Design for Sustainability in Higher Education Institutions: towards a more responsive curriculum in Cape Town

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ABSTRACT

In this article, the authors discuss the key findings from a study that investigated 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. A major gap in the teaching and practice of DfS was identified; these were the result of several tensions that existed within the academic space. The authors unpack these tensions and explore possible ways to enrich the education around DfS in order to build a community of change agents who are responsive to the environmental, sociocultural and economic impacts of their work. They showcase practical examples of how local designers have addressed sustainability issues positively through their design solutions, as well as highlight how communication designers can address the United Nations's Sustainable Development Goals (SDGs).

Keywords: Behavioural change, communication design, design education, Design for Sustainability, sustainable lifestyles, Sustainable Development Goals.

The growing importance of Design for Sustainability (DfS)

Every year, millions of the world's citizens experience immense environmental, sociocultural, political and economic crises. In the first half of 2016 alone, these included the devastating fires in Canada; the raging civil war in Syria and the subsequent fleeing of hundreds of thousands of refugees; the destabilising terrorist attacks in parts of Africa, the Middle East and Europe; and the deepening economic recession in Brazil. In order to address current and future crises positively, there needs to be change, and design is increasingly being recognised as a powerful tool in the drive towards sustainable change, with designers seen as the agents for positive change (Chapman & Gant 2012:119; Giard & Walker 2013:25). Over the last two decades, DfS[1] has developed into a response to the momentous challenge faced by society to contribute positively towards environmental stewardship, social responsibility, cultural preservation and economic viability (Perullos 2013:12; Robertson 2014:249). Education has also been identified as a vital tool for bringing about change. In the following quote, Irina Bokova, Director-General of the United Nations Educational, Scientific and Cultural Organisation (UNESCO), highlights the important role that education plays in addressing the sustainability agenda:

> 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 2014:16).

Additionally, the 2015 promulgation of the 17 Sustainable Development Goals[2] (SDGs) and their accompanying 169 targets by United Nations (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. To achieve these goals successfully, however, everyone needs to be made aware of the significance of these goals and how they, as individuals, can contribute towards a sustainable future. In this article, we strive to highlight communication design[3] as an effective way to accomplish this, by informing people about sustainability issues and inspiring behavioural change. Moreover, we argue for a proactive approach to preparing communication design students to adapt to the needs of a rapidly changing world by incorporating DfS as early as possible within curricula. Findings[4] are based on the current state of communication design education in Cape Town.

1. *Design for Sustainability* (DfS) is design practice, education and research that attempt to address the objectives of sustainable development (Vezzoli 2007: 39). In the context of communication design education, DfS is a critical lens that students must apply to problem solving; they must consider the full life cycle impact of products and services, and commit to strategies, processes, messaging and materials that value environmental, sociocultural and economic responsibility within the system/community for which they are designing (Cadarso & Da Silva 2012:177).

2. Sustainable development is 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).

3. Communication design refers to the creative discipline of planning and shaping messages in content, form and delivery (Price & Yates 2015). Communication design has come to define a number of design practices, including graphic design; information design; web design; advertising, and branding.

4. This article is based on key findings from a Masters dissertation titled *Integrating principles of sustainability into communication design pedagogy at selected HEIs in Cape Town: towards an industry-responsive curriculum* by Laskarina Yiannakaris.

FIGURE **Nº 1**

Graphic summary of the Sustainable Development Goals (UN Sustainable Development Knowledge Platform [sa]).

Cape Town is faced with many of the complex challenges that the SDGs attempt to address. These include poverty, unemployment, inequality, lack of formal housing, limited access to affordable healthcare, and dependence on nuclear and coal power. The associated negative impacts of climate change are also being felt with rising temperatures, water and food shortages, and the subsequent rising food costs caused by the worst drought South Africa has experienced in recent history (UN 2015). Based on the findings of this study, it is believed that communication designers have a critical role to play in the drive towards sustainability; by using their skills to create persuasive messages. These messages can lessen the negative impact of the abovementioned challenges through: changing behaviour by encouraging people to use water sparingly; raising awareness about important humanitarian issues; motivating action to support local industries; or by uniting diverse cultures and directing people towards a common goal (Dougherty 2008:12; Perullos 2013:30). It is therefore important that students be taught about DfS in the context of the challenges faced by their own communities, as this allows them to see the positive effects they can have on their own environment.

Actioning DfS through education

Over the past four years, three Cape Town-based initiatives have recognised the importance and relevance of design as a catalyst for positive social and economic change. Firstly, the *110% Green* initiative called for organisations to commit to building a Green Economy in order to improve the livelihoods of all Western Cape communities, with communication design recognised as one of the top five design disciplines to contribute positively to the local economy (Western Cape Government 2015). Next, the *Western Cape Design Strategy* was developed with the objective to use design as a key tool 'to unlock innovation, drive competitiveness, catalyse economic growth and improve quality of life for all' (Cape Craft and Design Institute 2012:4). Then came the *World Design Capital 2014* (WDC2014), a year-long programme that showcased how design can be used as a strategic problem-solving tool to tackle the negative impact of the city's challenges (Reesberg 2015:8). Through these initiatives, the concept of DfS gained some popularity; however, the overarching findings show that DfS was not being practiced in the local communication design industry in any significant way. Interviews conducted with design professionals revealed that the biggest barrier to practicing sustainably was the lack of knowledge of how to apply DfS to their work, as well as the common misconception of high costs accruing by adopting DfS. In the study we therefore argued that the key to overcoming this barrier was through education. According to Ezio Manzini (2011:11), an advocate of DfS, design schools have an important role to play as the 'critical and creative actors in the ongoing transition towards sustainability.' However, Victor Papanek (2000:291), a forerunner in the sustainable design movement, noted a flaw in the design education 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.

This statement was substantiated when investigating the current undergraduate communication design courses offered at three HEIs located in and around the Cape Town city bowl: Cape Peninsula University of Technology (CPUT), Ruth Prowse School of Art (RP), and Vega School of Brand Leadership (Vega). At all three HEIs, DfS had not yet become an integral part of the curricula. This is problematic because design education needs to prepare and inspire the next generation of design leaders to shape a better future (Gugg & Leube 2014:290). Design educators were therefore recognised as the key for disseminating information about sustainability and ensuring the application of DfS by students. In order to encourage students to become custodians of their city's future, they must not only be literate in sustainability, they

must also be made to feel confident in their abilities as change agents. Additionally, the resultant economic recession occasioned by unethical manipulation of neoliberal capitalist dynamics calls for a fresh interrogation of the role of higher education in fostering resilience in university graduates, especially in the Global South (Dahlstrom 2009:167; Hill 2003:21). Consequently, responsive design curricula need to adapt to include the requisite knowledge, skills and tools for students to embrace current and future conditions. We believe communication design graduates who are properly informed about DfS will influence the design industry to address the environmental, sociocultural and economic impact of their work, therefore building a powerful community of agents of change. However, it was discovered that the current educational landscape is faced with many barriers prohibiting the receptiveness of incorporating DfS into the curriculum. As will be discussed in the Findings section of this article, only once the cause of these barriers was understood could possible solutions be defined. Before anything else, students must be exposed to the possible impacts of their design decisions and what practising DfS entails.

How communication designers can contribute to the sustainability agenda

If design is seen as a problem-solving tool, DfS is a holistic approach to problem solving where designers look at a problem within the context of a larger system. This approach not only requires that designers consider how their design decisions 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). Considering that 80 per cent of a product, service, or system's environmental impact and destiny are determined at the design stage, designers play a decisive role in the life cycle impact of their proposed solutions (Thackara 2005:18; Chick & Micklethwaite 2011:27). Figure 2 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 [sa]). The outer circle shows how every design solution exists within interconnecting systems relating to the environment, society, culture and economy (Perullos 2013:17). The image also looks at the various roles a communication designer can perform when practising DfS.
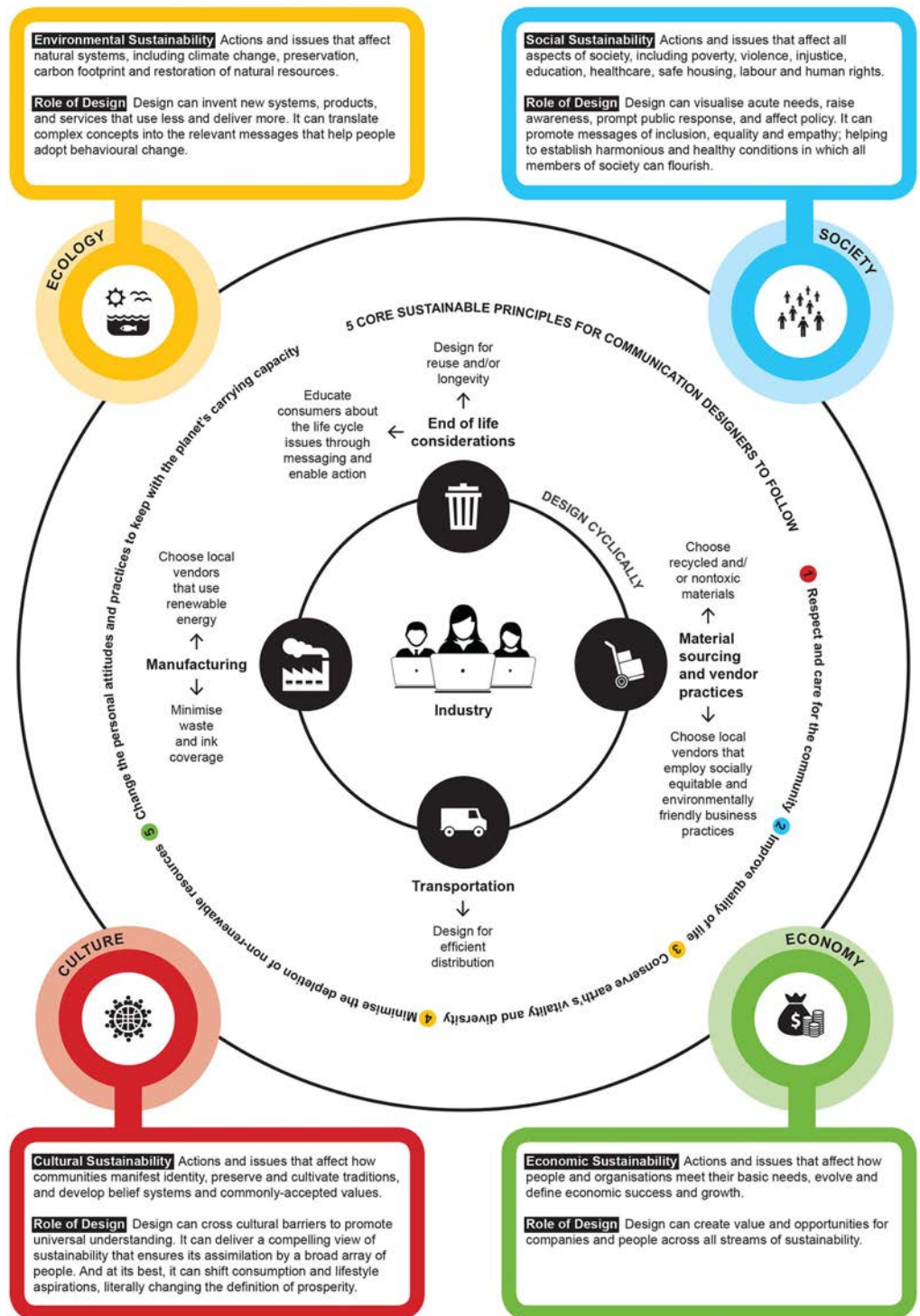
FIGURE **Nº 2**

The role of the communication designer in practising DfS, adapted from insights gained from various authorities on sustainable communication design (Dougherty 2008; Sherin 2008; Benson 2010; The Living Principles for Design [sa]; Yvette Perullo, [sa]).[5]

As Figure 2 shows, communication designers can contribute towards sustainability far beyond just selecting environmentally friendly materials. Their real impact lies in their ability to communicate, persuade, and ultimately change behaviours (Jedlicka 2010:48; Price & Yates 2015:7). To best illustrate this, a local example of how to practise DfS is presented next.

Local examples of sustainable communication design

Referring back to the SDGs, communication designers can champion the realisation of some of the goals. For example, designers can positively contribute to achieving Goal 12: *Ensure sustainable consumption and production patterns* (UN 2015). The following campaign showcases how communication design can raise awareness of a global environmental issue – dependence on fossil fuels – and encourage positive behavioural change amongst consumers at a local level.

In 2010, the City of Cape Town (CoCT) launched *The Cape Town Electricity Saving Campaign*. Its aim was to promote efficient electricity usage in order to reduce energy consumption and carbon emissions caused by coal-fired power stations (Western Cape Government [sa]). Created by Derrick, an advertising agency in Cape Town, 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 [sa]). The SAVE logo 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.

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.

The emotional component spoke to the cost of electricity felt by the environment, 'Electricity could cost more than you think' (ICLEI 2014). This was communicated via adverts and posters that depicted large cooling towers spoiling the pristine Cape Town landscape. In addition to these print elements, Derrick designed an inflatable cooling tower that could be positioned to strategically capture the attention
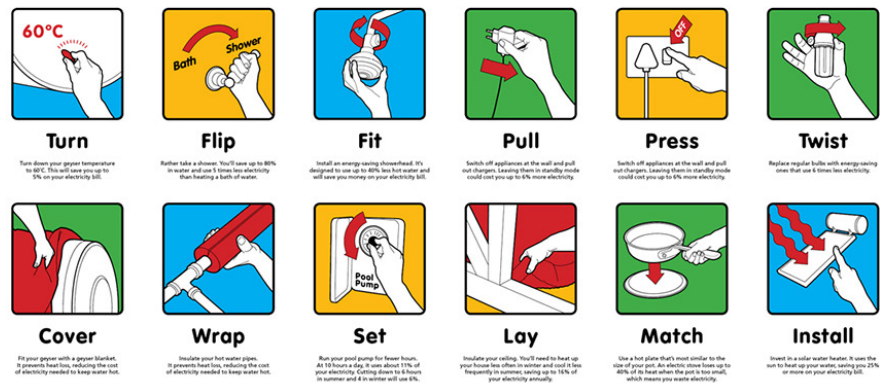
FIGURE Nº 3

Electricity Savings Campaign SAVE logo (Derrick [sa]).

of the public. 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 [sa]).

Understanding the power of design and advertising to influence attitudes and behaviours, the agency, Derrick, was able to develop a campaign that empowers consumers to take sustainable action. This is an example of how designers can use their communication skills to drive change instead of consumption, which in itself is an important component of designing for social impact (Shea 2012:9). In addition, the *Electricity Savings Campaign* illustrates the interconnectedness of the different dimensions of sustainability. By encouraging a more sustainable lifestyle of consuming less power, the campaign has addressed environmental, social and economic issues holistically.

FIGURE **Nº 4**   ‹

Electricity Savings Campaign print elements; information was communicated using easy-to-understand illustrations and wording (Derrick [sa]).

FIGURE **Nº 5** ‹

Electricity Savings Campaign print advert (Derrick [sa]).

FIGURE **Nº 6** ‹

Electricity Savings Campaign inflatable cooling tower (Derrick [sa].)

According to CoCT Councillor Garreth Bloor, a steady decrease in electricity usage was recorded as a result of this campaign (Derrick [sa]). He attributed the change in consumer behaviour to the campaigns ability to inform Capetonians about 'why they should save, how much they can save, and exactly how to save' (Derrick [sa]). The success of this example calls attention to the critical need for the communication design industry to respond to issues of sustainability. However, similar examples are few and far between, and with no local standards to guide how this should be done, this presents a massive opportunity for education to lead the way. Thus the study contributes to the rich discourse of DfS by proffering a practical set of guidelines on how to integrate DfS into curricula. These guidelines, which are discussed later in this article, are easily adaptable or adjustable for uptake by progressive HEIs.

Methodological approach

The Masters study on which this article is based followed a qualitative research design. 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, communication design educators, students and professionals. These categories of design actors were chosen specifically because they were seen as being representative of the larger target population – the Cape Town communication design fraternity.

The extensive review of literature facilitated the showcasing of practical examples of how DfS can be applied to communication design practice. Furthermore, the theoretical data also unpacked the pedagogical issues relating to the integration of DfS into design education. Empirical data was generated through engaging the informants in focus groups, semi-structured interviews and an online survey.

To gain insights into the students' level of awareness, interest and engagement with DfS, focus groups were conducted with 18 third year communication design students from three HEIs. These institutions were selected because they varied in size and course focus. CPUT is a large public university that offers a diverse curriculum through its large suite of communication design subjects. RP is a small private institution; its course pays particular attention to aesthetic execution. Vega is a large private institution with branches nationally; its curriculum focuses on brand innovation. Only third-year students were sampled, as they would have had the most exposure to the relevant courses.

Semi-structured interviews were conducted with eight design educators who represented either the theoretical or practical component of the courses taught at the different HEIs. The aim of these interviews was to gain better understanding of if, how and when sustainability featured in the curriculum; as well as to discover the level of engagement with sustainability in terms of practical application. By interviewing the different educators it would become clear if the theory and practical components of the courses were in any way aligned. It was also important to ascertain what prevented greater incorporation of DfS into their teaching.

In addition, semi-structured interviews were conducted with six design professionals from five communication design companies. These companies varied in size and although they all offered a similar range of design services, the scale of execution differed according to the size of the company, the resources available, as well as the clients they serviced. Through these interviews insights were gained into the level of awareness and practice of DfS across a spectrum of the industry. While this paper does not focus specifically on the industry findings, it must be noted that the design professionals validated the proposed solutions within the academic space.

Thematic coding was an important tool used to organise and analyse the data. Codes were assigned to recurring phrases, concepts and patterns that emerged from the data. Key themes became apparent through the analysis, and similar themes were grouped together into four main categories, namely: *exposure, barriers, solutions* and *relevance*. Exposure refers to the key actors' 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 integrated better into both education and industry practice. Lastly, relevance refers to the perceived importance and efficacy of including DfS into communication design education and practice (see Figures 9 and 10 for a visual summary of these key findings).

To interpret the data further, Activity Theory was used as the predominant analytical lens. Initially developed in the 1920s by the Russian psychologist Lev Vygotsky and his colleagues, Activity Theory is an approach to psychology that provides a method of analysing and understanding human activity within historical, cultural and geopolitical contexts (Durepos, Mills & Wiebe 2010). Through this analytical lens one can view the interrelationship between multiple actors who are involved in context-based activities (Engeström 1999:65). Activities are goal-directed systems
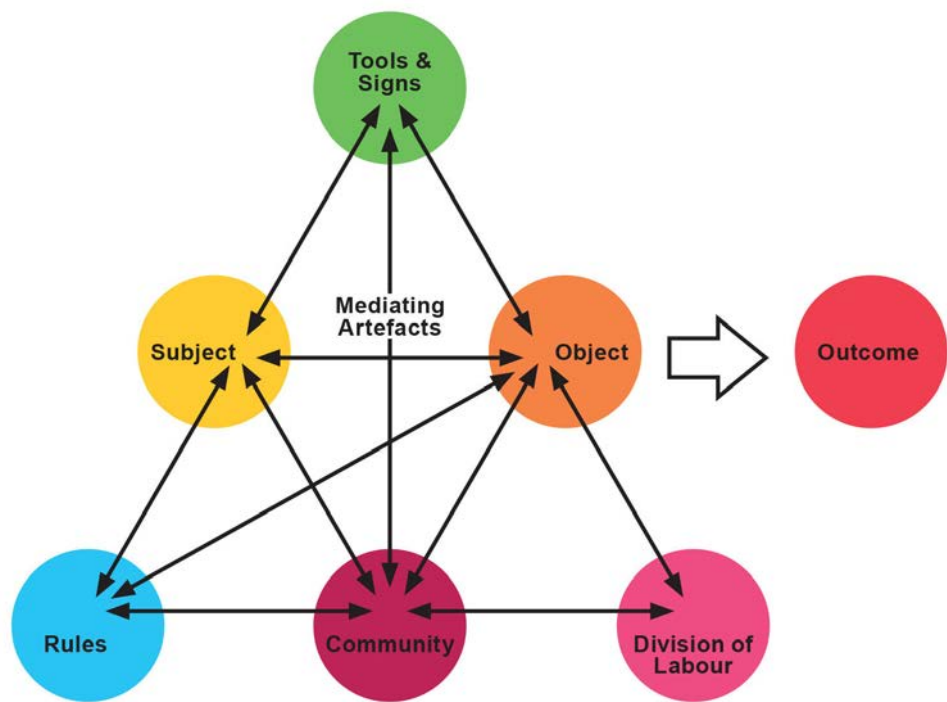
FIGURE **Nº 7**   ‹

Structure of an activity system (Engeström 2001:135).

that consist of several elements, and it is these elements – the subject, tools, community, division of labour, and rules – that all work together to make the objective or activity possible (Engeström 2001:135).

Activity Theory has been tested in many fields including health care, information systems and design. It has transformed over many years and the study focused on third generation Activity Theory because it allowed us to examine the dynamics and highlight the tensions between the three different categories of actors who were involved in multiple, interrelated activity systems of teaching, learning and practicing DfS in communication design (Engeström 2001:140; Glăveanu 2012:516). The elements of the Cape Town communication design activity system are explained in the following table (Figure 8).

Specific aspects of this analytical tool were used to zoom into the tensions between the different elements of the activity systems. Identifying the pervasive systemic tensions within an activity system is 'critical to understanding what motivates particular

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

FIGURE **Nº 8** 〈

Elements of the Cape Town communication design activity system.

actions' and how to 'support the continued innovation of the system' (Barab, Barnett, Keating, Squire & Yamagata-Lynch 2002:80). In this system, the innovation would be to determine ways to promote the uptake of DfS.

Lastly, after all of the data was analysed and the tensions identified, a set of tentative guidelines for integrating DfS into communication design curricula was developed. Using an online survey that was conducted with the previously interviewed design educators from the three HEIs, the relevance of the guidelines was ranked according to the educators' input. These guidelines, as well as the tensions that informed them, are discussed in the next section.

Main findings

Figures 9 and 10 present a visual summary of the main findings from the investigation into the level of awareness of, and engagement with DfS amongst communication design educators and students from the three HEIs.

EXPOSURE
To DfS within academia

DRIVEN BY PERSONAL INTEREST & HEI's ETHOS

GROWING CONSCIOUSNESS THROUGH SOCIETY / MEDIA

Competitions Excursions Recycling box

Reduce Reuse Recycle

ENVIRONMENTAL AWARENESS & SOME SOCIAL AWARENESS

Students mostly given packaging briefs

FOCUS ON DfS MORE IN THIRD YEAR

TED Talks Readings Internet Twitter

FOCUS ON THEORY MODULES

BARRIERS
To incorporating DfS into the curriculum and design practice

No marks allocated to DfS

TEACHING DfS NOT A REQUIREMENT

LIMITED ACCESS TO SUSTAINABILITY SPECIALISTS

DfS HARDLY EVER INCLUDED ON BRIEFS

DfS seen as too theoretical

DfS NOT RECOGNISED AS IMPORTANT IN INDUSTRY

Lack of motivation from educators

Lack of info about DfS materials & processes

DfS considered expensive

LACK OF EXPERIENCE & CONFIDENCE IN DfS

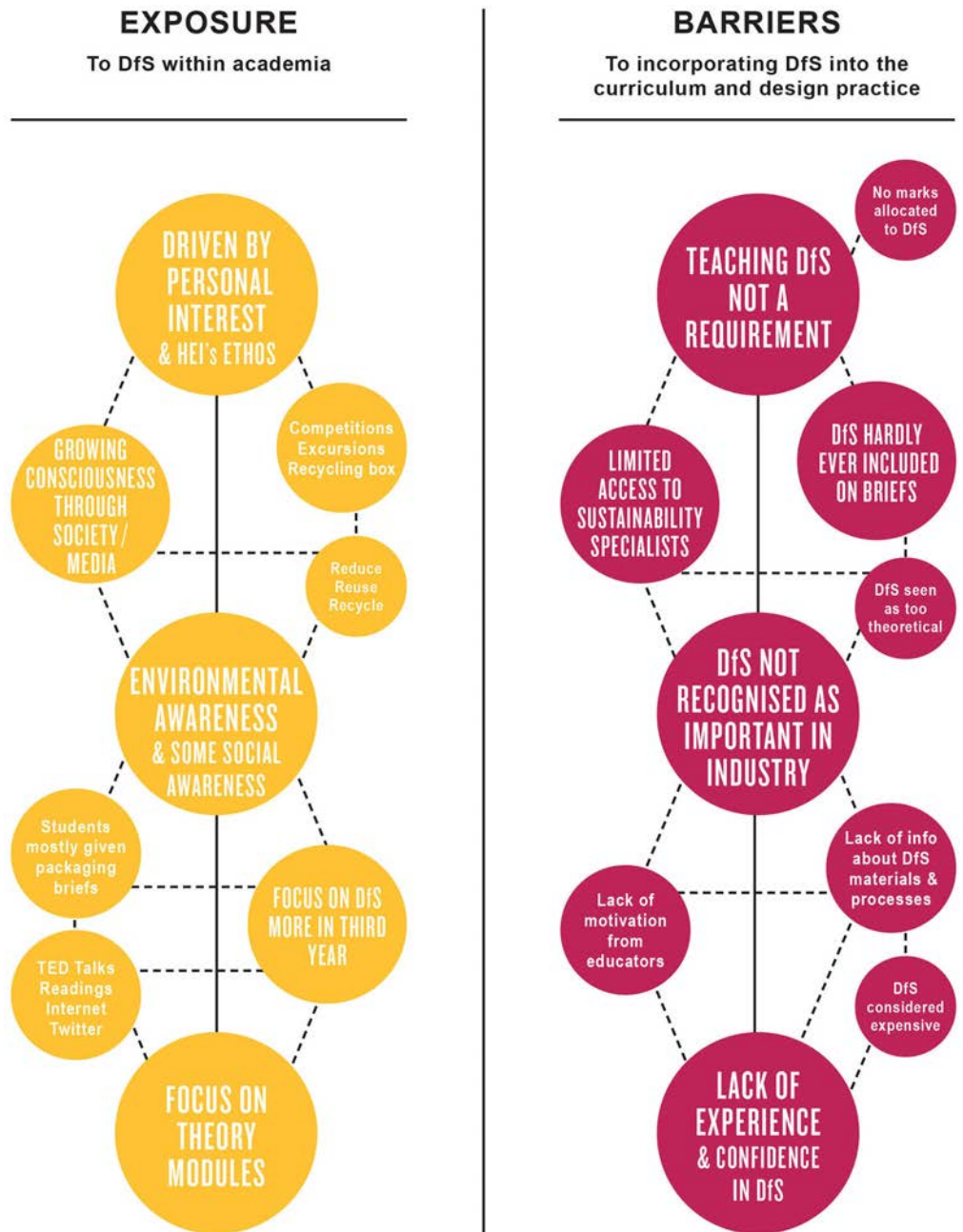FIGURE **Nº 9**   〈

Visual summary of the level of exposure to DfS, and the barriers to incorporating it into communication design education.

SOLUTIONS

For promoting the integration of DfS into teaching and practice

Group projects

INTRODUCE DfS FROM FIRST YEAR

ALLOCATE MARKS FOR DfS SOLUTIONS

HEI SUPPORT - PROVIDE TEACHING RESOURCES

GUEST SPEAKERS / LECTURERS

DfS WORKSHOPS

LIVE BRIEFS FOR REAL CLIENTS

DfS Competitions

MAKE DfS CONTEXTUALLY RELEVANT

Internships

More DfS visual references

RELEVANCE

Of integrating DfS into the curriculum

PREPARE STUDENTS FOR A CHANGING INDUSTRY

STUDENTS MUST BE AWARE OF THEIR ETHICAL RESPONSIBILITIES

PREPARE STUDENTS TO CHALLENGE & INFORM INDUSTRY

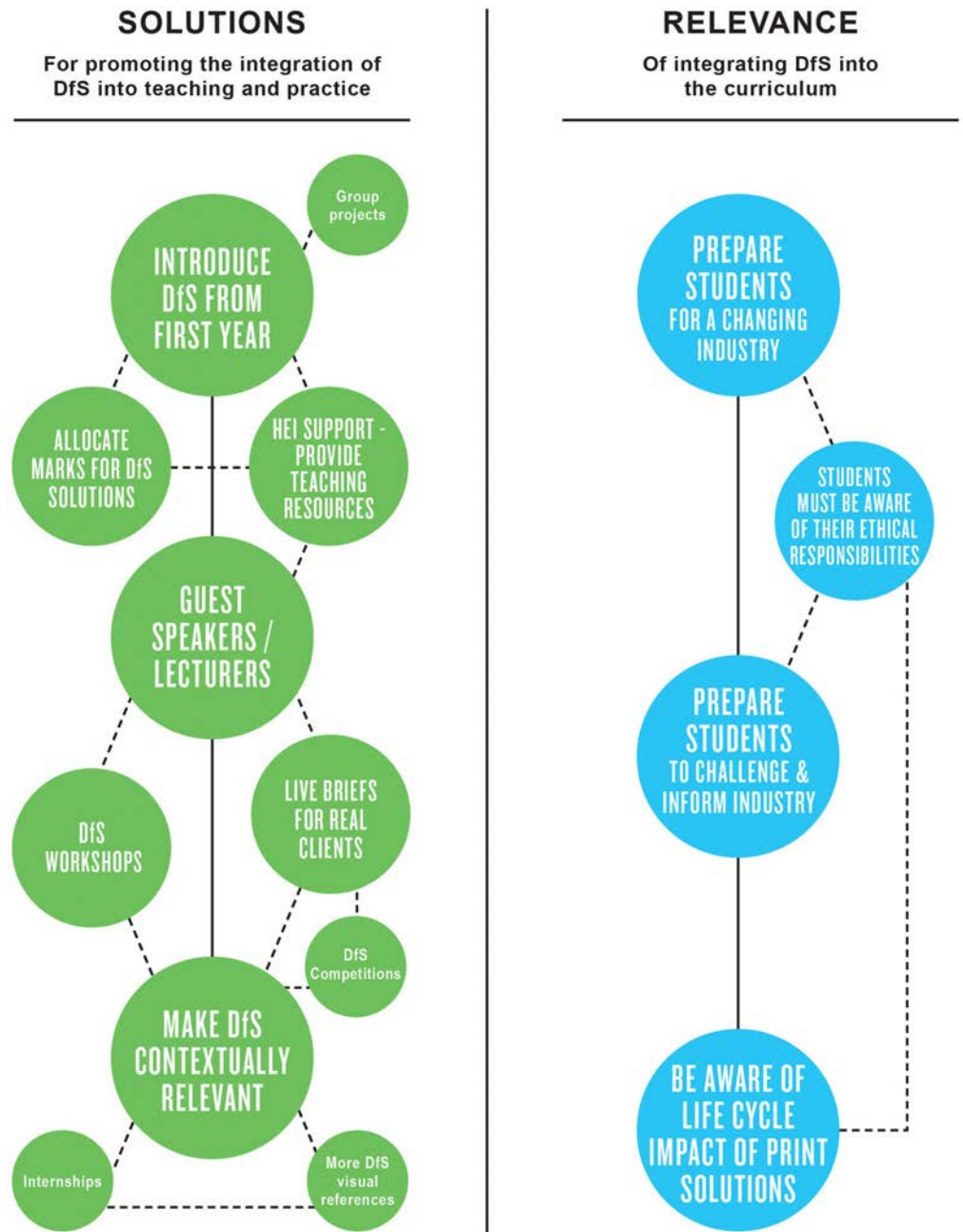**BE AWARE OF LIFE CYCLE IMPACT OF PRINT SOLUTIONS**

FIGURE **Nº 10**

Visual summary of the solutions and relevance of incorporating DfS into communication design education.

A significant finding in the analysis of the data was the identification of six key tensions that prevented the uptake of DfS. These tensions were influenced by the fact that across all three HEIs the curriculum did not officially include DfS, and therefore integrating the subject was not considered important. As a result, the inclusion of sustainability into pedagogy was reliant on the educators' personal interest in the subject. Between the theory and practical educators, their interest in DfS differed. This in turn influenced the students understanding of the concept, as their awareness of DfS was largely determined by what information they were exposed to at their respective HEIs.

Using Activity Theory as a lens to highlight the tensions, it became clear that tensions occurred at many levels; they occurred within the different elements of the communication design Activity System, and between the different categories of actors.

Tension 1: DfS is misunderstood as an exclusively environmental issue

The common finding was that when students are introduced to DfS, it is almost exclusively under the environmental pillar, this is because there is little comprehension amongst educators of how the other pillars of sustainability – social, cultural and economic – are integral to DfS. This led to the students' inability to grasp the holistic meaning and relevance of sustainability in the context of communication design, and therefore how they can implement DfS into their own work.

Tension 2: Lack of alignment between theory and practical subjects

The theory and practical teaching of sustainability in communication design at HEIs is not aligned. Students are either taught the theory of sustainability independently of having to implement it into their practical work, or they are given practical briefs without having any background into the subject.

For example, from first year, Vega presented sustainability in theory subjects to teach students about the effectiveness of using sustainability principles as a strategy to drive change in business and to develop "healthy brands".[6] However, the data proved that students were unable to transform their knowledge of sustainability into practical solutions because they did not make the connection between theory and practice. As such, Student 15 (2014) stated:

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

6. A healthy brand is one that is transparent and that gives back, it has become part of the Vega ethos.

HEI, Course Name, Duration	Course Subjects/Modules	Link to Sustainability		
		Explicit Link	Practical Link	Theoretical Link
Cape Peninsula University of Technology National Diploma in Graphic Design	• Communication Design		X	
	• Design Techniques		X	
	• Graphic Design Drawing			
	• History of Art & Design	X		X
	• Professional Graphic Design Practice			X
Ruth Prowse School of Art Diploma in Graphic Design	• Design & Advertising	X	X	
	• Desk Top Publishing			
	• Drawing			
	• Extended Essay			X
	• History of Art & Design			
	• Illustration		X	
	• Photography			
	• Printmaking			
	• Professional Practice			X
	• Techniques & Reproduction		X	
Vega School of Brand Leadership Bachelor of Arts in Creative Brand Communications specialising in Visual Communication including Art Direction & Graphic Design	• Brand Strategy	X		X
	• Creative Brand Communication		X	
	• Creative Development			
	• Critical Studies	X		X
	• Digital Media			
	• Visual Communication		X	

FIGURE **Nº 11** ‹

Sustainability links to the subjects/modules taught in the communication design courses offered at three Cape Town HEIs.

At RP, theory about sustainability was not explicit because it was not a stand-alone module, and aspects of environmental sustainability were only touched on in a few practical projects. In contrast, during the last semester of third year, students at CPUT were taught a theory module on sustainability that covered the concept broadly. According to CPUT Lecturer 1 (2012), this theory module was linked to a practical project. This implementation of sustainability in theory and practice was noted as being a more successful way in which to engage the students about DfS. It must be noted, however, that this only occurred at the end of third year, therefore students were not given the opportunity to learn about DfS, or to practice it, earlier on in their studies. Figure 11 reviews the communication design courses offered at the three selected HEIs, and how sustainability either links or could link to their subjects.

The disparity in integration between theory and practical impacted the students' view of DfS. Owing to the lack of alignment across subjects, Vega Lecturer 2 (2014) argued that, 'Sustainability is just a concept, students don't have a deeper understanding of applying it'. This proved that the students' level of engagement with DfS directly correlates to their level of exposure to the subject.

Tension 3: Students are not taught how to implement DfS practically

Owing to the educators not being equipped with specialist knowledge about DfS, the students had not been taught how to implement sustainable solutions practically. None of the students had been exposed to what material options are available, nor what other factors – such as life cycle analysis – are important to consider. Student 17 from Vega (2014) stated that when it came to understanding what materials and production processes are associated with DfS, 'it is a big dark hole that we would like to know about, but no one seems to know'. This sentiment was shared amongst students across all three HEIs and they identified this lack of information as a big gap in their learning about DfS.

Despite these limitations, the students at CPUT and RP were expected to execute practical briefs that focused on lessening a designs environmental impact, such as the redesign of packaging. Even though these briefs provided an opportunity to practice an aspect of DfS, since the students had not been exposed to the various approaches to designing sustainably, their designs did not go beyond specifying recycled paper. As described earlier in this article (see Figure 2), DfS is not just concerned with the selection of materials, and by just focusing on the materials used the students' view of sustainability remained superficial.

Tension 4: Educators are waiting for industry to champion DfS

Educators typically await the lead from industry on professional best practice, rather than being the conduit to help drive change in industry. The educators believed that the local design industry was yet to adopt a holistic sustainable approach to their practice, therefore DfS was not seen as a requirement in the curriculum. If industry does not demand students with DfS experience, educators will not supply this knowledge and skill because they feel that it would not necessarily improve the students' employability. Moreover, education institutions should be experimental spaces that are driven by knowledge. If the knowledge has evolved to the point where it is required that sustainability be discussed, then HEIs are failing in their mandate. This speaks to the lack of proactiveness of the educators to keep abreast of the latest developments within their field. Therefore, instead of being leaders, they are effectively followers; and this will not advance the industry towards a more sustainable path.

In contrast, industry sees educators as having an important role to play in inspiring and equipping students to champion DfS. As Design Professional 1 (2014) stated:

> It is the students who should be asking questions about sustainability, that is where the educators play a huge role. It is 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.

This shifting of responsibility highlights the lack of collaboration and knowledge sharing between academia and industry to define and drive best practice in DfS.

Tension 5: In the near future it is recognised that DfS will be important, yet it is not being taught or practiced actively

Educators and design professionals believe that the communication design industry has an important role to play in contributing to a better future, yet they are not promoting nor applying DfS proactively. From the data it was clear that the curriculum's engagement with sustainability remains limited, and unless a specific brief insists on it, students do not consider DfS solutions in their work.

With no standards in place to guide best practice, incorporating DfS relies on the self-motivation and personal initiative of either the educators and/or the students. According to CPUT Lecturer 3 (2014):

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

While having experience in a subject has an influence on the educators' ability to teach that subject with confidence, the students believed that it is the educator's responsibility to promote sustainability practices throughout the course, and to equip them for future industry standards.

Tension 6: To practice DfS communication designers want to be incentivised

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.

Design professionals are driven by incentives such as financial benefits and/or 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. Currently, none of the HEIs dedicated marks to DfS other than in the few specific environmentally-
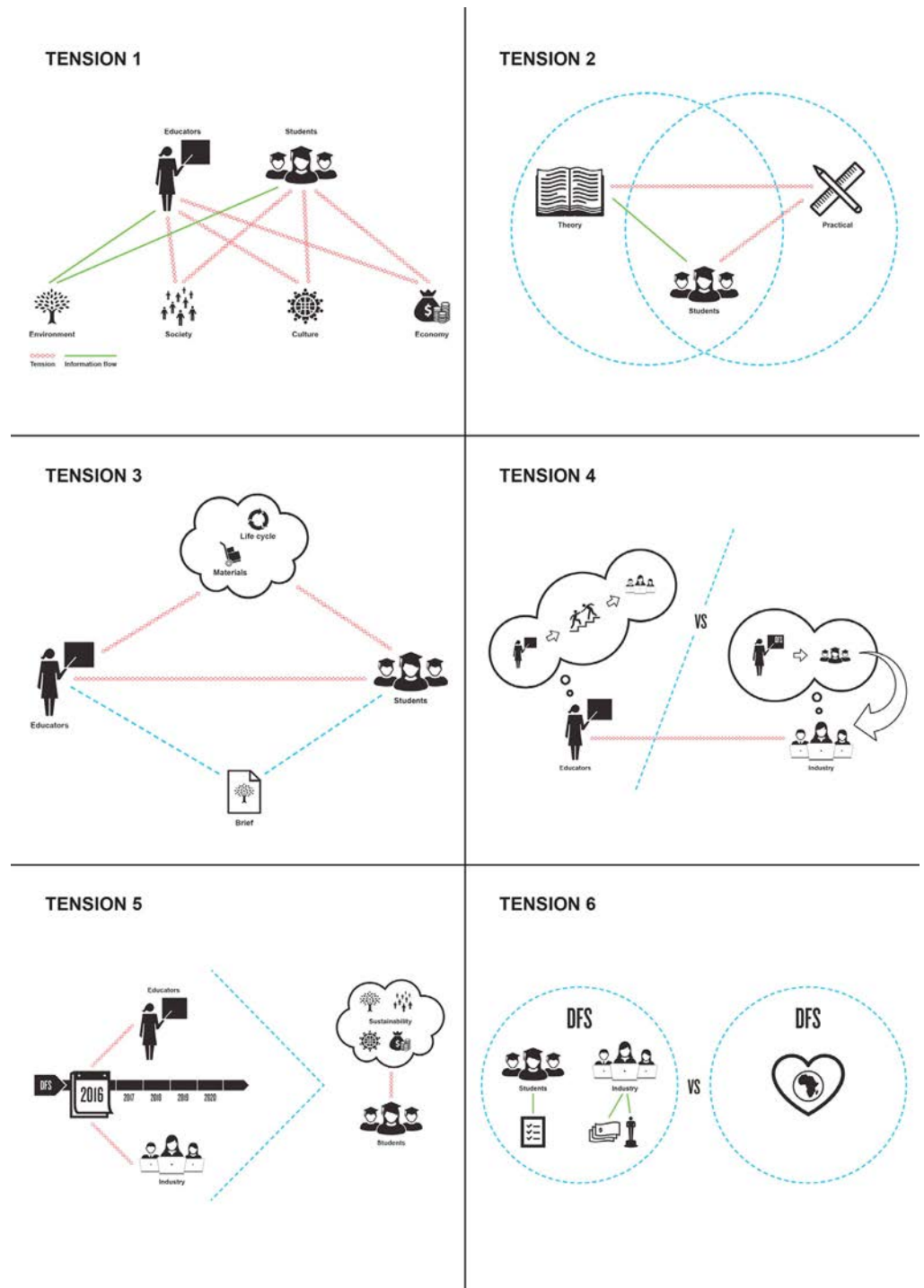
FIGURE **Nº 12**

Visual summary of the six key tensions that prevented the uptake of DfS.

themed briefs. As a result, the students knew that they would not be penalised if their solutions did not adhere to sustainability principles. As stated by CPUT Student 6 (2014): 'educators do not mark us on sustainability, we only work on what is required from the mark sheet'. Therefore, if students are not going to be rewarded for integrating sustainability into their designs, they will not be motivated to explore alternative solutions.

The above-mentioned tensions provided insights into why HEIs in Cape Town have not effectively integrated DfS into the communication design curricula, thus resulting in students failing to address the environmental, sociocultural and economic impact of their design solutions. In an attempt to lessen these tensions and help in the progression of DfS within the education system a set of tentative guidelines was proposed, as indicated next.

Proposed guidelines

Whereas generic global guidelines for integrating sustainability into various curricula existed, it was identified that a list of guidelines relevant to the local communication design context needed to be established. Using an online survey, design educators were asked to rank these guidelines according to their relevance for affecting the local pedagogic landscape. Based on how the educators ranked/prioritised the guidelines, the findings were grouped into three tiers. The following table summarises the key guidelines in rank order and highlights the impact on the three actor categories (Figure 13).

Summary of Tier One

There was overwhelming support for DfS to be formally included in communication design curricula. CPUT Lecturer 1 (2014) was of the opinion that 'if sustainability is not linked to the curriculum in stone, educators will not include it into their teaching'. RP Lecturer 4 (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 their students.

Equally important, the informants agreed that students must be exposed to collaborative projects through which DfS dialogue is promoted. Such a platform for multi- and inter-disciplinary collaboration was provided by Vega's *Brand Challenge*

	PROPOSED GUIDELINES	DESIGN EDUCATORS	DESIGN STUDENTS	DESIGN PROFESSIONALS
TIER ONE	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
TIER ONE	2. Students should collaborate in multi- and inter-disciplinary groups on DfS briefs		X Promotes a collaborative mindset and prepares students for industry	
TIER ONE	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	
TIER ONE	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	
TIER TWO	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	
TIER TWO	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
TIER TWO	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
TIER TWO	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
TIER THREE	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	
TIER THREE	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	
TIER THREE	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
TIER THREE	12. HEIs should drive sustainability conscious-ness by using the learning space to promote sustainable lifestyle choices such as recy-cling programmes	X Opportunity for teaching to align with the ethos of the HEIs	X Positions sustainability in a local context	

FIGURE **Nº 13**

Guidelines for integrating principles of sustainability into communication design curricula, in order of relevance.

module where third year students from different disciplines – strategy, copywriting and communication design – worked together in an agency-like structure on briefs for real world clients. The Vega educators associated the success of this module with the students' enthusiasm and commitment to working on briefs that address real issues in the local context, because it made them aware of the impact they can have on their immediate environment. All HEI's can learn from this example and implement similar modules because such collaboration will inspire knowledge sharing amongst peers, and according to Papanek (2000:301), only cross-disciplinary teams can serve the real design needs of the world properly.

In addition to collaboration, 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. 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 (Chick & Micklethwaite 2011:58). According to the data, not only does the students' backgrounds and schooling influence their knowledge of sustainability, but also their receptiveness to engage with it actively 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. 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 impact they can make on the world around them.

Summary of Tier Two

A strategy that was supported by both educators and students was to introduce the concept of DfS as a core principle from the first year of the communication design course. It was believed that if students were introduced to DfS at the same time as other design concepts, it would influence their 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.

DfS is a complex concept, and it is therefore important to introduce the subject in first year, and it is critical that educators find engaging ways to unpack the concept to their students. While videos such as TED Talks were seen as the most

effective tool to disseminate important information relating to current thinking and practice of DfS, the inclusion of industry specialists in the academic space was considered crucial. 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. In addition, industry must encourage experiential learning by offering *Work Integrated Learning* (WIL) programmes. Not only will these activities put the notion of sustainability into context, they will inspire the students, and ensure that the educators remain abreast of industry practices.

The informants agreed that in order to develop communication design-specific teaching guidelines and resources, educators from various HEIs should collaborate across the pedagogic landscape. 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. Educators saw the participation in sustainability-themed design competitions as an important strategy for encouraging students to connect with the concept of DfS because of the incentives linked to competitions. Design bodies could promote student competitions that address local sustainability issues themed around the different SDGs.

Furthermore, to gain better exposure to sustainability, the inclusion of DfS into all subjects across the curriculum was seen as applicable. Not only must re-curriculation take this into consideration, but it must ensure that the theory and practical components are aligned in terms of content and timing. DfS should be integrated across both the theory and practical domains right from the beginning, rather than being taught as a separate module.

Summary of Tier Three

To expand the students' understanding of DfS and how the different aspects of sustainability influence one another, the HEIs need to offer a more holistic and comprehensive view of sustainability. 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 apply practically what they have learnt. This could be achieved by setting practical briefs that show how the different

pillars of sustainability are interconnected, as well as encouraging students to consider the life cycle impact of all their design solutions. However, students will first need to gain knowledge about the material options available to them in order to better understand the entire life cycle impact of their work. Workshops and presentations by industry suppliers were seen as effective strategies to make this happen. Furthermore, in order to motivate the uptake of sustainability practices, educators and students agreed that it would be important to include DfS as a rubric for assessment. If DfS is incorporated into every design brief, students will not see it as an extra-design concern.

In addition, a key finding was that educators did not feel they had enough knowledge about DfS to integrate it into their teaching, therefore the informants saw attending regular training as relevant. The educators also highlighted the lack of institutional support as a limitation to integrating sustainability into education. In order to strengthen the students' engagement with the concept, HEIs should have a responsibility to drive sustainability consciousness in their respective campuses.

The educators' support of the guidelines shows that incorporating DfS into curricula is a feasible recommendation. Educators have been identified as thought leaders who play the most crucial role in implementing the proposed guidelines because they interface with both students and industry, and straddle the critical domains of research, pedagogy and professional praxis. If this list of guidelines is adopted, it will indeed enhance the uptake of DfS principles.

Conclusion

The world, and in turn the communication design industry, is facing daunting challenges of a constantly changing environment, society and economy. In Cape Town the demand for practices that emphasise sustainability principles is not yet significant; hence the communication design fraternity does not feel it has an obligation to adopt it in any significant way. Not only is local industry lagging behind, it also has an apathetic approach to putting sustainability into practice. This identifies the need for a combination of design advocacy and design activism amongst diverse actors. Whereas advocacy is about creating awareness, activism confronts the status quo with proposals for viable alternatives. As the SDGs focus on tackling an array of critical global issues, communication designers can indeed play a transformational role by creating powerful messages that conscientise their clients and the general public about the severe consequences of not addressing issues of sustainability with agency and urgency. 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.

In the final analysis, DfS is a critical input for preparing students for more ethical practice once they graduate. The onus must be placed on design educators who are 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.

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