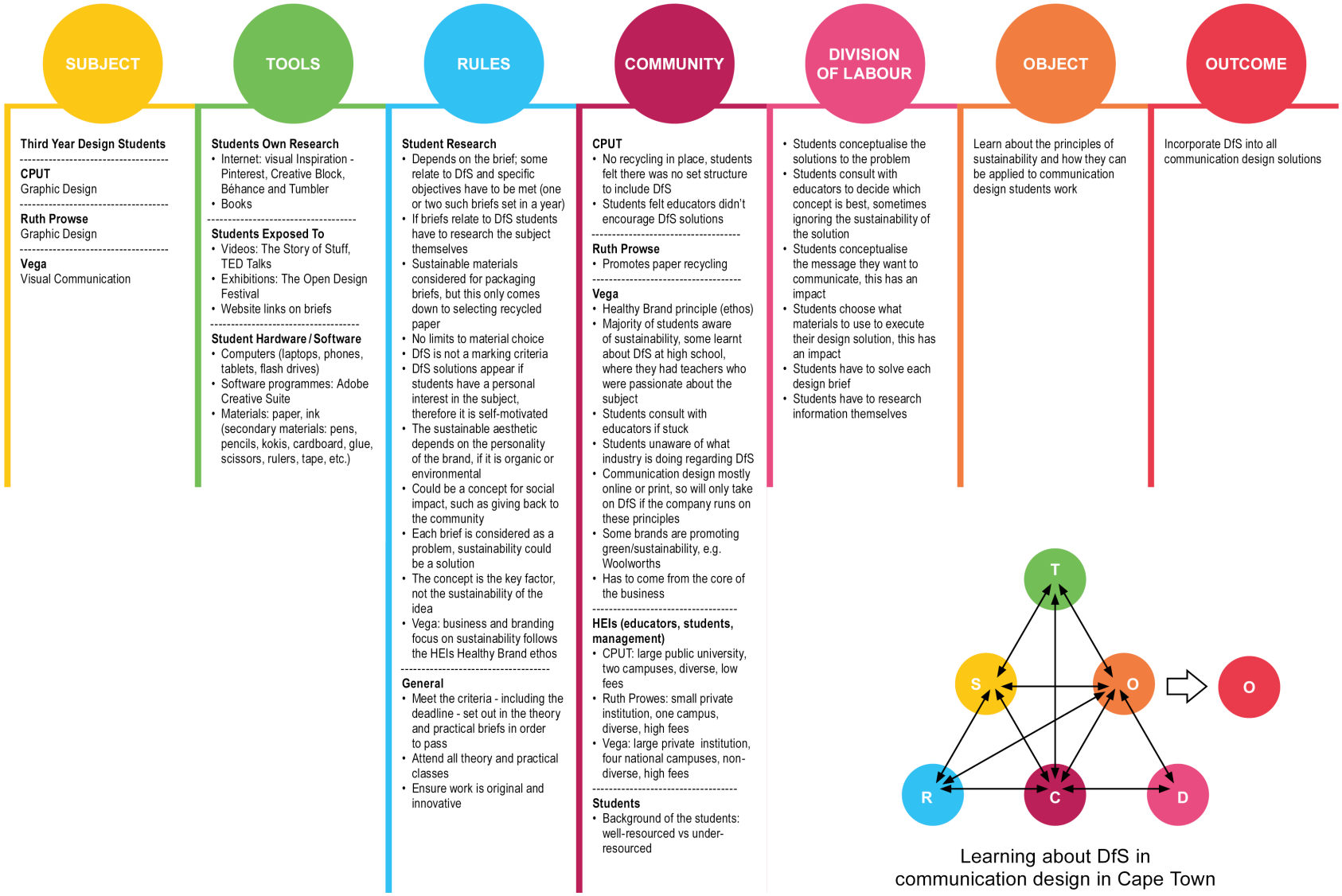

Figure 6.2: Design Students' Activity System

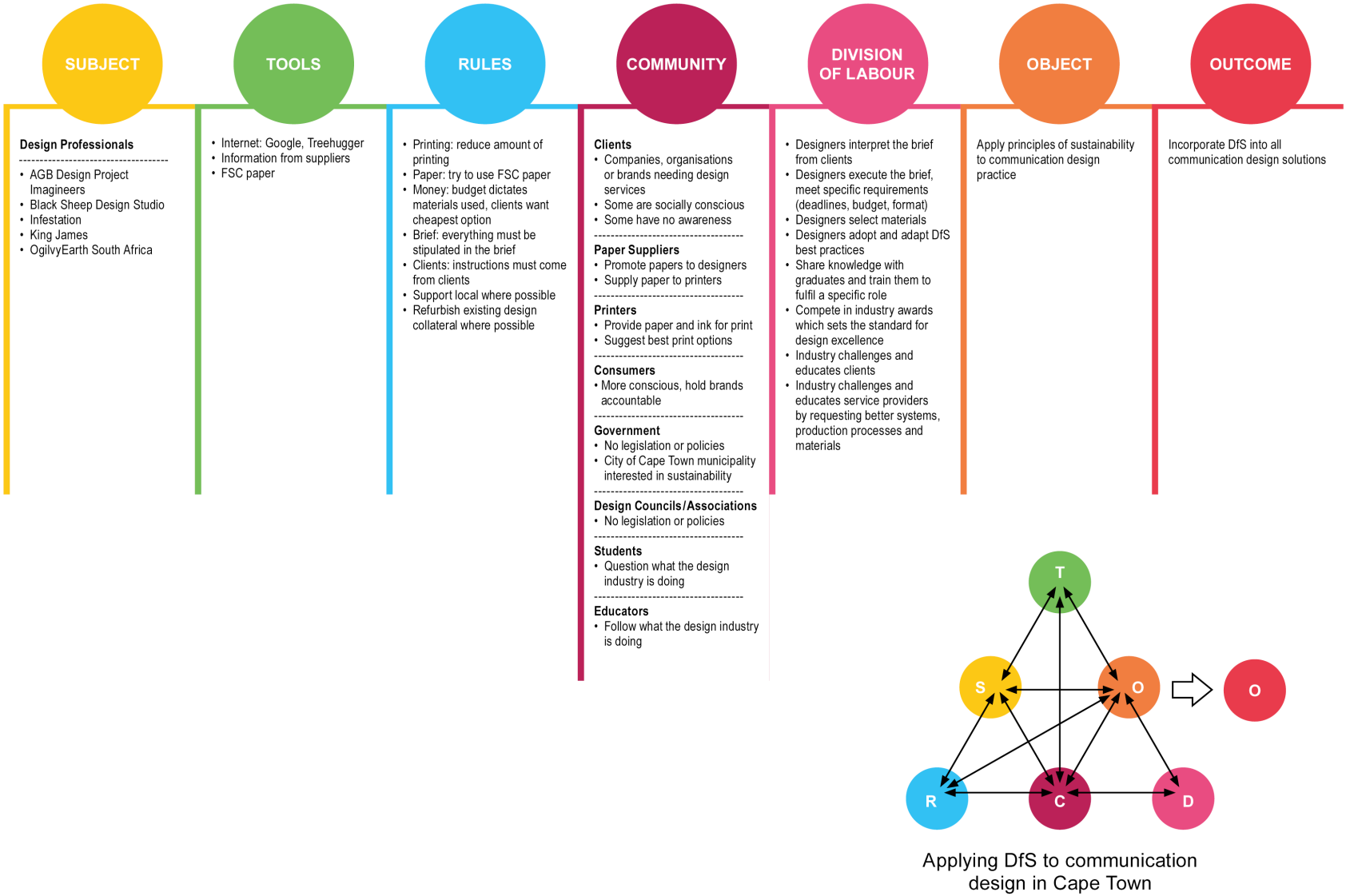

Figure 6.3: Design Professionals' Activity System

6.6.1 Main tensions within this study

Six main tensions have been identified in this study. As illustrated below, tensions can occur at many levels; they can be within the different elements of the specific Activity Systems, or between the different categories of actors. See Appendix H for visual summaries of the tensions found between the different elements in the three activity systems.

TENSION 1: DfS is defined by the following four pillars: environment, society, culture and economy. However, when students are introduced to the subject, it is almost exclusively under the environmental pillar.

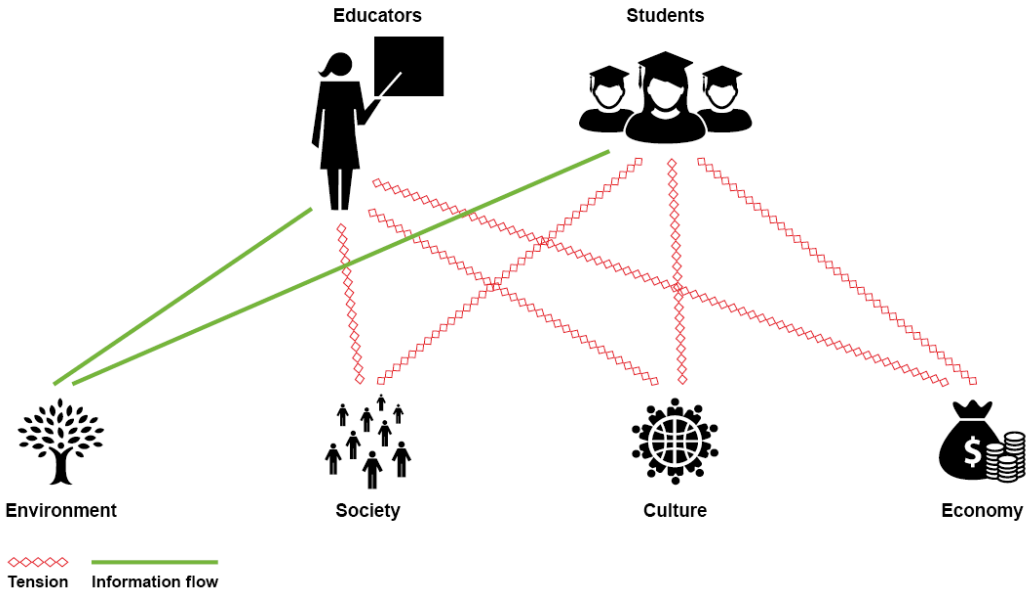

Figure 6.4: Tension 1

TENSION 2: Due to educators' lack of knowledge about DfS, students are not taught about the subject, yet they are expected to execute briefs that focus on environmental issues. They have not been taught about what material options are available, nor what other factors – such as life cycle analysis – are important to consider.

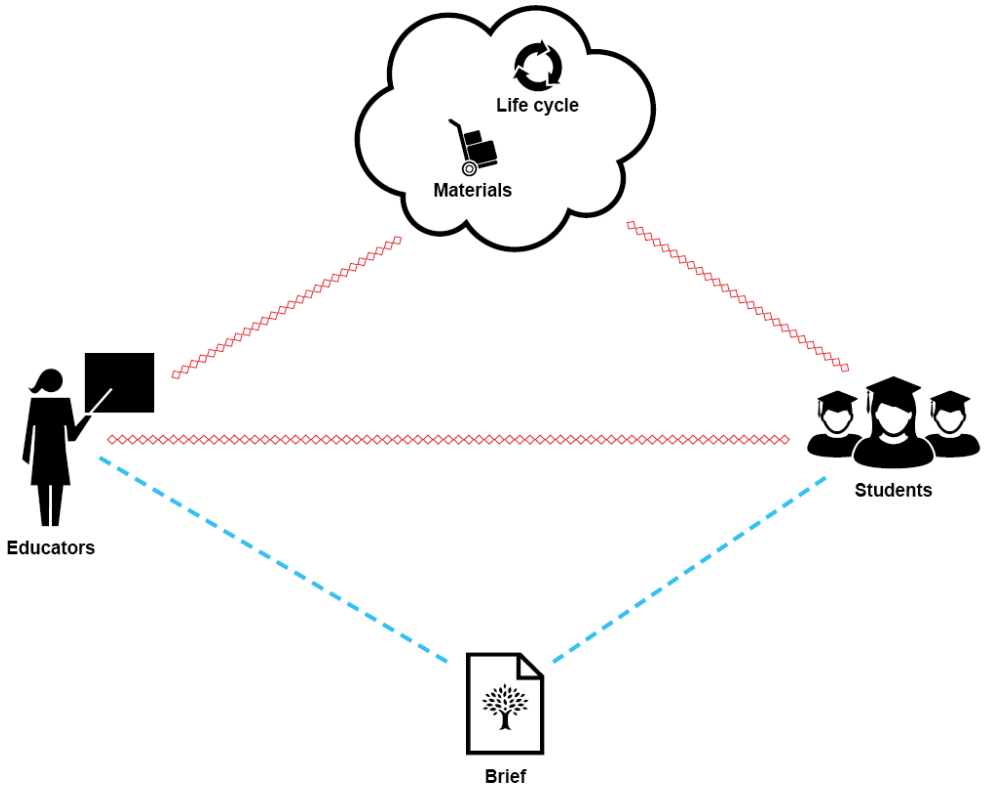

Figure 6.5: Tension 2

TENSION 3: The theory and practical teaching of DfS in communication design at HEIs is not aligned. Students are taught the theory of sustainability independently of having to implement it into their practical work.

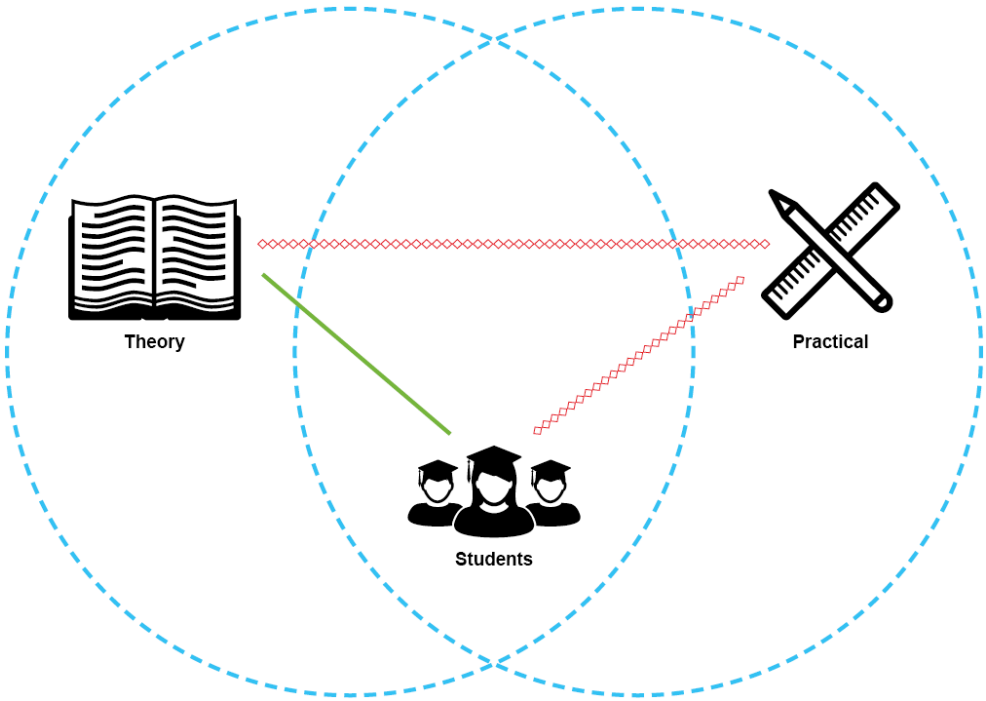

Figure 6.6: Tension 3

TENSION 4: Educators are waiting to be led in DfS best practice by industry, rather than leading the change themselves. In contrast, industry sees educators as having an important role to play in equipping students in the subject.

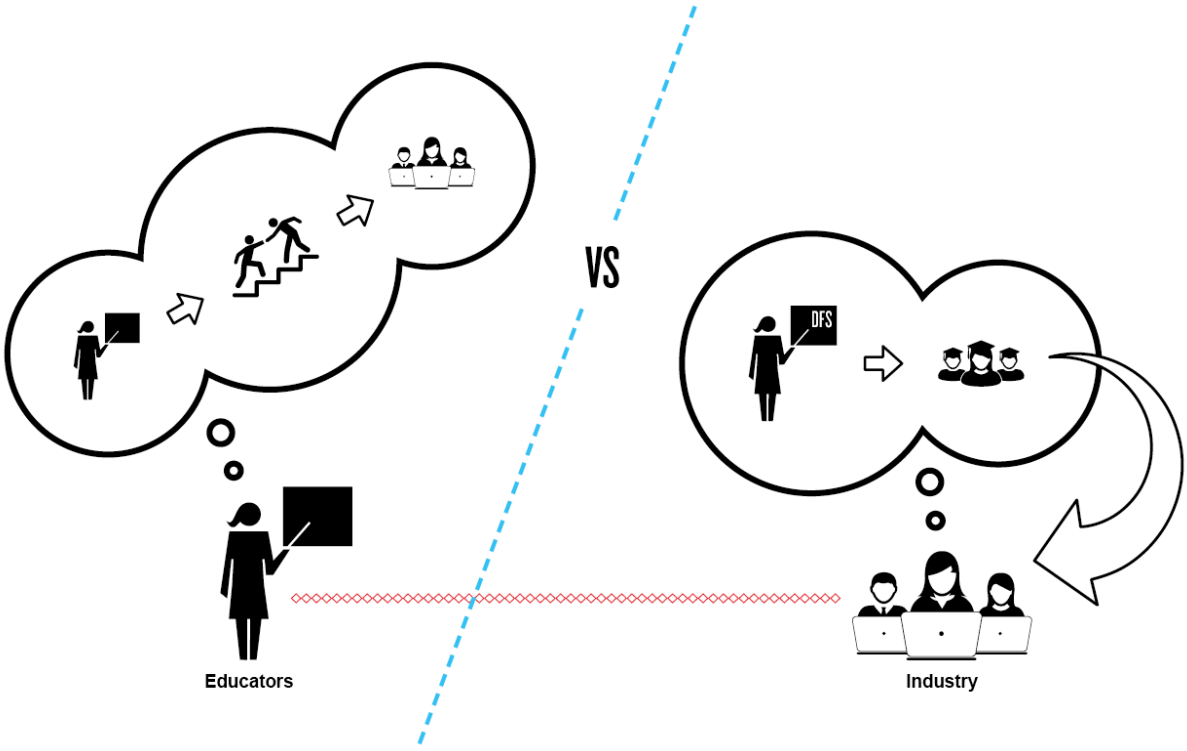

Figure 6.7: Tension 4

TENSION 5: Industry and educators believe communication design will have to practice sustainably in the near future, but they are not proactively applying it. Thus students do not consider DfS solutions in their work unless a specific brief insists on it.

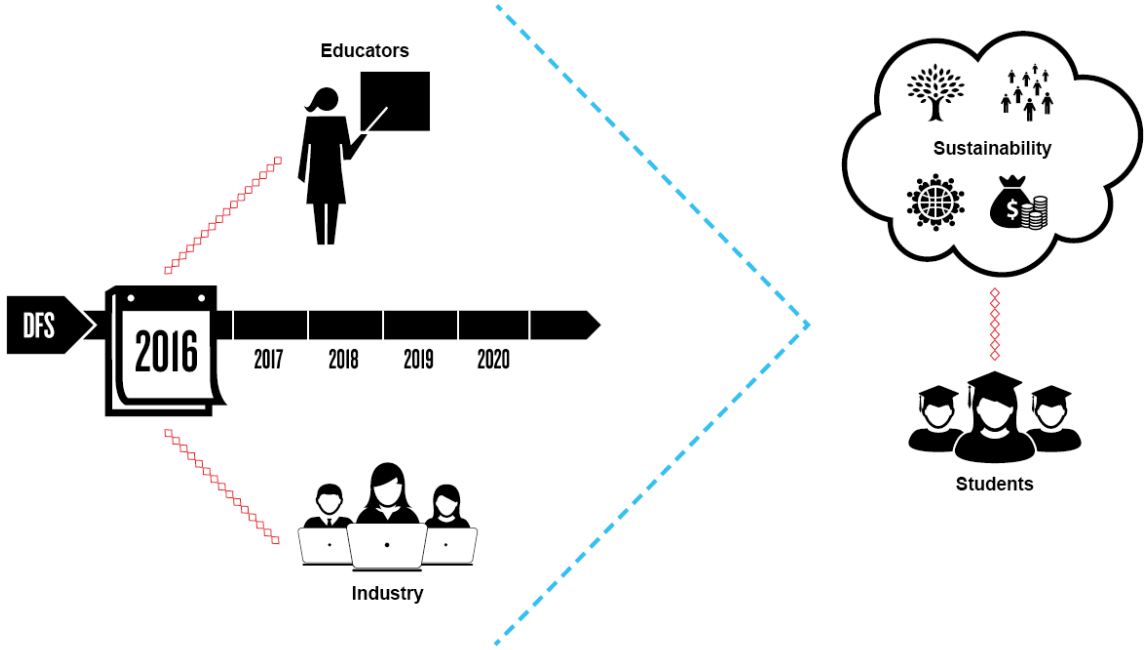

Figure 6.8: Tension 5

TENSION 6: Industry and students both recognise that DfS is important, however in order to implement the practice into their work they want to be incentivised rather than adopting principles of sustainability to address real world challenges out of sincerity.

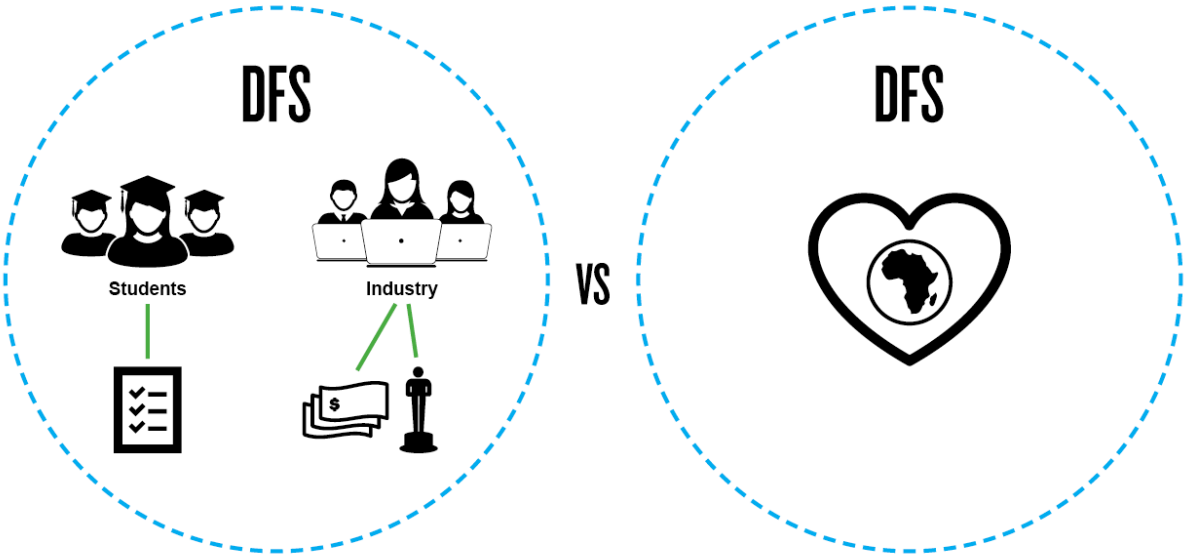

Figure 6.9: Tension 6

The above-mentioned analysis of tensions highlights the fact that key tensions occur between the different actors in the Cape Town communication design fraternity. There are tensions between the educators and the students, the students and design professionals, as well as between the educators and design professionals. Tensions also exist within the different Activity Systems (see Appendix H). The most common tensions emerging between the elements of the systems, in order of frequency, are as follows: subject and rules; subject and division of labour; subject and community; and subject and tools. In order to realise the desired outcome of the activity, which is to incorporate DfS into all communication design solutions (see Figures 6.1, 6.2 and 6.3), these tensions need to be addressed. Through understanding that the pervasive systemic tensions occur between the subjects, the rules and the division of labour, the researcher was able to propose guidelines that will attempt to lessen these tensions and help in the progression of DfS within the systems. These guidelines are discussed in Section 6.7.

6.7 Guidelines to integrate principles of sustainability into communication design curricula

Whereas the strategies to promote the uptake of sustainability principles discussed in Section 6.5 were based on the researcher's interpretation of the findings, the guidelines were not developed in isolation, but rather with input from the design educators through an online survey. Having researched existing global guidelines (see Section 2.6), the researcher wanted to establish a list of guidelines that were relevant to the local context.

The educators were asked to rank the guidelines proposed by the researcher according to their relevance to integrating principles of sustainability into the communication design curriculum. Based on how the educators ranked/prioritised the guidelines, the researcher has grouped the findings of the online survey into three tiers. See the Appendix F for the online survey and the data output.

6.7.1 Tier one guidelines

The following four guidelines were ranked as extremely relevant:

- Design for Sustainability (DfS) should be a formal inclusion in the communication design curriculum.
- Students should collaborate in multi- and inter-disciplinary groups on DfS briefs.
- DfS should be made relevant to the lives of students so that they can develop a personal connection with the subject.
- Students should work on live briefs, for real clients, which address sustainability issues in the local context.

There was overwhelming support for DfS to be formally included in communication design curricula. This corroborated the researcher's proposal that re-curriculation needs to take place in order for sustainability to be embedded in the curriculum. Throughout their education students should be taught to be agile, resilient and responsive to a changing industry and world around them. They should be trained to be critical thinkers and strategic problem solvers while maintaining reflectiveness in the decisions they make.

Equally important, the informants strongly agreed that students must be exposed to collaborative projects to ensure that sustainability is truly integrated into their learning. Such a platform for multi- and inter-disciplinary collaboration was provided by the year-long calendar of events during Cape Town's designation as World Design Capital 2014 (WDC2014). The legacy of WDC2014 should be consolidated through the activation of DfS co-design projects with HEIs and students from different disciplines.

Students must be exposed to global issues such as climate change and refugee migration to illustrate the importance of practicing DfS. This exposure should provide a holistic view, covering all pillars of sustainability. It is also important that these global issues are made relevant to the local context in which the students live. As mentioned in Section 6.5.1.3, the informants agreed that including live briefs into curriculum would not only position sustainability issues in the local context, but would motivate students to proactively engage with the subject.

6.7.2 Tier two guidelines

The following four guidelines were ranked as very relevant:

- DfS should be introduced as a subject from first year.
- DfS industry specialists should be brought in as guest speakers and/or guest lecturers.
- Educators from various HEIs should collaborate with local design networks to promote dialogue about DfS, and to develop communication design-specific resources to aid best practice in DfS.
- DfS should be integrated as a critical lens into all theory and practical subjects throughout the curriculum.

While the majority of informants agreed with the researcher that it was pertinent to introduce DfS from first year, the data suggested that a few of the informants did not feel as strongly, or that their opinion was neutral. Although no one ranked this inclusion as irrelevant, because there was not full support for it this could suggest that DfS may be seen as more useful as a core input in one of the other years.

The vast majority saw the inclusion of design professionals in the academic space as crucial. It must be noted, however, that a marginal percentage ranked this guidelines as irrelevant, thus skewing the results. This could possibly be due to the perceived lack of industry specialists (see Section 4.4.5). To overcome this, a database of existing knowledge experts in the field of DfS in communication design needs to be established; these could be both educators and design professionals. Then, to facilitate greater awareness of the subject, industry specialists must encourage experiential learning by offering student internship programmes, such as CPUT's *Work Integrated Learning* (WIL) programme.

The informants agreed with the researcher that in order to develop communication design-specific teaching guidelines and resources, educators from various Cape Town HEIs should collaborate across the pedagogic landscape. The LeNS Africa platform (see Section 2.6.2) should offer a good starting point for this dialogue. In the spirit of multi- and inter-disciplinary collaboration, communication design educators should work together with educators from other disciplines that have attempted to integrate sustainability into their teaching. Furthermore, local design bodies such as the Cape Town Design Network should advocate for industry policy that promotes the practice of DfS and encourages stronger relationships between industry and HEIs. They could also promote student communication design competitions addressing local sustainability issues.

The inclusion of DfS into all subjects across the curriculum was seen as applicable. The researcher believed that not only must re-curriculation take this into consideration, but equally important, it must ensure that the theory and practical components are aligned in terms of content and timing. To achieve this, existing theoretical and practical problem solving approaches and strategies such as *Sustainable Systems Thinking, Design Thinking* and *Designing Backwards* should be included in the curriculum (see Section 2.3).

6.7.3 Tier three guidelines

While the informants agreed with the researcher's proposed guidelines on the most part, the following were not as strongly supported as the researcher had anticipated:

- Aspects of DfS (environmental, socio-cultural and economic sustainability) should be practically applied in all design briefs.
- DfS should be assessed as a stand-alone marking criterion on every brief.
- To stay abreast of advancements in DfS, HEIs should invest in the continuous professional development of educators by sending them on regular training.
- HEIs should drive sustainability consciousness by using the learning space to promote sustainable lifestyle choices such as recycling programmes.

As discussed in Section 6.2, a gap was identified in that communication design briefs at the three selected HEIs predominantly focused on the environmental aspect of sustainability. To overcome this the researcher believes that design briefs should provide students with the opportunity to practically apply different aspects of DfS. While the majority of informants did see the relevance of this, it was not seen as very relevant and there was also a level of indifference towards this guideline. This could be a matter of the informants not understanding the value of DfS, or not having the knowledge to integrate the different aspects of it into briefs (see Section 6.3). Even if the design briefs remain focused on the environmental aspect, more digital design briefs could be introduced into the curriculum, and so lessen the amount of materials used. Notwithstanding, students should be taught how to measure the life cycle impact of all their design solutions.

On the question of whether DfS should be introduced as a marking criterion, it was considered relevant, but not as crucial. While the researcher proposed the allocation of marks for DfS on every brief, the survey results suggested that as long as the subject is taught, and awareness is created, the informants did not necessarily consider it important to specifically assess the students' ability to apply sustainability principles in their work.

With regards to keeping up to date with developments in DfS, most of the informants ranked attending regular training as very relevant, however there was also a high level of impartiality

towards this guideline. This is surprising since a key finding in this study was that educators did not feel they had enough knowledge about DfS to integrate it into their teaching (see Section 4.4.3). The informants possibly felt that such training would not be an effective use of their time, or that they simply did not have the capacity to attend additional commitments, as revealed in the findings of the semi-structured interviews with design educators in Section 4.4.4.

Most of the informants agreed with the researcher that HEIs have a responsibility to drive sustainability consciousness in their respective campuses. Interestingly, this was the only guideline that had rankings that were both impartial and irrelevant. This output could be the result of the informants' opinion that HEIs promoting sustainability and educators teaching about it were mutually exclusive. However, literature that looked into the barriers to incorporating sustainability into the curriculum (see Section 2.6.3) noted the lack of institutional support as a limitation to integrating sustainability into education.

By developing these guidelines, the researcher was able to meet an important objective of this study. The educators' support of the guidelines shows that incorporating principles of sustainability into curricula is a feasible recommendation. If this list of guidelines, together with the extended list of thirty-five in Appendix I is adopted, it will indeed enhance the uptake of DfS principles. Involving the educators in the online survey ensured that researcher bias was mitigated. Educators have been identified as thought leaders who play the most crucial role in actioning the proposed guidelines because they interface with both students and industry. For a summary of the guidelines in rank order, see Table 7.2 in Chapter Seven.

6.8 Summary

Chapter Six answered the research questions that informed this study. It also highlighted the key tensions that impacted on the efficacy of HEIs to incorporate principles of sustainability into the curriculum. Proposed guidelines to overcome these tensions were also discussed. The final chapter will present the general inferences and specific conclusions that were drawn. These conclusions relate directly to meeting the objectives of this study.

CHAPTER SEVEN
CONCLUSION

7.1 Introduction

This final chapter reviews the research objectives, and presents conclusions of this study. In addition, the chapter proposes guidelines for integrating principles of sustainability into Cape Town communication design curricula. This study's contribution to knowledge highlights the importance of this research. Limitations encountered during this study will be presented, and finally implications for further research will be proposed.

7.2 Revisiting the research objectives and research questions

The main objective of this study was to convey the importance, and feasibility, of incorporating sustainability principles into communication design curricula in order to advance design solutions that consider environmental, sociocultural and economic challenges. To achieve this aim, the following specific objectives were addressed:

- evaluating the level of awareness of sustainability within the communication design fraternity in Cape Town;
- showcasing successful outputs/exemplars based on the adoption of sustainable principles[10];
- developing guidelines for integrating the principles of sustainability into current communication design curriculum at locally-selected HEIs; and
- proposing appropriate strategies and tools to allow for local design educators and students to incorporate principles of sustainability within their specific communities of practice.

Revisiting the research questions, the following table summarises the sections in which each of the research questions was addressed.

Table 7.1: Revisiting the research questions

RESEARCH QUESTIONS	Sections that specifically address the research questions	
1. Why are principles of sustainability not widely incorporated into communication design curricula?	**2.6.3**	Barriers to incorporating sustainability into higher education
	4.4	Barriers to better incorporating DfS into the curriculum
	6.3	Barriers to better incorporating DfS into the curriculum
2. Why should these principles be incorporated into the curriculum?	**2.2**	The role of the principles of sustainability
	2.6.1	Why sustainability education is important
	2.7.1	How design can address Cape Town's challenges
	2.7.4	Design Education for Sustainability: the African context
	4.7	Relevance of integrating DfS into the curriculum
	5.6	Relevance of including DfS in the curriculum
	6.4	Relevance of integrating DfS into the curriculum

[10] For a comprehensive database of inspiring exemplars of sustainable communication design refer to the CD-ROM appended at the end of this thesis.

3. With regards to sustainability, what is the level of awareness amongst communication design educators and students?	**4.2.1** **4.2.2** **4.3** **4.3.4** **6.2.1**	Educators' level of awareness about DfS Educators perception of students' awareness about the concept of sustainability Students exposure to the concept of sustainability Students perception of how communication designers could most effectively practice DfS Communication design educators' and students' awareness of sustainability
4. At what stage, if at all, are students currently introduced to the concept of design for sustainability?	**4.2.3** **4.3.1** **6.2.2**	Educating students about DfS Learning about DfS Students' exposure to DfS throughout their studies
5. What is the level of engagement with principles of sustainability amongst educators and students?	**4.2.5** **4.3.3** **6.2.3**	Educators perceptions of linking sustainability to design briefs How students applied sustainability principles to their design solutions Engaging with principles of sustainability
6. What strategies can be applied to promote the uptake of sustainability principles?	**2.3** **2.6.4** **2.7.5** **4.2.4** **4.6** **5.5** **6.5**	Proposed problem solving approaches and design strategies for applying principles of sustainability to communication design Proposed strategies for integrating sustainability in higher education Communication design education for sustainability: the South African context Strategies and tools used by educators for accessing and sharing information about DfS Possible solutions for promoting the integration of DfS into teaching and practice Possible solutions for promoting the integration of DfS into pedagogy Solutions for promoting the integration of DfS into teaching and practice

The conclusions drawn from the abovementioned objectives and questions – from the primary and secondary data collected in this study – are presented in the following section.

7.3 General inferences and specific conclusions

This study has found that there is a general lack of understanding of and knowledge about sustainability in academia and industry. This leads to an inability to grasp the holistic meaning and therefore relevance of sustainability. In the context of communication design, sustainability is largely seen as a theoretical concept with little to no understanding of how it should be applied practically.

Sustainability is misunderstood to be an exclusively environmental issue with little comprehension of how the other pillars of sustainability – social, cultural and economic – are integral to communication design. Other design disciplines are the ones considered to have a responsibility when it comes to implementing sustainability. Architecture, which incorporates sustainability practices into its curriculum, is one such discipline. In contrast, integrating sustainability into the communication design curriculum is not considered as important. As a

result, the inclusion of sustainability into pedagogy is reliant on educators' and students' personal interest in the subject.

The existing principles of sustainability, as well as the majority of resources and examples of DfS that are available, originate from a western point of view. These are mostly generic and are not particularly relevant to the South African design context. Not only is the local communication design industry lagging behind, it also has an apathetic approach to putting sustainability into practice. Whereas communication designers have the potential to tell stories that change people's behaviours towards more sustainable lifestyles choices, this opportunity is largely missed.

Communication design education is currently following industry's lead rather than being the conduit to help drive change in industry. This highlights the need for collaboration and knowledge sharing between academia and industry to define and drive best practices in DfS.

As demonstrated by OgilvyEarth South Africa suspending its operations (see Footnote on page 103), the demand for sustainability practices from local clients is not yet great enough; hence communication design professionals do not feel they have an obligation to adopt it in any significant way. This identifies the need for a combination of advocacy and *Design Activism*. While advocacy is more about creating awareness, activism is stating its dissatisfaction with the status quo. It is up to the communication design fraternity to conscientise clients and the general public about the severe consequences of not addressing issues of sustainability.

Because HEIs are ground zero (for disseminating information about sustainability), the researcher believes that design educators play the most critical role. Currently students are not made aware of the opportunity and responsibility they have as communication designers to become agents of change who can positively impact the world around them. Design educators must therefore be equipped to integrate contextually relevant principles of sustainability into the curricula.

7.4 Proposed guidelines

Chapter Six presented various solutions, based on the data, for promoting the integration of DfS into teaching and practice. It also highlighted the various tensions within and among the Activity Systems of teaching, learning and practicing DfS. As discussed in Section 6.6.1, there are tensions between the three categories of actors. The figure below provides an overview of the tensions within the Cape Town communication design community.

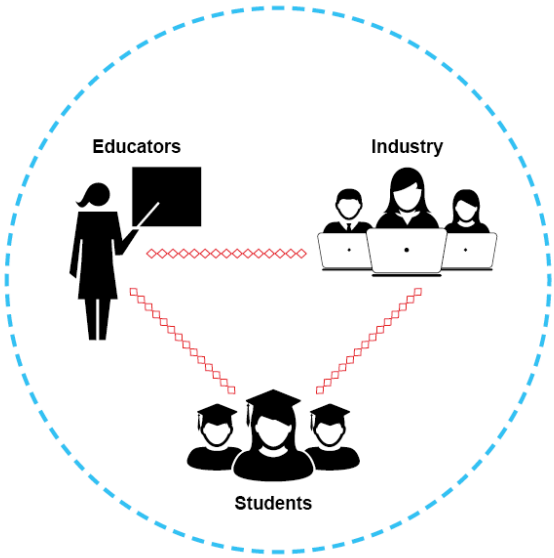

Figure 7.1: Tensions within the Cape Town communication design community

To overcome these tensions, this study proposes a number of guidelines for integrating principles of sustainability into communication design curricula. As previously mentioned in Section 6.2.1, Perullos (2013) and Dritz (2014) identified the need for developing DfS guidelines for the communication design fraternity. This further justifies one of the study's aims to develop such guidelines for local HEIs.

As discussed in the previous chapter the educators were asked to rank the guidelines. The following table summarises the key guidelines in order of rank and the impact on the three actor categories. These are based on the educators understanding of the priorities for integrating principles of sustainability into communication design curricula. See Appendix I for a full list of guidelines developed by the researcher.

Table 7.2: Guidelines for integrating principles of sustainability into communication design curricula, in order of relevance

PROPOSED GUIDELINES	DESIGN EDUCATORS	DESIGN STUDENTS	DESIGN PROFESSIONALS
1. Design for Sustainability (DfS) should be a formal inclusion in communication design curricula	**X** Requires re-curriculation	**X** Promotes strategic problem solving	**X** Produces graduates with valuable knowledge and skills
2. Students should collaborate in multi- and inter-disciplinary groups on DfS briefs		**X** Promotes a collaborative mindset and prepares students for industry	
3. DfS should be made relevant to the lives of students so that they can develop a personal connection with the subject		**X** Puts sustainability into context	

4. Students should work on live briefs, for real clients, which address sustainability issues in the local context	**x** Keep abreast of local issues and encourage industry-standard design solutions	**x** Opportunity to positively impact society	
5. DfS should be introduced as a subject from first year	**x** Opportunity to bring everyone to the same level	**x** DfS becomes inherent to the design process	
6. DfS industry specialists should be brought in as guest speakers and/or guest lecturers	**x** Opportunity to keep abreast of industry practice	**x** Opportunity to keep abreast of industry practice	**x** Opportunity to share knowledge and challenge the education space
7. Educators from various HEIs should collaborate with local design networks to promote dialogue about DfS and develop communication design-specific resources to aid best practice in DfS	**x** Opportunity for more robust engagement with industry and to establish best practice		**x** Opportunity for more robust engagement with academia and to establish best practice
8. DfS should be integrated as a critical lens into all theory and practical subjects throughout the curriculum	**x** Requires re-curriculation with specific alignment of theory and practical	**x** Opportunity to apply theoretical knowledge to practical projects	**x** Produces graduates with transferable theoretical knowledge and practical skills
9. Aspects of DfS (environmental, social-cultural and economic sustainability) should be practically applied in all design briefs	**x** Opportunity to challenge students to think beyond the environmental aspect of DfS	**x** Opportunity to conceptualise, test and practically apply DfS holistically	
10. DfS should be assessed as a stand-alone marking criterion on every brief	**x** Opportunity to develop a sustainability score sheet to assist students to meet specific criteria	**x** Incentivises students to practice DfS in all briefs	
11. To stay abreast of advancements in DfS, HEIs should invest in the continuous professional development of educators by sending them on regular training	**x** Keep abreast of current thinking and practice, build confidence in the subject, and transfer the knowledge into their teaching	**x** Opportunity to learn from and be inspired by the educators' knowledge	**x** Opportunity for industry specialists to train educators
12. HEIs should drive sustainability consciousness by using the learning space to promote sustainable lifestyle choices such as recycling programmes	**x** Opportunity for teaching to align with the ethos of the HEIs	**x** Positions sustainability in a local context	

The above table presents specific inputs, in the form of guidelines, which should be implemented into communication design education before the specific goal of incorporating DfS into all communication design solutions can be achieved.

7.5 Contributions to knowledge

This study set out to look at ways of integrating sustainability into communication design education. The findings proved that the majority of industry actors were not attempting to implement sustainability, highlighting the importance of education leading the way. This study thus proposes a practical set of guidelines that are easily adaptable/adjustable for uptake by interested stakeholders.

This research makes a specific contribution to the call by the South African Council of Higher Education to HEIs to re-curriculate their programmes. CPUT, along with other HEIs, are going through the process of re-curriculation. By identifying the importance of educating students about DfS and equipping them with the skills to implement sustainability into industry practice, this study motivates for the proactive inclusion of sustainability as a meta-issue in the communication design curriculum. It also suggests various strategies and tools that educators can use to incorporate sustainability principles into their teaching. This study makes a direct contribution towards bolstering such efforts at industry-responsive re-curriculation, as well as strengthens CPUT's aspirations at scholarly leadership in the field of DfS.

This study has identified that having industry standards for practicing sustainability can aid in the uptake of DfS. In the Cape Town communication design fraternity no such standards exist; and not all global practices can be adopted locally. This highlights the urgent need for local standards and resources to be developed to promote and guide sustainable communication design practice. Consequently, this study in and of itself sensitised participating design educators, design students, and design professionals to the need to embrace the DfS ethos in both theory and practice.

7.6 Limitations of the research

The communication design students who participated in this study provided important insights into the activity of learning about DfS in Cape Town. The researcher had initially conducted an online survey with CPUT, RP and Vega students who were at the end of their third year programme. Due to the low response rate to the online survey, the results were not considered to be representative of the wider communication design student population. Three focus groups were subsequently conducted with the new intake of third year students the following year. Because these students were only in the beginning of their third year

programme, they had not yet been exposed to theory and practical sustainability projects that the educators had alluded to. This resulted in contradictions between what the educators said they had taught, and what the students said they had learnt (see Sections 4.3.1 and 6.2.2). Therefore it would have been useful to conduct focus groups with students at the end of their third year to understand if their exposure and engagement with DfS had increased in any significant way. This stated limitation subsequently confirmed the need to incorporate DfS as early as in the first year of study.

A further limitation had to do with the tools and technologies that were used to conduct the *Guidelines for Integrating Principles of Sustainability into Communication Design Curricula* online survey with educators. Firstly, although Google Forms allows for the survey to be embedded into emails, there was an issue with submitting the completed survey for participants using certain email services such as Outlook. The solution was to request that all the participants complete the survey directly through the Google Forms website. Secondly, because the survey responses could not be traced back to the participants, the responses were anonymous. In hindsight, for the few responses that were surprising to the researcher, it would have been useful to know who the participants were so that follow-up questions could be asked. In future the researcher would select a different tool that would not result in the same issues.

7.7 Implications for further research

Many important findings were discovered from the research, but they did not all fit within the scope of this study and therefore offer opportunity for further research.

- The researcher has stopped short of testing the proposed guidelines in real practice. Further research is required to test the effectiveness of the guidelines.

- More research needs to be conducted to find opportunities for communication design education to contribute to the Western Cape Government's sustainability agenda of building a green economy and improving the lives of its citizens through collaboration with government and industry.

- Within the Cape Town context where unemployment is high, further research should interrogate means of expanding the communication design curriculum to integrate DfS as a skill set that allows graduates to promote themselves as having specialist knowledge, thus encouraging entrepreneurship and job creation.

- Further research is required to understand how students' backgrounds and local context influence their approach and receptiveness to adopting sustainable principles as part of their design ethos.

- Research should interrogate the manner in which the communication design industry can champion DfS. This could include looking at what incentives would motivate industry to practice DfS, and in turn increase collaboration with education, further encouraging integration into the curriculum.

- There is also a need for research that will result in the development of local industry standards and resources for practicing DfS, as well as what materials and production practices are locally available to enable communication designers to better integrate sustainability into their work.

- Research could also establish opportunities for an active local (Cape Town-based) network that promotes DfS thinking among interested parties.

- Lastly, research into developing Continuous Professional Development (CPD) credit bearing-courses needs to be conducted. These courses, which would be recognised by various professional bodies, could be made available to in-service practitioners (design educators and design professionals).

7.8 Summary

This thesis argues for the incorporation of DfS into communication design curricula of HEIs in Cape Town and beyond. DfS is viewed as being critical in the preparation of students for professional practice, not only in communication design, but in all design discourse. Additionally, the recent promulgation of the seventeen Sustainable Development Goals[11] (see Figure 7.2) and their accompanying one hundred and sixty-nine Targets by UN member countries lends impetus to the realisation by the global community of the need to address sustainability in an urgent and more holistic manner.

[11] For a full list of the Sustainable Development Goals see: https://sustainabledevelopment.un.org

Figure 7.2: Graphic summary of the Sustainable Development Goals (UN Sustainable Development Knowledge Platform, n.d.)

In conclusion, this thesis places the onus on design educators who are deemed responsible for preparing the next generation of design leaders with the requisite knowledge and skills to make a meaningful impact not only on their profession, but also on the world at large. Finally, this thesis contributes to the rich discourse of DfS by proffering a set of adaptable guidelines for incorporation into the communication design curricula for progressive HEIs.

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Credits for the icons used throughout this thesis, sourced from The Noun Project
https://thenounproject.com/

Aaron K. Kim: *Culture*, pages 18, 138 and 140
Aha-Soft: *Helping hand*, page 140
Ana Maria Lora Macias: *Warehouse*, page 20
Bohdan Burmich: *Arrow*, page 140
Brian Hurshman: *Tree*, pages 138, 139 and 140
Calvin Goodman: *Delivery box*, page 20
Cezary Lopacinski: *Money*, page 141
Francesco Terzini: *Mark sheet*, page 141
Gabriela Rodriguez: *Pencil and ruler*, page 139
Georgia Osinga: *World*, page 141
Gerald Wildmoser: *Educators,* page 138, 139, 140 and 149
Gira Park: *Economy*, pages 18, 138 and 140
Juan Pablo Bravo: *Thought bubble*, page 139 and 140
Lioc Poivet: *Bindery*, page 20
Loren Klein: *Recycle*, page 20
Luis Miguel Oliveira Caldeira: *Trolley*, pages 18 and 139
Magicon: *Society*, pages 18, 138 and 140
Oscar Yanez: *Trophy*, page 141
Ruben Steeman: *Bin*, page 18
Sara Jeffries: *Transport*, page 18
Sergey Novosyolov: *Heart*, page 141
Stephen Plaster: *Calendar*, page 140
Takao Umehara: *User*, page 20
Tommy Lau: *Printer*, page 20
Tran: *Bin*, page 20
Wilson Joseph: *Industry, Students*, pages 18, 138, 139, 140, 141 and 149

APPENDICES

APPENDIX A: Hyperlinks to the following documents and teaching resources:

The Hannover Principles
http://www.mcdonough.com/wp-content/uploads/2013/03/Hannover-Principles-1992.pdf

The SCALES Principles / Design Education and Sustainability project (DEEDS)
http://arts.brighton.ac.uk/__data/assets/pdf_file/0003/42762/DEEDS-24-core-principles.pdf

The GDC Sustainability Values and Principles
https://www.gdc.net/about/sustainability/values-and-principles

The Living Principles for Design
http://livingprinciples.aiga.org/wp-content/uploads/2013/06/LivingPrinciples_Framework.pdf

Designers Accord
http://www.designersaccord.org/

Learning Networks on Sustainability
http://www.lens.polimi.it/

Teaching Guide for The Designer's Atlas of Sustainability
http://www.designers-atlas.net/teaching-resources/

APPENDIX B: Informant consent form for design students

Consent Form: Students

Study Title: *Integrating principles of sustainability into Communication Design pedagogy at selected HEIs in Cape Town: towards an industry-responsive curriculum*

Investigator: *Laskarina Yiannakaris, Mtech Candidate*

Ms. Yiannakaris is a masters candidate currently investigating how the principles of sustainability can be integrated into the Communication Design curricula, in order to advance design solutions that consider environmental, sociocultural and economic challenges. Although the study will not benefit you directly, it will provide information that might enable design educators to better include the concept of Design for Sustainability into the course offering.

The study supervisors and other appropriate authorities at the Cape Peninsula University of Technology (CPUT), in the Western Cape Province, have approved the study and its procedures. The study procedures involve no foreseeable risk or harm to you.

Participation in this study will take approximately 40 (forty) minutes of your time.

Please feel free to ask any questions about the study or about being a participant/informant. You may call Ms. Yiannakaris on 074 1017099 (mobile) during office hours if you have further questions. Additionally, you can contact her via email: <masters@laskarina.co.za>.

Your participation in this study is voluntary; you are under no obligation to participate and you have the right to withdraw at any time should you choose to do so. Please note that your identity will not be revealed while the study is being conducted, or when the study is reported or published, unless you give explicit consent to do this. To ensure anonymity and confidentiality, all study data will be collected by Ms. Yiannakaris, stored in a secure place, and not shared with any other person without your permission.

• I have read this consent form and voluntarily consent to participate in the study:

..... *Name*	..... *Email Address*
..... *Signature of Participant/Informant*	..... *Date*
..... *Signature of Witness*	..... *Date*

• I have explained this study to the above subject and have sought his/her understanding for informed consent:

..... *Signature of Investigator*	..... *Date*

Thank you for your valued time and input.

APPENDIX C: Informant consent form for design educators and design professionals

Consent Form: Design Educators

Study Title: *Integrating principles of sustainability into Communication Design pedagogy at selected HEIs in Cape Town: towards an industry-responsive curriculum*

Investigator: *Laskarina Yiannakaris, Mtech Candidate*

Greetings. I am a masters candidate at the Department of Informatics and Design, CPUT, currently investigating how the principles of sustainability can be integrated into the Communication Design curricula, in order to advance design solutions that consider environmental, sociocultural and economic challenges. Subsequently, I wish to conduct a semi-structured interview with you, to gain insight into the course offering at your institution, specifically regarding Design for Sustainability.

Kindly answer the interview questions as candidly as possible. Your responses will be cited in my dissertation, unless you explicitly object. Kindly confirm whether (or not) you wish to have your responses published.

Contact Details:

Name of Interviewee	
Academic Institution	
Position	
Phone #	
Email	

Authorisation to publish responses:

I hereby request your authorisation to publish your responses in my dissertation:

....

Signature of Interviewee *Date*

....

Signature of Investigator *Date*

Thank you for your valued time and input.

APPENDIX C:

Consent Form: Design Professionals

Study Title: *Integrating principles of sustainability into Communication Design pedagogy at selected HEIs in Cape Town: towards an industry-responsive curriculum*

Investigator: *Laskarina Yiannakaris, Mtech Candidate*

Greetings. I am a masters candidate at the Department of Informatics and Design, CPUT, currently investigating how the principles of sustainability can be integrated into the Communication Design curricula, in order to advance design solutions that consider environmental, sociocultural and economic challenges. Subsequently, I wish to conduct a semi-structured interview with you, to gain insight into the local Communication Design industries level of engagement with Design for Sustainability.

Kindly answer the interview questions as candidly as possible. Your responses will be cited in my dissertation, unless you explicitly object. Kindly confirm whether (or not) you wish to have your responses published.

Contact Details:

Name of Interviewee	
Company	
Position	
Phone #	
Email	

Authorisation to publish responses:

I hereby request your authorisation to publish your responses in my dissertation:

....
Signature of Interviewee *Date*

....
Signature of Investigator *Date*

Thank you for your valued time and input.

APPENDIX D: Discussion guide used in the focus groups with design students

Discussion Guide: Student Focus Group

Section 1: Knowledge

1. Where did you first hear about sustainability?
2. Where did you first learn about DfS?
3. Have you had any training on DfS at CPUT/RP/Vega?
4. When were you introduced to the concept of DfS at CPUT/RP/Vega?
5. Did you learn any general theory or practical techniques about DfS?
6. How often has DfS been incorporated in your design briefs?
7. In your opinion, what has the biggest impact on your design solutions being sustainable?
8. What teaching techniques have you enjoyed at CPUT/RP/Vega?
9. What techniques would you like CPUT/RP/Vega to use, to teach you about DfS?
10. Do you think that your educators encourage you to design in this way?
11. Where do you access information on DfS?

Section 2: Usage

11. Briefly explain how you integrated DfS into your projects.
12. What factors prevent you from using DfS principles in your design solutions?
13. What would be the most useful way to gain practical experience in DfS?
14. Do you feel adequately equipped with the appropriate skills, and tools to apply DfS principles to future projects?

Section 3: Design for Sustainability in Context

15. Do you know of any communication design companies that focus on DfS?

APPENDIX E: Discussion guide used in the semi-structured interviews with design educators and design professionals

Interview Guides: Educators and Design Professionals

It is important to note that these are examples of guidelines that were used in the interview session. Each interview was tailored to the specific personality/business offerings/traits of the person or company being interviewed.

Educators

Opening Questions:

1. Please provide a brief overview of the subject you teach.
2. Would you say that most of the educators at _____ are familiar with DfS?
3. Has DfS been taught to any of your students to date?
4. In which year of study do you introduce DfS to your students?
5. Can you give examples of the DfS content that you cover with your students?
6. Does the theoretical component support the practical component of the course?
7. In the current academic year were there any projects that focused on DfS?

Level of engagement with DfS:

1. Do you ensure that you stay up do date with the subject?
2. Do you think the students are interested in the subject, do they engage with it on a personal level?
3. What do you think are the best resources for students to stay up do date with the DfS?
4. In the design education space, what do you think are the main barriers to having a greater focus on DfS?
5. What do you think could motivate educators to engage more regularly with DfS?
6. Do you intend to continue teaching DfS Principles in future projects?
7. Do you feel there is a growing demand from industry to employ students who are better informed and equipped with tools for DfS?
8. Do you have any suggestions on how to encourage stronger discourse between industry and education institutions, specifically with regards to sustainable design methodologies?

Design Professionals

Level of engagement with DfS:

1. Would you say that most of the designers at _____ are familiar with the concept of DfS?
    a. How often do they put it into practice?
    b. Do you think the CT industry understands this terminology?
2. Do you ensure that your company stays up do date with the subject?
3. What aspects of DfS do you find most relevant to the discipline of communication design?
4. In the local communication design industry, what do you think are the main barriers to having a greater focus on DfS?
5. What do you think could motivate designers to engage more regularly with DfS?
6. Do you know of any existing legislation/policy or incentives to design in this way?

APPENDIX E:

7. Do you find that you're educating your clients about sustainability? Do you guide clients to make the right decisions? Or are clients requesting that you design in this way?
8. How important is cross-disciplinary projects in your studio? Do they happen often?

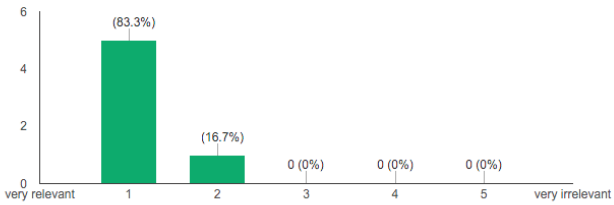
Young Designers:

1. Do you feel there is a growing demand from industry to employ students who are better informed and equipped with tools for designing sustainably?
2. Do you think DfS principles should be incorporated into the curriculum? Why?
3. Do you hire young designers fresh out of university?
4. If yes, what do you look for most in a graduate/young designer? Do you have a preference of where you hire students from?
5. Do you notice a difference in recently graduates, are they more in touch with DfS, do they see themselves as agents of change?
6. Do you feel there is a mindfulness on the part of industry to employ students who are better equipped with tools for designing sustainably?
7. Do you have any suggestions on how to encourage stronger discourse between industry and education institutions, specifically with regards to sustainable design methodologies?

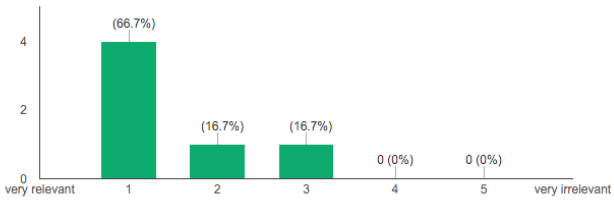
APPENDIX F: Hyperlink to the online survey and the analytical summary of the responses

https://docs.google.com/forms/d/11SKHhr30_qFM9wOu4hMnnDGMsSxI1iFpsLKUY47_tYI/viewform

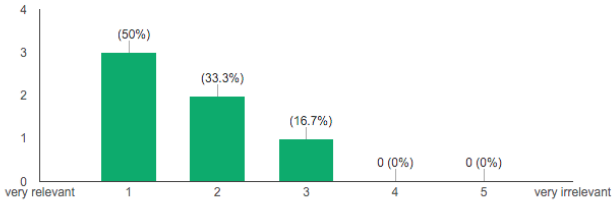
1. Design for Sustainability (DfS) should be a formal inclusion in communication design curriculum.



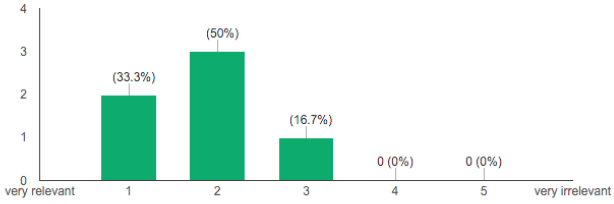
2. DfS should be introduced as a subject from first year.



3. DfS should be integrated as a critical lens into all theory and practical subjects, throughout the curriculum.

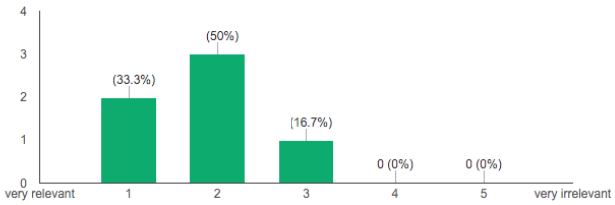


4. Aspects of DfS (environmental, social-cultural and economic sustainability) should be practically applied in all design briefs.

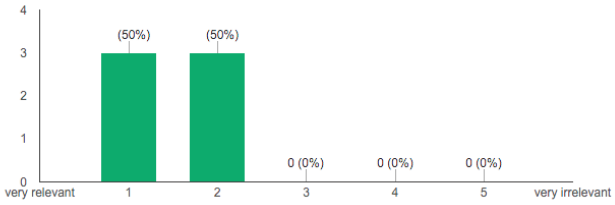


APPENDIX F:

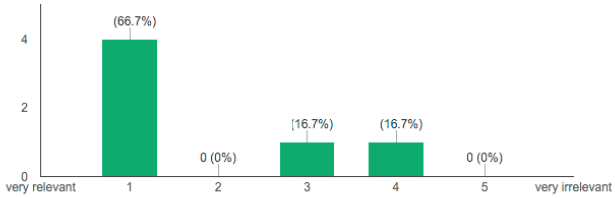
5. DfS should be assessed as a stand-alone marking criteria on every brief.



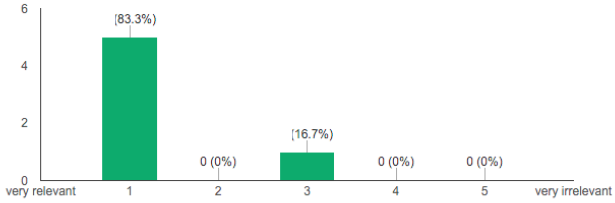
6. DfS should be made relevant to the lives of students, so that they can develop a personal connection with the subject.



7. HEIs should drive sustainability consciousness by using the learning space to promote sustainable lifestyle choices, such as recycling programmes.

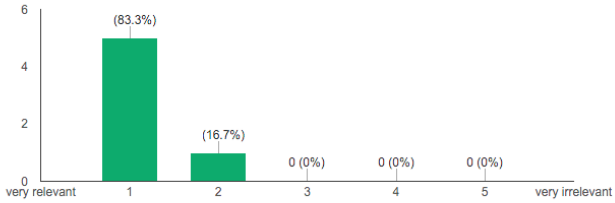


8. Students should work on live briefs, for real clients, which address sustainability issues in the local context.

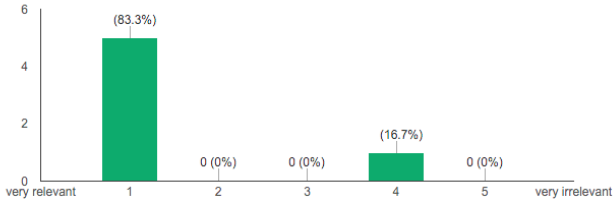


APPENDIX F:

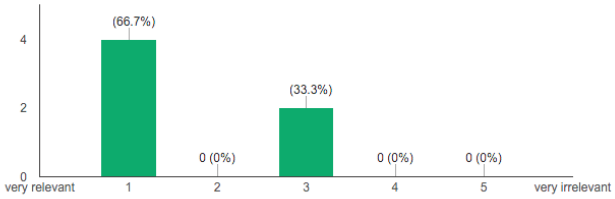
9. Students should collaborate in multi- and inter-disciplinary groups on DfS briefs.



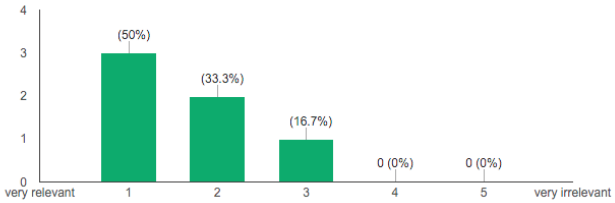
10. DfS industry specialists should be brought in as guest speakers and/or guest lecturers.



11. To stay abreast of advancements in DfS, HEIs should invest in the continuous professional development of educators by sending them on regular training.

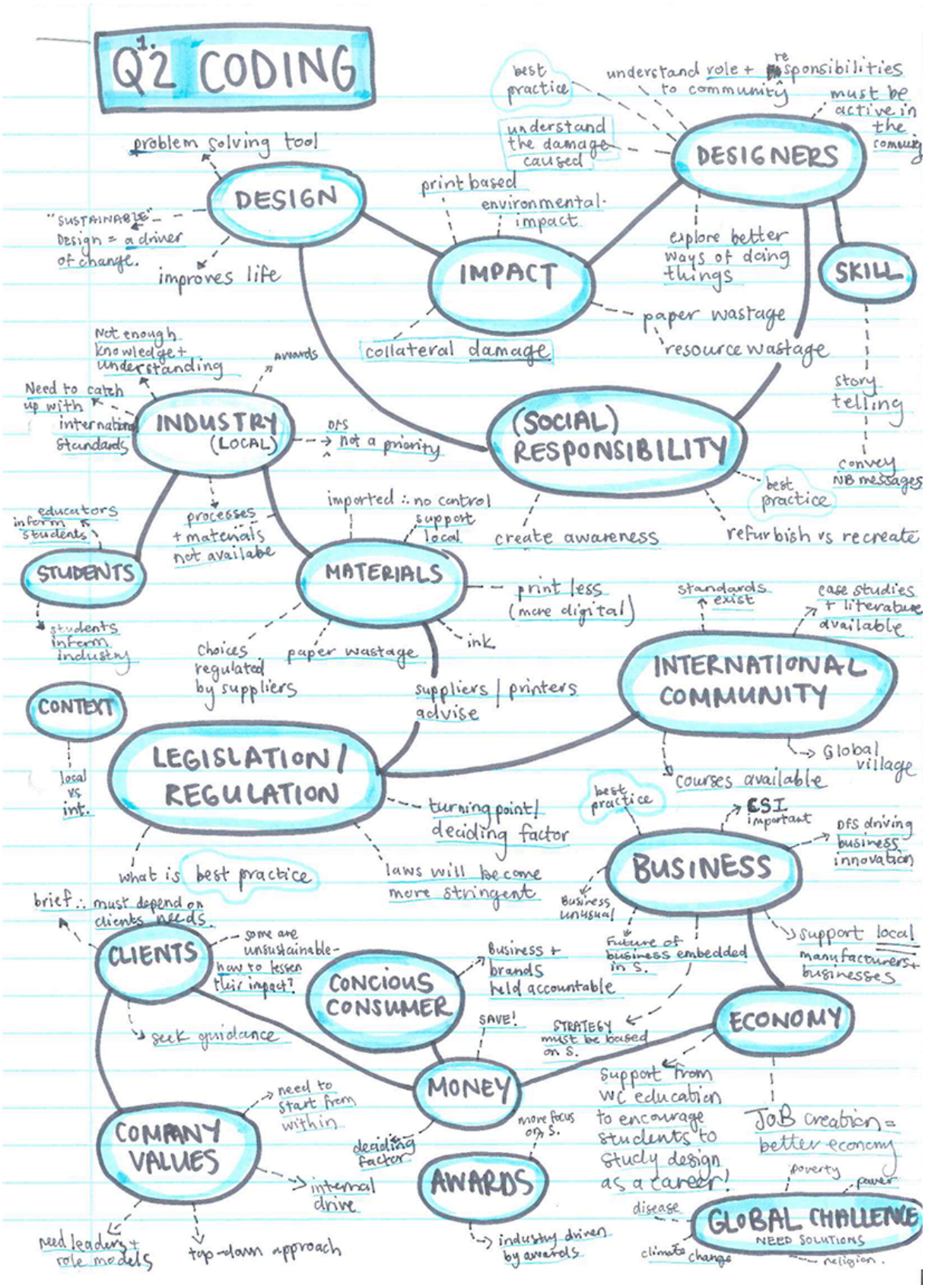


12. Educators from various HEIs should collaborate with local design networks to promote dialogue about DfS, and develop communication design-specific resources to aid best practice in DfS.

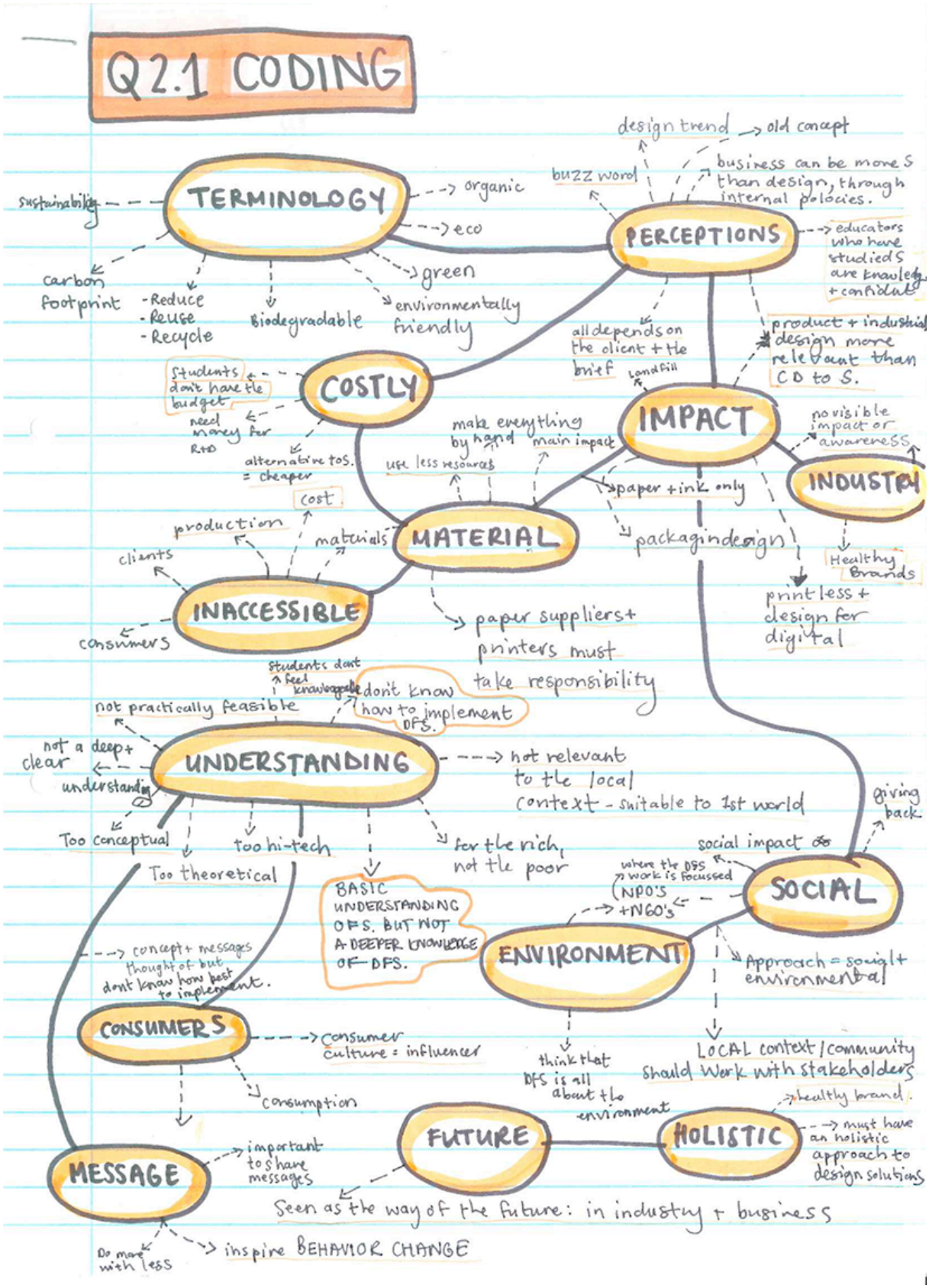


APPENDIX G: Examples of the coding process used to analyse the different research sub-question and to identify key themes occurring within the data

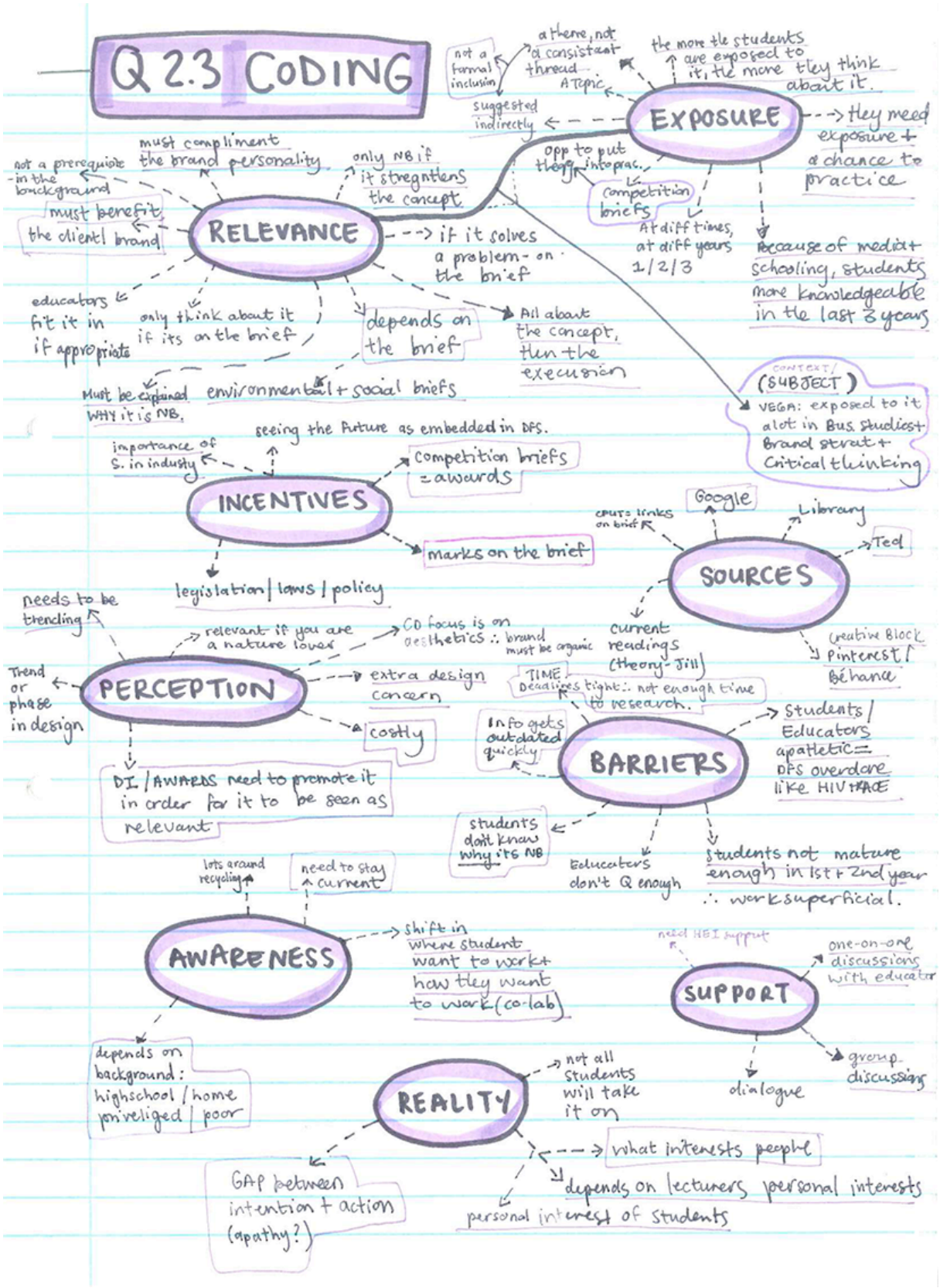
APPENDIX G:


Q2 CODING
problem solving tool
DESIGN
"SUSTAINABLE" Design = a driver of change.
improves life
best practice
understand role + responsibilities to community
understand the damage caused
DESIGNERS
must be active in the community
print based
environmental impact
IMPACT
explore better ways of doing things
SKILL
paper wastage
resource wastage
collateral damage
story telling
convey NB messages
Not enough knowledge + understanding
awards
Need to catch up with international standards
INDUSTRY (LOCAL)
ofs
not a priority
(SOCIAL) RESPONSIBILITY
best practice
refurbish vs recreate
create awareness
educators inform students
STUDENTS
students inform industry
processes + materials not available
imported ∴ no control
support local
MATERIALS
print less (more digital)
Choices regulated by suppliers
paper wastage
ink
suppliers / printers advise
standards exist
case studies + literature available
INTERNATIONAL COMMUNITY
Global village
courses available
CONTEXT
local vs int.
LEGISLATION / REGULATION
turning point/ deciding factor
what is best practice
laws will become more stringent
best practice
CSI important
DFS driving business innovation
BUSINESS
Business unusual
Future of business embedded in S.
support local manufacturers + businesses
brief ∴ must depend on clients needs
CLIENTS
some are unsustainable- how to lessen their impact?
seek guidance
CONCIOUS CONSUMER
Business + brands held accountable
SAVE!
STRATEGY must be based on S.
ECONOMY
MONEY
Support from VC education to encourage students to study design as a career!
JOB creation = better economy
need to start from within
COMPANY VALUES
internal drive
deciding factor
more focus on S.
AWARDS
need leaders + role models
top-down approach
industry driven by awards
poverty
power
disease
GLOBAL CHALLENGE
NEED SOLUTIONS
climate change
religion

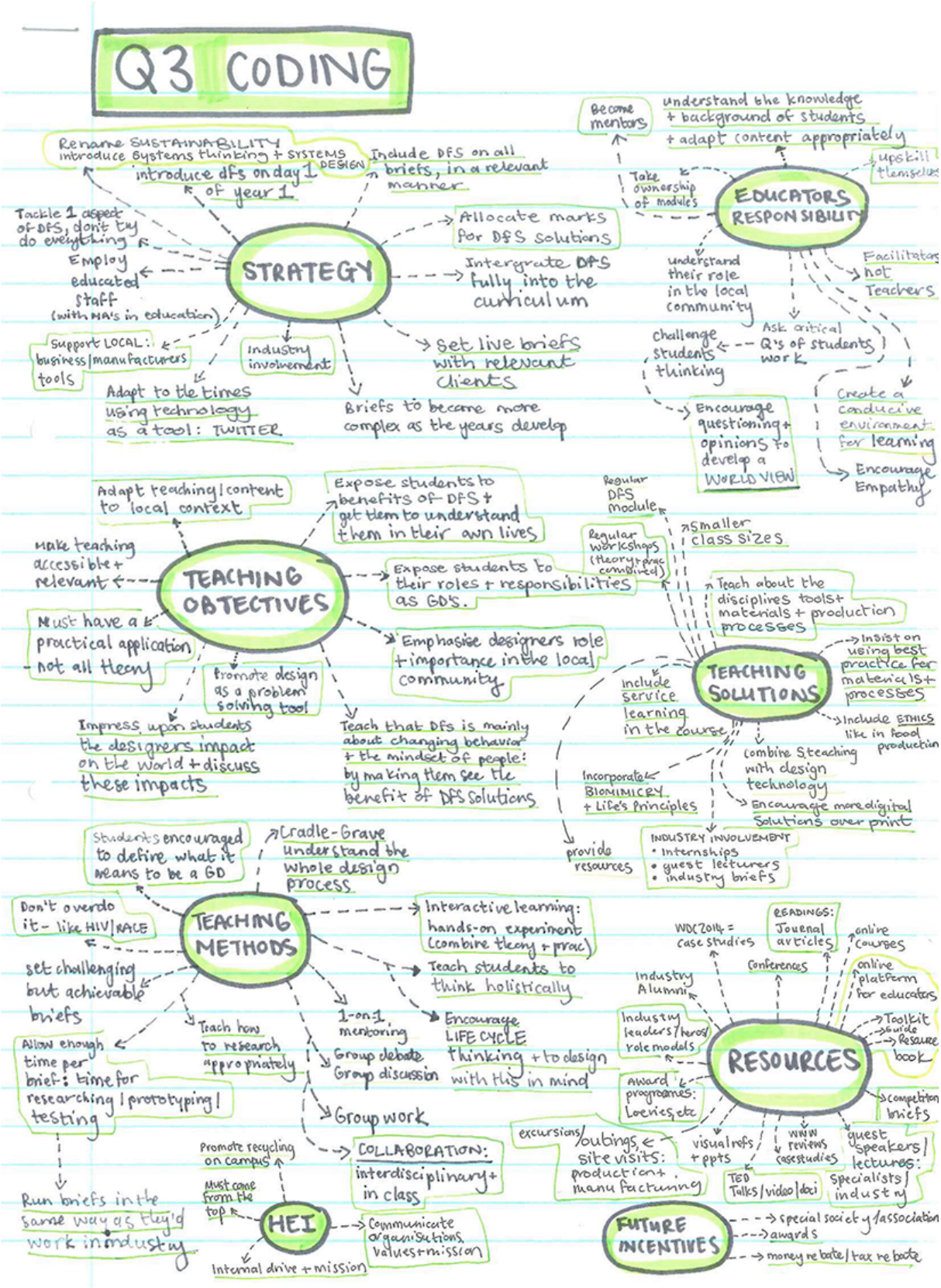
APPENDIX G:


Q2.1 CODING
TERMINOLOGY
sustainability
organic
eco
green
environmentally friendly
biodegradable
carbon footprint
- Reduce
- Reuse
- Recycle
PERCEPTIONS
design trend → old concept
buzz word
business can be more S than design, through internal policies.
educators who have studied S are knowledg + confident
COSTLY
students don't have the budget
need money for R+D
alternative tos. = cheaper
cost
IMPACT
all depends on the client + the brief
landfill
product + industrial design more relevant than CD to S.
no visible impact or awareness
make everything by hand
main impact
use less resources
paper + ink only
INDUSTRY
Healthy Brands
MATERIAL
production
materials
clients
consumers
INACCESSIBLE
packagindesign
print less + design for digital
paper suppliers + printers must take responsibility
students dont feel knowledgable
don't know how to implement DFS.
not practically feasible
not a deep + clear understanding
UNDERSTANDING
not relevant to the local context - suitable to 1st world
Too conceptual
too hi-tech
Too theoretical
for the rich, not the poor
BASIC UNDERSTANDING OF S. BUT NOT A DEEPER KNOWLEDGE OF DFS.
giving back
social impact
where the DSS work is focussed
NPO'S
+NGO's
SOCIAL
ENVIRONMENT
Approach = social + environmental
concept + messages thought of but dont know how best to implement.
CONSUMERS
consumer culture = influencer
consumption
think that DFS is all about the environment
LOCAL context / community should work with stakeholders
healthy brand
FUTURE
HOLISTIC
must have an holistic approach to design solutions
MESSAGE
important to have messages
Seen as the way of the future: in industry + business
Do more with less
inspire BEHAVIOR CHANGE

APPENDIX G:

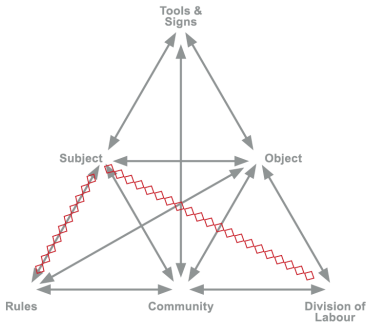

Q 2.3 CODING
EXPOSURE
RELEVANCE
INCENTIVES
SOURCES
PERCEPTION
BARRIERS
AWARENESS
SUPPORT
REALITY
not a formal inclusion
a there, not a consistent thread
A Topic
suggested indirectly
the more the students are exposed to it, the more they think about it.
they need exposure + a chance to practice
Opp to put theory into prac.
competition briefs
At diff times, at diff years 1/2/3
because of media + schooling, students more knowledgeable in the last 3 years
must compliment the brand personality
only NB if it strengthens the concept
not a prerequisite - in the background
must benefit the client/ brand
if it solves a problem - on the brief
educators fit it in if appropriate
only think about it if its on the brief
depends on the brief
All about the concept, then the execution
Must be explained WHY it is NB.
environmental + social briefs
CONTEXT/ (SUBJECT)
VEGA: exposed to it alot in Bus Studies + Brand strat + Critical thinking
seeing the future as embedded in DFS.
importance of S. in industry
competition briefs = awards
marks on the brief
legislation / laws / policy
Google
Library
Ted
creates links on brief
current readings (theory - Jill)
Creative Block
Pinterest / Behance
needs to be trending
relevant if you are a nature lover
CD focus is on aesthetics ∴ brand must be organic
Trend or phase in design
extra design concern
costly
DI / AWARDS need to promote it in order for it to be seen as relevant
TIME Deadlines tight ∴ not enough time to research.
Info gets outdated quickly
Students / Educators apathetic = DFS overdone like HIV TRACE
students don't know why it's NB
Educators don't Q enough
Students not mature enough in 1st + 2nd year ∴ work superficial.
lots around recycling
need to stay current
shift in where student want to work + how they want to work (co-lab)
depends on background: highschool / home priveliged / poor
need HEI support
one-on-one discussions with educator
group discussions
dialogue
not all students will take it on
what interests people
depends on lecturers personal interests
personal interest of students
GAP between intention + action (apathy?)

APPENDIX G:

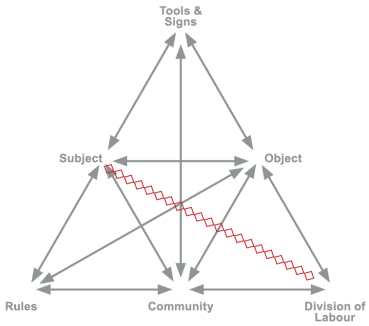

Q3 CODING
STRATEGY
Rename SUSTAINABILITY introduce Systems thinking + SYSTEMS DESIGN
introduce dfs on day 1 of year 1
Include DFS on all briefs, in a relevant manner
Allocate marks for DFS solutions
Intergrate DFS fully into the curriculum
Tackle 1 aspect of DFS, don't try do everything
Employ educated staff (with MA's in education)
Support LOCAL: business/manufacturers tools
Industry involvement
Adapt to the times using technology as a tool: TWITTER
Set live briefs with relevant clients
Briefs to become more complex as the years develop
EDUCATORS RESPONSIBILITY
Become mentors
understand the knowledge + background of students + adapt content appropriately
upskill themselves
Take ownership of module's
understand their role in the local community
Facilitators not Teachers
Ask critical Q's of students work
challenge students thinking
Encourage questioning + opinions to develop a WORLD VIEW
Create a conducive environment for learning
Encourage Empathy
TEACHING OBJECTIVES
Adapt teaching/content to local context
Expose students to benefits of DFS + get them to understand them in their own lives
make teaching accessible + relevant
Expose students to their roles + responsibilities as GD's.
Must have a practical application - not all theory
Emphasise designers role + importance in the local community
Promote design as a problem solving tool
Impress upon students the designers impact on the world + discuss these impacts
Teach that DFS is mainly about changing behavior + the mindset of people: by making them see the benefit of DFS solutions
Regular DFS module
Smaller class sizes
Regular workshops (theory + prac combined)
TEACHING SOLUTIONS
Teach about the disciplines tools + materials + production processes
Insist on using best practice for materials + processes
Include ETHICS like in food production
include service learning in the course
combine Steaching with design technology
Encourage more digital solutions over print
Incorporate BIOMIMICRY + Life's Principles
provide resources
INDUSTRY INVOLVEMENT
• Internships
• guest lecturers
• industry briefs
TEACHING METHODS
Students encouraged to define what it means to be a GD
Cradle-Grave understand the whole design process
Don't overdo it - like HIV/RACE
Interactive learning: hands-on experiment (combine theory + prac)
Teach students to think holistically
set challenging but achievable briefs
Allow enough time per brief: time for researching/prototyping/testing
Teach how to research appropriately
1-on-1 mentoring
Group debate
Group discussion
Encourage LIFE CYCLE thinking + to design with this in mind
Group work
Run briefs in the same way as they'd work in industry
Promote recycling on campus
Must come from the top
COLLABORATION: interdisciplinary + in class
HEI
Communicate organisations values + mission
Internal drive + mission
RESOURCES
WDC 2014 = case studies
READINGS: Journal articles
online courses
Conferences
Industry Alumni
online platform for educators
Industry leaders/heros/role models
Toolkit + guide + Resource book
Award programmes: Loeries, etc
competition briefs
excursions/outings/site visits: production + manufacturing
visual refs + ppts
WWW reviews case studies
guest speakers/lectures: Specialists/industry
TED Talks/video/doc
FUTURE INCENTIVES
special society/association awards
money rebate/tax rebate

APPENDIX H: Summary of the main tensions within and among the three activity systems

TENSION 1: DfS is defined by the following four pillars: environment, society, culture and economy. However, when students are introduced to the subject, it is almost exclusively under the environmental pillar.

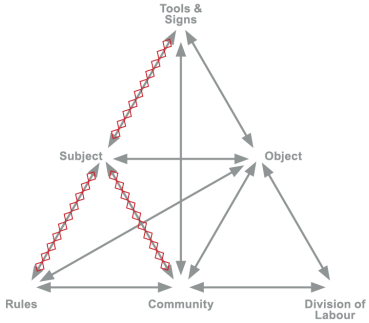


Learning Activity (Students)

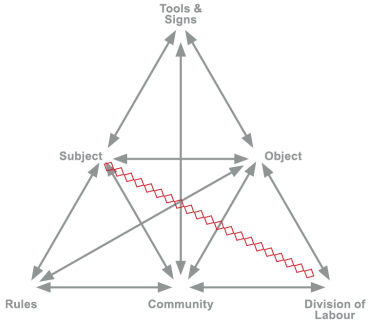


Teaching Activity (Educators)

TENSION 2: Due to educators' lack of knowledge about DfS, students are not taught about the subject, yet they are expected to execute briefs that focus on environmental issues. They have not been taught about what material options are available, nor what other factors – such as life cycle analysis – are important to consider.

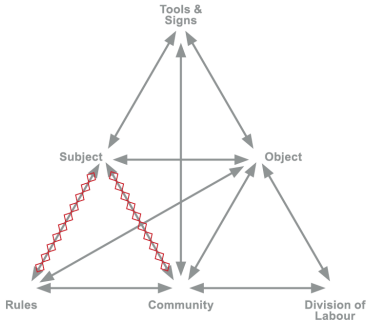


Learning Activity (Students)

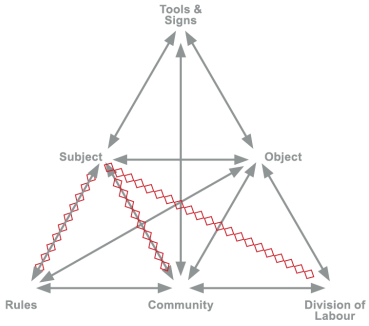


Teaching Activity (Educators)

TENSION 3: The theory and practical teaching of DfS in communication design at HEIs is not aligned. Students are taught the theory of sustainability independently of having to implement it into their practical work.



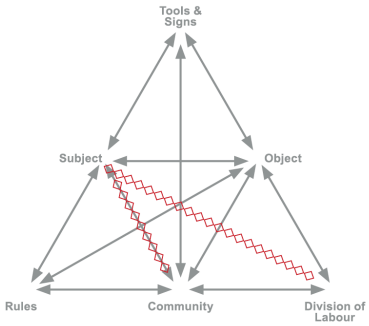
Learning Activity (Students)



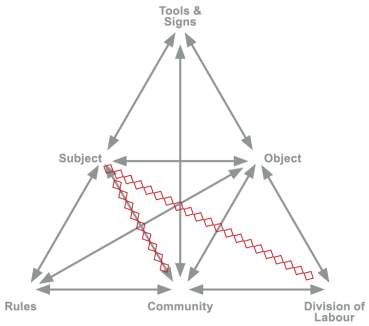
Teaching Activity (Educators)

APPENDIX H:

TENSION 4: Educators are waiting to be led in DfS best practice by industry rather than leading the change themselves. In contrast, industry sees educators as having an important role to play in equipping students in the subject.

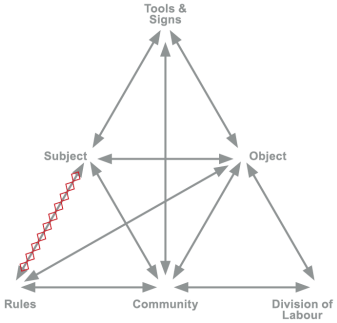


Teaching Activity (Educators)

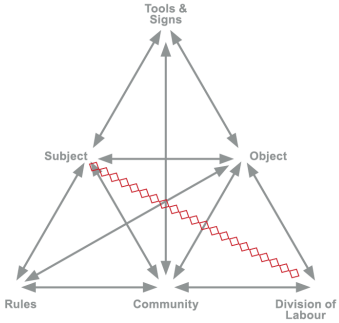


Practicing Activity (Design Professionals)

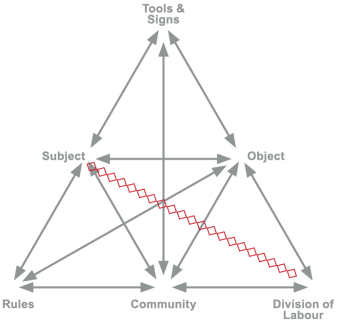
TENSION 5: Industry and educators believe communication design will have to practice sustainably in the near future, but they are not proactively applying it. Thus students do not consider DfS solutions in their work unless a specific brief insists on it.



Learning Activity (Students)

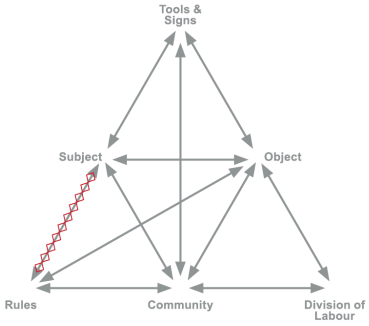


Teaching Activity (Educators)

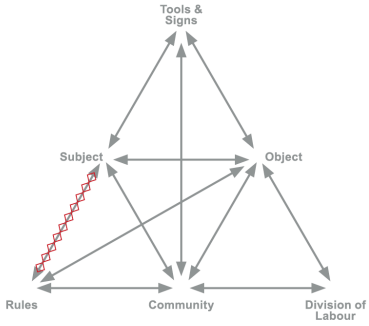


Practicing Activity (Design Professionals)

TENSION 6: Industry and students both recognise that DfS is important, however in order to implement the practice into their work they want to be incentivised rather than adopting principles of sustainability to address real world challenges out of sincerity.



Learning Activity (Students)



Practicing Activity (Design Professionals)

APPENDIX I: Full list of thirty-five guidelines for incorporating the principles of sustainability into communication design curricula

Guidelines for incorporating the principles of sustainability into communication design curricula

General integration of DfS

1. Design for Sustainability (DfS) should be a formal inclusion in the communication design curriculum.
2. DfS should be introduced as a subject from first year.
3. DfS should be integrated as a critical lens into all theory and practical subjects throughout the curriculum.
4. DfS should be assessed as a stand-alone marking criterion on every brief.
5. DfS should be made relevant to the lives of students so that they can develop a personal connection with the subject.
6. Educators should encourage dialogue about DfS through reflective group discussions.
7. Educators should teach students that practicing DfS also means being conscious of the ethical implications of their design decisions.
8. Students should be exposed to the short- and long-term economic benefits of practicing DfS.

Responsibility of HEIs

9. HEIs should drive sustainability consciousness by using the learning space to promote sustainable lifestyle choices such as recycling programmes.
10. To stay abreast of advancements in DfS, HEIs should invest in the continuous professional development of educators by sending them on regular training.
11. HEIs should incorporate DfS as a specific area of research.
12. HEIs should provide DfS teaching and learning materials for educators and students.

Integration through design strategies and problem solving

13. Students should learn about Systems Thinking.
14. Students should learn how to measure the life cycle impact of their design solutions.
15. Students should learn about Design Thinking.
16. Student should learn about Human-Centred Design.
17. Students should learn critical thinking skills so that they can analyse problems from multiple sustainability perspectives.

Integration through practical projects

18. Aspects of DfS (environmental, socio-cultural and economic sustainability) should be addressed separately through sustainability-themed design briefs.
19. Aspects of DfS (environmental, socio-cultural and economic sustainability) should be practically applied in all design briefs.

APPENDIX I:

20. Briefs should focus more on digital solutions rather than print solutions.
21. Briefs should encourage students to explore alternative materials, production methods and technological advancements.
22. Briefs should focus more attention on the power of communication design to inspire behaviour change and raise awareness about sustainability issues.
23. Students should work on live projects, for real clients, which address sustainability issues in the local context.
24. Students should collaborate in multi- and inter-disciplinary groups on DfS briefs.
25. Students should participate in sustainability-themed design competitions.

Integration through various tools/resources

26. Provide students with a definitive list of sustainability principles that can guide them, in thought and action, on how best to address DfS in their work.
27. Prescribe students with selective readings on concepts related to DfS through books, journals and relevant websites.
28. Use social media platforms such as Twitter to disseminate information about DfS.
29. Use online platforms such as LeNS Africa to share information and to promote dialogue about DfS.
30. Host workshops together with industry suppliers about sustainable materials and production methods that are available locally.
31. Share global and local visual examples of how DfS can be implemented into communication design practice.

Integration through industry collaboration

32. DfS industry specialists should be brought in as guest speakers and/or guest lecturers.
33. Students should go on industry excursions to printing and production houses that promote sustainable practices.
34. Students should participate in internships at design agencies that practice DfS.
35. Educators from various HEIs should collaborate with local design networks to promote dialogue about DfS, and to develop communication design-specific resources to aid best practice in DfS.

APPENDIX J: CD-ROM containing a comprehensive database of inspiring exemplars of global and local sustainable communication design. Entries are fist categorised under the four pillars of sustainability, and then according to company/designer name