



Cape Peninsula
University of Technology

**WORLD DESIGN CAPITAL 2014 OPPORTUNITIES FOR TRANSFORMING BUSINESS
STUDIES CURRICULA**

by

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Michelle Andrea Barnes

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ABSTRACT

This research explores whether any better ways of teaching and learning arose out of the interaction of the CPUT Faculty of Informatics and Design (FID) Design Department participation in the World Design Capital, Cape Town 2014 (WDC2014) projects. Activity Theory was the framework and methodology used to collect and analyse data. Semi-structured interviews were conducted with nine design lecturers of the Industrial and Graphic Design departments of FID.

The thesis was undertaken, as the researcher believes the present professional practice for design curriculum has not kept pace with the socio-economic realities of the 21st century, and that not enough has been done to overcome graduate unemployment and address the creation of one's own employment in the current circumstances. Economic realities and challenges are discussed along with innovative resilient and authentic academic learning ways to promote better learning for transitioning into the world of work.

The Activity Theory framework was chosen in order to analyse the various interacting elements within the WDC2014 activity system, and was used for comparison with that of the existing professional practice curriculum activity system. From this analysis the tensions and contradictions within and between these two systems were uncovered, which showed possible areas for *expansive learning* and possible curriculum-useful learning opportunities that could be incorporated into the curriculum of the future.

The work concludes with suggestions for further research into curriculum development for authentic learning, and the inclusion of multi-disciplinary curriculum developers for *expansive learning* within the classroom. The development of entrepreneurial approaches within any future curriculum also requires further examination.

KEYWORDS

Activity Theory; business studies for design curriculum; experiential learning; workplace readiness;

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DEDICATION

I dedicate any worthwhile research findings and further research possibilities that may arise from this thesis to the students and graduates who may receive better career learning as a result.

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GLOSSARY

Terms/ Acronyms/ Abbreviations	Definition/Explanation
Professional practice/ Business Studies	'Professional practice' or 'Business Studies' is the subject offered to students regarding aspects of business; it is referred to as professional practice in design programmes in the Faculty of Informatics and Design (FID) at the Cape Peninsula University of Technology (CPUT). Typically, the subject, which is taught in many countries contains aspects of economics, finance, accountancy, marketing and organisational studies
Career	'A course of business, activity, or enterprise; especially, a course of professional life or employment' (Webster's Comprehensive Dictionary of the English Language, New International Edition 2004)
Career resilience	<p>'Career self-reliance refers to individual career self-management - taking responsibility for one's own career and growth while maintaining commitment to the organization's success; career resilience refers to individual career development - developing the knowledge and skills required to make a visible and personally motivated contribution to the organization and its customers'. (Brown, 1996:2)</p> <p>'Career resilience is the individual's capacity to deal with career disruption within an uncertain environment' (Clarke, 2008)</p>
Corporate Social Investment (CSI)	CSI refers to a company's financial and non-cash contributions to disadvantaged communities and individuals for the purposes of social upliftment and welfare and is part of the growing relationship between the business sector and the SA government to contribute to promoting national developmental objectives (Triologue SA, n.d.)
Curricula	Curricula are the planned interactions of students with educational content, materials resources and processes for the evaluation of attainment of educational objectives. A curriculum would include: a statement of intended aims and objectives, content, experiences, outcomes and processes of an educational programme, including a description of the training structure (entry requirements, length and organisation of the programme) and also including its flexibilities and assessment system and a description of expected methods of learning, teaching, feedback and supervision (McClusky & Smith, 2008)
Globalisation	Definitions of globalisation abound, this definition stems from a study of definitions on globalisation: 'Globalization is a process that encompasses the causes, course, and consequences of transnational and transcultural integration of human and non-human activities' (Al-Rodhan & Stoudmann, 2006)
Graduate attributes	Graduate attributes include problem solving, time and resource management, life-long

	learning, communication and self-management (Griesel & Parker, 2009:4-5; Yorke & Knight, 2006: 3); see Table 2 and discussion on pp19-20 for further elaboration
Higher education institutions (HEIs)	In this context, HEIs include any university, university of technology (UoT) or tertiary college
Knowledge worker	'Knowledge workers include researchers, designers, artists, programmers and other innovators' (Inkinen, 2011:87). They are part of the knowledge society and operate within the knowledge economy (KE). These are sometimes termed the "creativity society" and "creativity economy" (Dubina, Carayannis, & Campbell, 2012)
Performativity	Performativity means that the necessary (demonstrable) skills to do specific tasks in the workplace are manifest in the individual (Barnett, 2000)
Social entrepreneurship	'Social entrepreneurship is a process by which citizens build or transform institutions to advance solutions to social problems, such as poverty, illness, illiteracy, environmental destruction, human rights abuses and corruption, in order to make a better life for many' (Bornstein & Davies, 2010:1). It uses both business principles and those of non-profit organisations. In a corporate environment the term Corporate Social Responsibility (CSI) is used
Transformation	A change or alteration, especially a radical one (World English Dictionary); to give a different form to; to change the character of (Webster's Comprehensive Dictionary of the English Language: New International Edition, 2004)

1 BACKGROUND TO THE RESEARCH PROBLEM

1.1 Introduction

Earning a living is becoming increasingly precarious for graduates and others in the prevailing job-scarce 21st century economy. Unemployed graduates are commonplace; surveys in South Africa indicate that graduate unemployment is at least partially owing to the quality of graduates available, that there are not enough entry-level positions for graduates and firms are not prepared to take on inexperienced graduates at the middle-management level where there is a skills shortage (Pauw, Oosthuizen & van der Westhuizen, 2006:13; Fatoki, 2010).

There is thus a growing burden on foreign and South African higher education institutions (HEIs), to promote ways of thinking and being in students that promotes the ability to obtain employment or even the ability to create their own employment on graduation. Usually this translates into promoting entrepreneurial education in the academy as a way of providing employment through business growth. Despite the emphasis on this (Carey & Matlay, 2010), there is a growing body of literature indicating there is not enough evidence that business education does indeed promote business growth and therefore job-creation for graduates and others (Fairlie, 2009: 8, 14; Nicolaidis, 2011; Matlay, 2006). Given this problematic situation, there is an imperative for the undergraduate learning programme to transform students' ways of thinking about themselves, their chosen careers, the economy and the society in which they live, in such a way that they are most likely to thrive economically on graduation.

As with many HEIs, the professional practice curricula offered to design students within the Faculty of Informatics & Design (FID) at CPUT is meant to adapt to the changing nature of economic realities, but perhaps has not progressed sufficiently from that of the mid twentieth century curriculum. Previously, a university qualification more-or-less guaranteed employment and a relatively comfortable standard of living this is in sharp contrast to the prevailing situation where graduate unemployment is rising alarmingly, notably in the arts and social sciences (Pauw et al., 2006:1; Cape Higher Education Consortium (CHEC), 2013:7).

This situation is not remarkable when one considers that subject lecturers tend to be grouped according to their specific fields and sub-cultures (Eraut, 2009) and therefore their historical assumptions, knowledge, teaching style and expertise prevail in the classroom and this

position is unlikely to change without external prompting. As socio-economic paradigms have shifted since many lecturers began their careers, they are often unfamiliar with how to emphasise dealing with changes in graduate joblessness and under-preparedness for the complex, changing world of work (Eraut, 2009). Asking lecturers to transfer knowledge and learning of which they have little experience is unlikely to meet with success.

The changing nature of entrepreneurial opportunities (which now include corporate social investment (CSI), ecologically sustainable opportunities and internet-based businesses), means work opportunities may go unrecognised by the graduate and lecturer, as these opportunities may not fit the received professional practice learning paradigm as described above. Given the prevailing economic circumstance and the need for graduates to be as work-ready as possible, the best preparation available needs to be sought. It is in the spirit of economic uncertainty and changing workplace requirements that World Design Capital 2014 projects are used to uncover whether any curriculum-useful learning opportunities could be uncovered

1.2 Context of research opportunity: World Design Capital (WDC) 2014

This thesis is about exploring inputs that will be useful in a professional practice curriculum for designers. Professional practice as an academic subject should provide the design student with knowledge, skill and practice so that they transition smoothly into the workplace on graduation. The WDC2014 was an opportunity to use an international context external to the university to uncover whether useful learning could be gained for curricula of the future and consequently some detail about the WDC2014 is provided below.

An opportunity arose for design schools in the Cape Town and surrounds to collaborate in World Design Capital 2014 (WDC 2014) projects when Cape Town was awarded this status. As CPUT showed interest and participated in the run-up to the WDC 2014 award (Ambole, M'Rithaa, Moalosi, & Molokwane, 2012: 193) it was well-placed to gain from this potentially synergistic relationship. The WDC 2014 projects included social entrepreneurship learning, recognition of changing societal needs and possibility of gaining skills necessary in transitioning from student to graduate in the WoW.

The WDC2014 title was awarded to Cape Town by ICSID (The International Council of Societies of Industrial Designers, since renamed the World Design Organization, in 2017). The award is given to cities in anticipation that they can showcase design to their governments and cities as a tool to advance developmental and urban renewal, and to ameliorate challenges that cities face in the 21st century. Turin (2008) was the first city to

receive this award, followed by Helsinki (2010), Seoul (2012), Cape Town (2014), Taipei (2016), Mexico City (2018) and Lille Métropole (2020).) (“World Design Organization,” n.d.). The nature of the WDC 2014 projects was to promote social justice by expanding opportunities for all citizens. WDC projects promote social inclusion through advancing the concept of design as a vehicle to alleviate conditions of poverty which include poor access to health care, education, transportation and other economically useful resources. This underscores a shift in societal thinking where support has emerged for promotion of more sustainable, ethical business practices through using renewable and recycled resources in an environmentally positive way (Goede, 2011; Hargreaves, 2002: 1-3). The six WDC2014 project clusters indicate this:

1. Lifestyle enhancers
2. Business that builds
3. Sustainability solutions
4. Connections that unite
5. Education that elevates and
6. Community improvement Urquart, (2013)

Industrial and graphic design fields were chosen for this research over several others (interior design, jewellery design, architectural design and fashion design), as the researcher has lectured professional practice to both graphic and industrial design students from first to third year. In addition, these two fields have had somewhat different experiences of gaining employment on graduation. The researcher holds qualifications in both design and business, and has practised in both fields for several years before lecturing professional practice to business, design, and other non-business major students. Experience and prior beliefs include concepts of fairness towards fellow human beings, the ecological environment and of taking responsibility for poor choices of the past; an ethical stance that coincides with the WDC2014 *raison d’etre*.

By participating in the WDC2014 projects practical experience in business management skills, and dealing with economic realities, opened to CPUT’S Design Department and students. The reputation of the design department’s professional practice programme as one that is relevant and provided real-world learning experience could enhance the prestige of the Design Department, encouraging better and more applicants to register. FID could potentially gain valuable contacts for collaborative projects for future students which would further enhance graduate employability (i.e., enhanced capacity to secure employment) and the reputation of the Faculty (Glover, Law, & Youngman, 2002).

As Cape Town was the first African city to be chosen as a WDC city, the local design students and design HEIs who participated in social entrepreneurship projects related to WDC 2014 had unique opportunities to boost network contacts with the WDC network partners. The FID design department's Work Integrated Learning (WIL) programme could stand to benefit beyond the WDC 2014 period, as relationships formed then are maintained and expanded in fulfilment of the university mission, stated below, (a bold font has been used to emphasise the CPUT mission statement's alignment with this research):

Cape Peninsula University of Technology Mission Statement

The four aims that comprise our mission:

We will build a university that is highly efficient, sustainable and environmentally conscious

*We will be known for the high quality of our teaching and learning and the **relevance of our curriculum***

We will create a vibrant and well-resourced living and learning environment for our students

*We will **enhance and develop the quality and effectiveness of our research and knowledge production.***

(CPUT, n.d.)

The WDC concept was founded with the express idea that design is a tool for development and can be used for social, cultural and economic improvement. Global appeal and collaboration are encouraged so that design networks worldwide promote design to their various governments. The WDC concept honours cities striving to attain these goals. The impact assessment report on WDC2014 published in 2015 indicates the following direct impacts on the City of Cape Town: increases in job creation, production, business sales and household income and ways local business is conducted. Indirect impacts include increased spending on food, clothing, shelter and other consumer goods and services (Viviers, 2015: 20-21).

Once the WDC status was awarded, Cape Town chose as its main theme: 'Live Design, Transform Life', with four sub-themes (World Design Organization, n.d.):

- **African Innovation. Global Conversation:** African ideas that speak to the world.
- **Bridging the Divide:** Design that reconnects our city and reconciles our communities.
- **Today for Tomorrow:** Sustainable solutions for people and planet.

- **Beautiful Spaces. Beautiful Things:** Inspiring architecture, interiors, food, fashion, jewellery, craft, art and creativity.

The overall importance of integrating a city divided by its colonial and *apartheid* past and promotion of economic inclusion of all community sectors was a key feature of WDC 2014. The four themes promoted projects which gave evidence of how design improves lives in the local African context. and positions Cape Town for a sustainable future.

Gillian Benjamin, board member of the WDC 2014 company, Cape Town Design, said in an interview in the journal *Management SA* (Rossouw, 2013:1-3), that it is crucial that Cape Town be positioned as a design and innovation excellence city, especially in the emerging market sphere where Cape Town is facing challenges of basic services delivery and sanitation which typically accompany rapid urbanisation. Consequently, she asserts that there is a strong desire for community participation in keeping with the ethos of WDC awards. (The list of fifteen WDC 2014 projects in which CPUT was involved is presented in Chapter 3, with details of each being given in the Appendix). Each one of these projects has strong community participation and consultation.

The Western Cape Design 2040 Strategic Framework considered various avenues to promote design within the Western Cape. It recognised that South African business generally did not hold design in any special regard for conducting business. Cape Town business was on the lowest rung but one of the design maturity ladder recognising 'design as styling' only (Elk & Bloom, 2012:22).

The World Design Survey of 2010, which was commissioned when Seoul was awarded WDC status in 2010, recognises that, 'there is a gap between design-intensity and sophistication of the Western Cape and SA economies generally' (Seoul Metropolitan Government, 2010:74-80), compared with global competitor countries (Boting, Standish, Marais, Schnurr, & Kaiser Associates, 2013:i). Specifically, South Korea was mentioned; a country of similar population size to South Africa which has 237 design education institutions whereas SA has about 50. Also included in the survey was the fact that SA and the Western Cape, 'has very few internationally-recognised design-led brands with strong export performance'.

There was scope to showcase design for social sustainable purposes to improve the lives of Capetonians and gain recognition from government and civil society of design as a creative force for social good. The post-WDC2014 independent Impact Assessment (Viviers, 2015:4) points out that that the City has come to acknowledge design as a tool for socio-economic

inclusion and upliftment, which it had not done previously; a fact corroborated above by the Western Cape Design 2040 Strategic Framework previously cited (Elk & Bloom, 2012:8-18). The City has 'moved up' to the top of the design maturity ladder post-WDC 2014, as it recognises design as both a "process and innovation" and no longer merely as styling.

1.3 Research Design

This thesis uses third generation Activity Theory (AT) Engeström, (2001). Better teaching and learning ways to integrate theoretical knowledge, methodological knowledge, practice skills and generic personal skills necessary for the design graduate smooth transition into the workplace, are looked for (Eraut, 2009:4). Authentic workplace experiences are known to provide conceptual, procedural and dispositional development. Students need to be prepared to be agents to receive these experiences for smooth transitioning into the workplace (Billett, 2009).

The participation of staff and students in various World Design Capital Cape Town 2014 (WDC2014) projects was used as a research opportunity to explore whether any useful learning emerged that may promote broader learning than classroom activity or apprenticeship would allow. Specifically, the kernel of interest is whether any learning occurred which may ultimately be inserted into the curriculum to promote the graduate's ability to integrate more successfully with the workplace, than previously. Successful integration with the workplace would include learning new traits like becoming resilient (details of which will be discussed later), new knowledge and abilities or ways of being that empower the graduate to navigate the socially complex and economically uncertain 21st century landscape. Learning previously unknown ways by a whole Activity System (AS), via the difficulties and contradictions experienced were looked for. In this thesis, it is hoped that the research reveals more relevant and improved learning for the student, and, therefore, indicators of valid inputs for the university curricula of the future. Workplace learning is not the focus here, but rather, exploring the workplace experiences to improve curriculum relevance for the design graduate.

Important questions in this exploration are why and how learning occurred, who learnt, and what was learnt. AT as a learning theory acknowledges that learning does not occur in isolation, and that personal history in the culture from which subjects originate is an important and valid influence on who learns, what they learn and how they learn; in other words, their *historicity*. AT originated in the research of Lev Vygotsky (1896 –1934), an early (1917-1927) Soviet-era Russian education psychologist who considered that an individual's

learning occurred through some form of mediation or affordance by means of signs or symbols (mediating artefacts). He termed the space or place where a teaching mechanism is appropriate, the “zone of proximal development” (ZPD). In this zone, a student learns what s/he is unable to discover for her/ himself, unaided. AT recognises that human effort (to learn, in this case), has direction; it is goal-driven but beset by complexities and contradictions for cultural and historical reasons and that these need to be addressed for better learning (Garraway, 2011).

Engeström (2001) posited that in the contradictions that exist in human endeavours, opportunities occur. These dialectic opportunities arise where a subject’s existing knowledge and frame of reference collide with information from elsewhere that does not fit within their received framework. In examining this new information, the subject must assimilate it into their existing body of knowledge to create new learning. He recognised that the subject (the student, in this thesis) needs to act with new information, termed a ‘mediating artefact’ to achieve a desired goal (new learning). For the student, the curriculum is a mediating tool or sign that may be lectures, demonstrations or field trips. The goal, subject matter, or ‘object’ which is being worked upon in the form of knowledge learnt leads to making meaning and a desired outcome, for example, graduation. This object is often somewhat inchoate and open to change as new learning and contradictions impact on the activity process. First generation AT only considered learning for the individual, it was only in later AT generations that collective learning of a whole Activity System (AS) was considered, and then collective learning of two or more interacting activity systems Engeström, (2001). Thus, an AS is a tool that has developed from AT, specifically via what is known as ‘third generation Activity Theory’ (AT).

Examples of activity systems include a hospital, a healthcare system, a university or teaching department or a business entity Engeström, (2001). The examination of the interaction of the university professional practice teaching mechanism and WDC2014 projects as activity systems is used to explore better ways of knowing and being that enhance student learning through a transformed curriculum. The ultimate end of this expansive learning by interaction is to improve the graduate’s ability to contribute meaningfully to society and gain lifelong economic resilience especially in volatile social and economic circumstances.

As with an individual, any organisational AS has situated historicity (embedded historical authenticity), in other words social and cultural attributes considered to be norms within that AS. It is where an AS is forced to review its interaction with another AS, and differences, contradictions or conflicts oblige each AS to learn about the other. At this point a new

collective object is formed. This is the dialectic opportunity which drives change and thereby facilitates new, *expansive learning*.

AT recognises that varying tasks are divided between individuals within the AS for the whole AS to function the way it does. In this instance, the temporarily formed WDC2014 Projects AS interacts with the CPUT Design Dept. AS. It is expected that there will be opportunities to expand the learning of the Design Department as well as for the individual student. Each AS must cross back and forth over the 'boundary' to the other AS, and thus together they expand their learning overcoming previous limiting viewpoints. WDC2014 projects have been chosen as proxies for workplace experience as they are real-world challenges mimicking the complexities of society that the student must face, yet they are partially confined within the shelter of the university learning space.

There is a developing notion that separating knowledge from doing in the traditional academic learning model, should be reviewed as it decontextualizes learning. Students may gain facts, principles and concepts but often cannot access this knowledge to solve practical problems because the knowledge is stored as facts and not as tools to be used thus little *authentic learning* occurs. The root of this is that the interdependence of situation and cognition has been overlooked (Herrington & Oliver, 2000). The possibility of linking *situated learning*, the notion of learning knowledge and skills in contexts that reflect the way the knowledge will be useful in real life (Brown, Collins, & Duguid, 1989), with the well-known *community of practice* model (Lave & Wenger, 1991:49), but without proceeding down a mere apprenticeship-to-journeyman route, is tantalising to curriculum designers. Theorising practical ways within a classroom may usefully contribute to overcoming some of the challenges HEI's face in remaining relevant in changing socio-economic paradigms.

Where tertiary education deals in theoretical concepts and formal assessment of the individual student learning through set examinations, the workplace is concerned with practical tasks performed in teams which have financial and efficiency implications. These require different ways of social integration with colleagues, customers and suppliers (Garraway, Volbrecht, Wicht, & Ximba, 2011). The World of Work (WoW) is commonly considered bound to the economic concept of supply-and-demand and the accounting concepts of cash-flow and profit-making. Even not-for-profit or non-governmental organisations (NGOs) require these skills for good governance and donor-compliance, qualities that too often only receive only a cursory nod in HE curricula in preparing students for life after graduation, particularly in non-business faculties.

New learning occurs where a solution learnt in one sphere and re-applied in another is a static form of transfer based on pattern-recognition; it is not much use when the environment and the circumstances change in complex, perhaps previously unthought-of ways. Where the situated (socio-cultural) background of the subject is considered, it is experience gained through participation that counts as learning, so that the transition from one situation to a related one occurs through practice as in the case of apprentice to journeyman. This is termed proficiency or productivity rather than an expansion of learning. Although it inducts the apprentice into a *community of practice* it does not assist with turning theory into practice so necessary in rapidly-changing complex situations and the concept that eludes students more than any other (Eraut, 2009: 8).

It is the interaction of university activity system (represented by the Design Department and the professional practice curriculum) with WDC2014 Projects AS that holds our interest. From a student perspective, any environment allowing the experience of a future work context which will inevitably have times of chaotic development, gives better preparation for the workplace than merely theoretical knowledge can deliver. Requirements for *expansive learning* include a learning space where all activity systems contribute to a developmental project; the WDC2014 Projects AS provided such a space. Theoretical concepts created within that project are used to remake new objects and new concepts which are used as models or tools in new activities or learning (Konkola, Tuomi-Gröhn, Lambert, & Ludvigsen, 2007). The goal is *expansive learning* in new situations as experienced in a dynamic complex world. Thus, this study asks: what better ontological and epistemological tools can be developed and included in the professional practice curriculum, making it relevant to the design graduate through using the WDC2014 Projects AS learning space?

1.4 Problem statement

The Professional Practice (business studies) curriculum at CPUT is not providing design graduates with enough career transitioning learning, given the prevailing socio-economic environment in South Africa.

It is unclear what learning occurred through CPUT's participation in WDC2014 projects, who experienced that learning, how it occurred and whether any transformative curriculum-useful aspects were found.

Questions to be answered

Have any curriculum-useful learning opportunities emerged from the interaction of FID Design Department with WDC2014? Stated differently:

- *What curriculum-useful learning opportunities emerged from the interaction of FID Design Department and WDC2014?*
- *How did these curriculum-useful learning opportunities arise?*

The use of Activity Theory for this study is substantiated in Chapters 1 and 2. The detailed analysis of complex systems that AT affords is the reason why the sub-questions (which are used to answer the main questions), are directly AT related. Curriculum-useful learning from the interaction of the Design Department and the WDC2014 will doubtless be of a bridging hybrid nature recognised by each Activity System as something they can appropriate. It is with this in mind that the following sub-questions are asked:

- *What shared objects were created in the interaction of the activity systems of CPUT and WDC2014 projects?*
- *How did these shared objects arise?*
- *How may these shared objects be useful in curriculum design?*

Interviews with participating FID Design Department lecturers are used as a method to obtain data regarding the experience of students, staff and other participants in WDC 2014 projects. Data useful in terms of transitioning of the student into the WoW are of special interest. The study is of a local nature, being specific to the economy of the greater Cape Town area and CPUT Design Department in the Faculty of Informatics and Design (FID). The context is local in that the study takes Cape Town's socio-economic circumstances into account. Its validity is attested through AT elements used for analysis of data and by examining the different learning experiences of lecturers, students and organisations who participated in WDC2014 projects.

The introductory chapter has set the backdrop of growing graduate unemployment, the need for HEIs to respond to entrepreneurial imperatives of the modern socio-economic world and the Vygotskian understanding of how human learning occurs through his 'zone of proximal development' concept. Vygotsky's idea that learning is an active goal-orientated process led to the beginnings of Activity Theory which was developed and adapted by Engeström and others. The examination of the individual's learning model led to examining group learning

and how learning could be expanded within and between groups. At the same time the notion of 'authentic learning' within the classroom but with the workplace in mind was also mentioned as being an indicator for the classroom of the future. The WDC2014 was used as an opportunity to gain research insight into possible ways of bridging classroom learning and workplace learning, both of which are necessary for the student entering the workplace successfully on graduation.

2 LITERATURE REVIEW

2.1 Introduction

The cultural-historic background of Cape Town and the WDC were included in Chapter 1 in section 1.2: *Context of the research opportunity*, as a backdrop to the Activity Theory framework used in this study. In sections 1.3 and 1.4 the research design, problem statement and questions followed. Now a review of teaching and learning, curricula development and research insights as they pertain to the design student and the professional practice curriculum follow to illuminate the problem statement, opportunities and research questions. HEI imperatives are also reviewed. But first the niche area of this research is discussed.

The thesis explores affordances offered by practical learning as found in Billet, (2009). Herrington & Oliver, (2000) have developed a *theoretical framework* which mentions various critical characteristics of situated (workplace) learning to be used in the classroom; this is discussed in section 2.7. Barnett, (2004) describes what he terms a *Pedagogical options schema* where four possible classroom teaching and learning scenarios are given, each based on the risk-aversion and ability to live with uncertainty of both lecturer and student; this is discussed in section 2.4. Yet there seems a paucity of translation of Herrington and Oliver's situated learning framework into actual classroom practice. Hanney, (2018) pointed to a tendency to view university curriculum separately from the workplace.

The Professional Practice curriculum displays a similar approach; its implementation over time has lacked ongoing changes as workplace requirements changed but was nevertheless recognised as a useful component in the design programme. It has not linked what students can be doing to foster their workplace preparedness in the way that the live case studies of the WDC2014 did. Live case studies do contribute positively to authentic workplace learning perceptions of students in the academy. The research of Hanney (2018) into the modalities of PBL moving from 'doing' through 'being' to 'becoming' has shown an ontological approach to situated learning that dovetails with Barnett's model where student and teacher are challenged ontologically as human beings and not merely epistemologically in what they know.

Steven Billet's argument of the importance of integrating work experience into higher education and professional learning (Billet, 2009:840) is expressed through the WDC2014 projects experienced by students and staff.

2.2 Living with internationalised HE in the Knowledge Society

Barnett (2000) states that there is an increasing need both by HEIs and the state to have diversified curricula that are relevant to the world of work (WoW), attract students and appeal to employers – part of what Jane Knight calls ‘internationalization of HE’:

Internationalisation of higher education is one of the ways a nation responds to the impact of globalisation, yet at the same time respects the individuality of the nation.

(Gacel-ávila, 2005:124)

The requirement for relevant and diversified curricula has been a response to changes in global capitalism, where since the 1970’s de-regulated banking laws and looser employment regulations along with competitive advantage economic practices created global ‘neoliberal capitalism’. It has meant that graduates must have ‘performativity’ or manifest demonstrable skills in the workplace (Barnett, 2000) if they are to find gainful employment. In this complex situation, the ontological nature of the student is often overlooked in curricula. The 21st century reality of the explosion of communication technology has created access to other cultures and thinking.

Globalisation requires that tertiary educated individuals attain an outlook and education that empowers them to earn a living anywhere they find a job or other economic opportunity. Pedagogically, perhaps the notion is: “think globally, act locally” (attributed to Rene Dubus, UN Conference for Human Environment in 1972), as this would give the learner an international outlook without neglecting local circumstances. Designer, Ezio Manzini, uses *cosmopolitan localism* (Manzini, 2015:2, 25) to indicate a culture which joins local and global circumstances. Altbach and Knight (2007), remind us that globalisation and internationalisation are not synonymous, where globalisation provides the context to education, internationalisation is the educational response to coping with the globalised learning environment.

A successful learning programme must educate for good global citizenship without devaluing local circumstances. Barnett (2000), considers our global/local reality to be “supercomplex”; to him, the framework itself that we use to act and make decisions in the world, is fragile. The way we understand ourselves and the world is uncertain and often incomplete; a globalised web of complexity. It is confusing and increasingly risky and much of it is caused by technological advances that promote individualism. The requirement to live in the Knowledge Economy, (see in Table 1) means several differing streams of knowledge must be acquired

by the graduate coupled with generic skills like flexibility and self-reliance. The individual is obliged to constantly 're-invent' themselves throughout life (Barnett, 2000).

In terms of the Knowledge Society, knowledge economies and knowledge workers and what effect does it have on learning institutions, the sociologist and education leadership researcher, Hargreaves says:

Knowledge economies are stimulated and driven by creativity and ingenuity. Knowledge society schools have to create these qualities, otherwise their people and their nations will be left behind. [...] It stimulates growth and prosperity, but its relentless pursuit of profit and self-interest also strains and fragments the social order. (Hargreaves, 2002:1)

Hargreaves (2002:3) explains that knowledge societies are learning societies; a society that processes information in order to cope with change. Individuals are required to out-think competitors whether in a business organisation or alone. There is a constant need to invent new things to out-do competitors; it is little wonder then that HEI curricula have difficulty in keeping up with the pace of such change and innovation. The workplace reality in the Knowledge Society is that organisations (activity systems) build their capacity to share knowledge and apply new knowledge. Individuals in such organisations are encouraged to retrain and continue learning always, hence the graduate attribute requirements of flexibility and lifelong learning, and getting along with others (sharing) discussed in the section on career resilience below.

The Knowledge Economy is seen as having a permanently abundant resource in that knowledge does not deplete and can be reused and transformed for further use, also distance has become irrelevant with modern communication technology creating a global virtual marketplace. Global supply and demand mean information flows to where it is required most, and thus local knowledge becomes important as the value of information differs in time and place. A key value is human competency or human capital as this is required to unlock knowledge embedded in processes and systems (Peters, 2001). What follows is that schools and higher learning institutions must transform the student to have meta-cognitive skills (ability to reflect on practice) and the ability to access and evaluate knowledge in a vast sea of knowledge, information and data, manage ambiguity and contingent situations and multiple careers (Hargreaves, 2002:3-4).

2.3 Transformative learning

The concept of transforming and the need to transform is mentioned in the thesis title, Chapter 1 above in 2.2 above; how does it relate to learning in HE? Jack Mezirow makes

effective use of sociologist and philosopher Jürgen Habermas's theory of the human generation of knowledge in his own works in adult education to explain this. Habermas describes three domains of human interest that lead to knowledge generation as that of *work*, *practical* and *emancipatory* Mezirow (1981:4). Mezirow himself termed them *instrumental*, *dialogic* and *self-reflective* where they concern adult learning in the workplace Prayer, (1993:44). The first, (*work or instrumental*) being the area of some kind of task-orientated problem-solving action to control environment as in the fields of chemistry or geology. The second domain, the *practical/dialogic* concerns how we learn to understand others through communication; it is the essence of the historical-interpretive sciences most obviously represented by the study of history but also the descriptive social sciences. It is the third area of human interest that is often least understood and most necessary in adult learning, namely the *emancipatory/self-reflective* domain. This is where self-reflection and self-knowledge transform the human being and their view of self in society through critical awareness. Their view becomes fundamentally different from what it was before. The critical psycho-analysis sciences are examples of fields that provide emancipatory learning Mezirow (1981).

2.4 Barnett's pedagogical options schema

The higher education philosopher, Ronald Barnett has traced HE curriculum development in a quadrant model of how pedagogy works (Barnett, 2004). It describes the degree of riskiness versus degree of education development and transformation on the x and y axes. Although it is a model of progressive pedagogical options, in a sense it also shows the history of curriculum in HE over the last few decades. The historical demonstration comes from the necessity of developing teaching style as societal needs have changed and whilst all four quadrant options are still in use, increasingly it is the later options that are most relevant to 21st century society. The first quadrant being simply a discipline knowledge-field in which there are few risks or uncertainties and little educational transformation. The second quadrant has a more engaging teacher who enables the student to gain wonderment for a discipline which consequentially encourages questioning and exploring and more personal openness of the lecturer and student to each other. This is riskier but again merely developmental pedagogically. The third quadrant includes the mastering of more generic skills, technical skills and graduate attributes which are trans-disciplinary and inter-disciplinary. These skills may be used in an increasingly changing workplace environment and certainly in the knowledge economy. It is not risky, but undoubtedly more transformational than the previous two quadrants. Much has been made of this pedagogical approach often owing to workplace requirements for competent skilled knowledge-workers

particularly in the 90s and the early 21st century (Kruss, 2004; Griesel & Parker., 2009:6; Tran, 2011:3) but it is no longer sufficient. Finally, the fourth quadrant is where disciplinary content knowledge recedes in favour of personal development as being the only possibility of thriving in a world where the frameworks and answers are constantly being challenged.

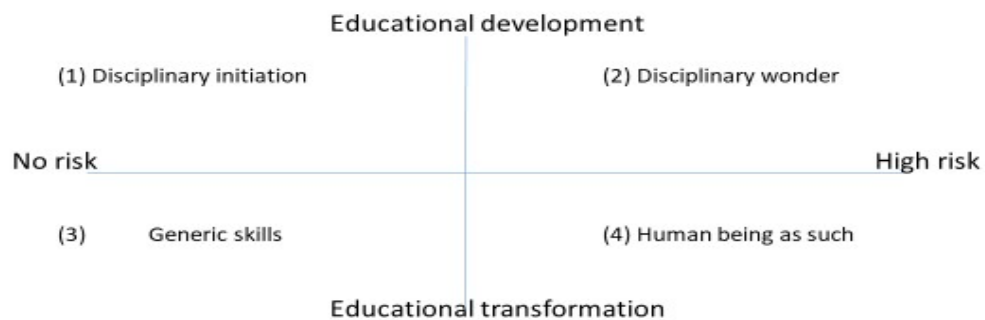


Figure 1: Barnett's Pedagogical options: a schema: from 'Learning for an unknown future' Barnett (2004: 255)

Education in this quadrant is transformative and high-risk for both the student and the lecturer, a space where individuals learn to thrive and live well with uncertainty. To be this kind of teacher and learner requires the cultivation of creativity and imaginative thinking and challenges the student as a human being not merely as a learner or knower of a discipline. It requires grappling with unknown or new ideas and formulating a personal response and making decisions with incomplete information. Our foundation of shifting sands requires an ability to cope when answers change questions into 'wicked problems' in a place where we simply cannot know everything.

Barnett (2004) suggests that the traits required include thoughtfulness, humility, criticality, receptivity and resilience. These traits are exactly those considered essential in Habermas and Mezirow's third domain of adult learning, the emancipatory or self-reflective domain where critical reflectivity and self-directed learning free adult human beings from restrictive socio- and psycho-cultural historical paradigms.

These traits are the essence of being human rather than of any knowledge discipline, hence he states:

Amid supercomplexity the educational task is in principle, not an epistemological one [...] the educational task is primarily an ontological task (Barnett, 2004).

Handscomb (2012:3) points out that that these traits (and others related qualities like trustworthiness, conscientiousness and empathy), stem from ethics and personal values and are found in most major religions, social and political philosophies and even psychotherapy. It is interesting that Barnett and Handscomb highlight these personal qualities over field knowledge as being what will contribute to navigating a supercomplex unknowable world. Can one ascribe human ontological traits like resilience to a society or a system? Ezio Manzini, (2015), the Italian designer and thought leader on sustainability in design, recognises that resilience enables sustainability within a system in the future (Manzini, 2006:10-11).

2.5 Resilient systems learning in curriculum for design

In his seminar on cultures of resilience Ezio Manzini tells us that *resilience* as a worthwhile trait and buzzword came into prominence after the tsunami that caused the Fukushima nuclear plant meltdown in 2011, and the carnage caused by Hurricane Sandy in New York in 2012. Global media showed how completely unforeseen such events were. It was also applied in a new way to the economy in the aftermath of the global financial crisis of 2008. The dawning of the idea that unpredictable and increasingly severe events are something human beings need to learn to live with has spawned interest in the concept of resilience and being resilient (Botha, 2014:2).

Manzini (2015) sees a resilient system as having a diversity of possibilities because the future is unpredictable and alternative options will be useful, a certain amount of redundancy as found in nature to facilitate choices and the ability to learn from what the environment is telling you – to respond positively to feedback. For the individual graduate, Manzini's view aligns with that of Barnett's fourth quadrant pedagogic model where field knowledge is usurped by ontological traits that promote thriving in radical uncertainty. Folke, Carpenter, Elmqvist, Gunderson, Holling and Walker (2002) see resilience as the capacity to buffer change, to learn and develop. Resilience is related to the magnitude of shock a system may absorb, the degree to which a system can self-organise and the degree to which a system can build capacity for learning and adaptation. It is clear from the above that inserting concepts of resilience into a curriculum would require creating a thoughtful and critical thinker who can weigh up choices and learn from others and from mistakes but also someone who has more than one knowledge stream or is able to team up with others who can provide other insights, abilities and knowledge.

In using the Activity Theory (AT) understanding that how we interpret an 'object' (the inchoate subject matter being worked upon) stems from cultural-historical circumstances. For example, it gave researchers insight into internalising learning by vulnerable and 'at risk' children. These children acknowledged that they could act on their social circumstances despite being acted upon by them (the learning dialectic) and this promoted resilient thinking, enabling them to integrate better into society generally (Edwards & Apostolov, 2007). Essentially these scholars confirm what resiliency means – a capacity and ability to bounce back from a shock to the system. If we apply these concepts to resilience of career in the graduate, we ask the student to become someone who has options available (Manzini's diversity of possibilities), who has skills, traits and some competence in a number of diverse fields (some redundancy and ability to absorb a 'career shock' and withstand change or unforeseen events) and by implication, be an adaptive learner. These personal resilience skills are useful in a risky and uncertain economic environment. Manzini has us as being in a period of "great transition", Barnett, (2004) in "supercomplexity"; a time when humanity must adjust to environmental degradation and planetary resource limits but which gives opportunity to connect better in the *cosmopolitan localism* (Manzini, 2015:2, 25).

The desire for inclusive solutions-based economic thinking (Florida, 2014:15) is precipitating a shift in the Knowledge Society paradigm. Ways of being are becoming more prominent than ways of knowing in keeping with Barnett's vocational model of supercomplexity. The most transformative learning has ontological traits overshadowing field-knowledge; the birth of the "Wise Society" (Goede, 2011). A transformative teaching model encourages critical thinking, carefulness, thoughtfulness and other positive personal attributes which also obviate the excesses of the 21st century economy.

2.6 Curriculum imperatives

According to the government policy Higher Education Qualification Framework (HEQF) one of the characteristics of the framework is:

to facilitate the education of graduates who will contribute to the social, cultural and economic development of South Africa and participate successfully in the global economy and the knowledge society (Pandor, 2007:10).

This stated characteristic indicates that HEIs are expected to graduate people whose qualifications understandably promote the inclusivity of *ubuntu* that underlies much of the knowledge society considering South Africa's divisive and exclusive *apartheid* past. In the same breath qualifications must be able to compete internationally in the global economy. As

there is a clear tension between the aims of the knowledge society which encourages equal access to knowledge for the betterment of society, and the demands of the knowledge economy which insists that innovative and creative individuals forge ahead in self-interest, it is unlikely that the Framework can ever address both concepts well, simultaneously. This is acknowledged by Stephanie Allias who avers that the NQF is a ‘democratic project trapped in a neo-liberal paradigm’ (Allais, 2003:1).

The HEQF describes in broad and generic terms the levels of various qualifications from certificates to doctoral degrees in terms of their length of study and level of complexity. There is acknowledgement that all qualifications must have “critical cross-field outcomes” (CCFOs) (generic skills) which promote life-long learning along with more specific field-discipline knowledge (Pandor, 2007:6).

CCFOs may be thought of as qualities or attributes graduates should possess. Terms like ‘graduate attributes’ and ‘graduateness’ have been applied to this notion since at least the 1990s; Glover, et al., 2002; Griesel & Parker, 2009:4). In time, they have also been recognised as giving a graduate ‘career resilience’. Table 1 presents a quick access reference, summarising how expectations of graduates have changed with the effluxion of time in keeping with the change in workplace requirements, demonstrating the graduate’s increasing vocational vulnerability since WW II (Bagshaw, 1997; Yorke & Knight, 2006:28; Barrie, 2007; McArdle, Waters, Briscoe, & Hall, 2007; Clarke, 2008). The table arose from the realisation that attributes differed somewhat in the writing of Brown (1996:2), from later research by Clarke (2008); it is merely a guide and demonstrates that the current curriculum is somewhat outdated being positioned for a ‘Post WW II’ economy but experienced in the 21st century KE thus demonstrating a contradiction in curriculum workplace appropriateness.

Table 1: Vocational vulnerability over time (dates are approximate)

	Post WW II - 1975 30 years	Post 1976 – 1995 20 years	1996 – 2009 13 years	2010 and beyond 7 years
Workplace backdrop	Received traditional employment model	Traditional model but increasing need for higher qualifications to maintain position	Strategic vocational thinking required by employees	Contract work, negotiated terms, freelance, no employer, rise of necessity and opportunity entrepreneurs, self-employed
Employment stability	Job-for-life	2-3 jobs over lifetime	More than one career over lifetime	No career rules, unstable work environment

Employer/ employee relationship	Parent/child relationship of Employer/employee	Employer encouraging more 'self-management'	Employer as mentor and facilitator	Employer as facilitator or self-employment
Unemployment and societal conditions	Growing middle class, relatively stable socio-economic conditions	Growing middle class, less stable socio-economy	Static middle class, distinct socio-economic instability	Shrinking middle class in developed nations, environmental, socio-economic and political instability
Workplace structure	Employer commands – hierarchical workplace. Careers in engineering and manufacturing prominent	Flattening managerial structure but still some hierarchy. Careers in engineering and finance prominent	Flat structure; careers in finance, real estate and insurance gain prominence, ICT and data manipulation become important	Industrial economy displaced by knowledge economy: careers in design, research and technology promote economic resilience
Graduate attributes	Discipline knowledge the overwhelming employment criterion	Adaptability to change, teamwork, effective communication , a positive flexible attitude, continuous learning performativity	Problem solving, time and resource management, life-long learning , communication self-management/ awareness, ability to see things as they are, practical application to many problems, evaluating achievements	Academic enquiry , intellectual curiosity , ability to accommodate diversity and alternative perspectives, create and defend ideas , use communication as a vehicle for learning . carefulness, thoughtfulness, humility , criticality, receptivity, stillness, courage , resilience have a diversity of options with in-built redundancy to give choices ability to learn from circumstances – a positive feedback loop buffer change, participative in public life, environmentally conscious
Distilled essence	Be your field of discipline	Augment your field of discipline knowledge and be a team-playing & life-long learner	Be a ' super-employee ': be all previous and add increased financial value through self-efficiency & effectiveness	Knowledge worker : be creative, flexible, multi-disciplined, thriving in increasing uncertainty and precariousness

It is noteworthy that in the period between Brown's 'career resilience' (1996:2) and Griesel and Parkers' 'graduate attributes' (2009:5) terms, the manner of describing what is expected

of the graduate has changed, nevertheless both perspectives envisage that the graduate remains an employee. The emphasis on the CCFOs employers and HEIs expect the graduate to have, belies the ever-shrinking job market where the highly skilled knowledge worker still has some currency but very few others do.2.7 Authentic learning environments

Garraway understands the requirement for the curriculum to be responsive to the economic necessities in times of uncertainty. This requires better interface in the form of fora where discussions of how the workplace and the academy may develop curricula that promote economic responsiveness, could be considered. He recognises that there has not been enough effort to theorise how workplace knowledge may be transposed into academic learning in HE curriculum development but that it may be possible to overcome this if a hybrid learning object can be created using workplace knowledge but processed in academic modules (Garraway, 2006).

Garraway may well have found an empathetic response to his view from Jan Herrington and Ron Oliver who have developed a theoretical framework for critical characteristics of situated learning. They recognise that situated/(workplace) learning needs to be translated into learning methods in the classroom. A literature search showed that “useable knowledge” is best gained through the following nine characteristics found in situated learning:

- Authentic contexts
- Authentic activities
- Expert performances and modelling of processes
- Multiple roles and perspectives
- Collaborative construction of knowledge
- Reflection to enable abstraction
- Articulation to make explicit tacit knowledge
- Provide coaching and scaffolding
- Provide authentic assessment of learning within tasks (Herrington & Oliver, 2000:2)

If these authentic learning characteristics could be translated into the classroom, a ‘hybrid learning object’ for overcoming curricula unresponsive to economic realities in uncertain

times, could be developed. This may be the best way to cross the workplace/academy boundary where generic and field knowledge skills can be both learnt and practised to ensure better graduate career resilience. These characteristics provide an authentic classroom experience of the real world and thus genuinely provide an expansive learning opportunity for the student which mere classroom examples or even case studies cannot. They will be discussed in relation to data findings in Chapter 6.

In the light of the requirement to manage one's own career rather than expect another to provide you with permanent employment, knowledge and application of how to do that becomes a necessity. The graduate is increasingly required to be entrepreneurially-minded about their own career; but currently, there is no curriculum which teaches this.

2.8 Entrepreneurial education and the design student

Becoming savvy in the wiles of economic survival in the KE is not necessarily obvious. While some are adept at recognising job or entrepreneurial opportunities because this is innate in their background, many have no such insight. It has been thrust upon the education system, and particularly HEIs to teach both business and entrepreneurial skills, even to those who have no intention to study in a faculty of commerce. Rwigema and Venter, (2004:2) offer a definition of entrepreneurial activity:

... a process of conceptualising, organising, launching and through innovation, nurturing a business opportunity into a potentially high-growth venture in a complex, unstable environment.

This could be seen as the ability to get others to pay you for the use of your good idea or abilities in an uncertain world. This, students need to grasp both in terms of their own career path and for any innovative entrepreneurial idea they may conceive. The entrepreneur differs somewhat from the self-employed person; self-employment means running your own business dealing directly with consumers; it would include tradesmen like plumbers and electricians or even professional medical practitioners and attorneys. The self-employment personal enterprise need not be innovative nor have high-growth potential and is thus not entrepreneurial as defined above.

The designer, by definition, is creative and innovative and, in this way, has a head-start as a potential entrepreneur over others in the KE. An entrepreneur has the following characteristics:

- hard-working

- a fast-learner
- socially connected
- a risk manager
- self-sufficient and
- a wealth-seeker (Katz & Green,2007:55)

The entrepreneur acknowledges risk and recognises the need to manage it. In previous decades the entrepreneur was viewed as a “risk-taker” and socially isolated (Katz & Green, 2007:56). In the cyber-world, being connected is essential to being a successful entrepreneur and increasingly also for the career-resilient graduate. The professional practice curriculum needs to foster entrepreneurial ways of thinking in design students in the risky, complex world of work.

The level of education of the entrepreneur plays a significant role in the success of their business. It follows therefore that the graduate is in the best position to start a successful business and ultimately employ others (Grundling & Kaseke, 2010:8).

2.9 Engaging the design student in entrepreneurial thinking

In many HEIs, including CPUT, the ‘bank manager model’, also called the ‘business plan model’ of teaching professional practice, has largely prevailed, until recently. In this model, students must provide a business plan as though they were applying for a loan from a bank manager. A business plan would include an introduction, executive summary, financial and marketing plans with a costing model, and include staffing and capital requirements (Parker, 2006:27; Nieman & Bennett, 2006:54; Carey & Matlay, 2010). All this information is necessary in a business course but not enough to enhance a student’s understanding of personal entrepreneurial traits, creativity, innovation and the market forces which make a specific product or service a commercial success. It is most useful to someone seeking funding to expand an existing business but not to a small, informal business or a new graduate whose paradigm has included the defunct “get-a-job-on graduation” assumption. The design student consequently cannot relate to the course content readily and very little learning occurs. No banker would lend money willingly to an informal business or an inexperienced graduate, regardless of how entrepreneurial their idea, given the overwhelming failure rate (between 95% - 98%), of new businesses (van Scheers, 2011).

It is possible to teach entrepreneurial thinking, in professional practice to design students in a less alien way than the bank manager model. It is possible to promote innovation and

indirectly career resilience using a critique model familiar to those studying both art and design (Carey & Matlay, 2010). This allows the design student to recognise themselves as an entrepreneur and a designer simultaneously. This has a better learning outcome than the bank manager model as it meets students in the Vygotskyian *zone of proximal development* (ZPD) where they are better able to learn (with assistance), (Garraway, 2011).

2.10 Designerly ways and wicked problems in an uncertain world

To promote a more designerly professional practice curriculum the design paradigm must be understood. The creative field's epistemological outlook or designerly way of knowing (Cross, 1982) is unlike either the sciences or humanities. Design's field of study is the artificial world; it uses synthesis, patterning and modelling; it values ingenuity and practicality within its culture. Designerly ways of thinking and knowing are empathetic and acknowledge appropriateness to specific circumstance and are often aligned closely with technology. Designers tend to synthesise solutions to problems where scientists tend to look for rules that govern problems. The designer seeks practical solutions within given time constraints and recognises that the problems given them are frequently poorly defined or structured and indeterminate; that is why they are considered 'wicked problems'.

Wicked problems are not so much a designerly way of knowing, as an experience that manifests in seeking a solution; they are ubiquitous in the design sphere. Wicked problems tend to be solutions or answers that change questions and occur because designers frequently work with indeterminate or unclear limits and complex contexts. Questions may be poorly formulated or contain confusing information that cannot best be addressed in a linear logical progression and consequently unique wicked problems may produce many solutions good or bad rather than true or false (Trowler, 2012). The designer experiences wicked problems because of the very nature of design. Design can be applied to any field and is limited only by the designer's own conception of possible solutions for the problem at hand (Buchanan, 1992). The recognition of wicked problems as a feature in the design process makes the designer more comfortable with it and naturally a frontrunner in the changing KE race in a world of incomplete information and supercomplexity (Barnett, 2000).

It becomes apparent then that a professional practice curriculum for designers is best if it allows for resilient thinking (Vezzoli & Manzini, 2006:173-175), entrepreneurial characteristics development (Katz & Green, 2009:56), and designerly ways of thinking and being (Cross, 1982) which are comfortable with incomplete information and where answers change questions (Buchanan, 1992). It must be presented in a practical way (Cross, 1982), that

resonates with the design students' understanding of themselves (Carey & Matlay, 2010), and speaks positively and purposefully to the students' future participation in the world of work.

2.11 Business Curricula in Graphic and Industrial Design in FID

There is little direct literature on inputs for *curricula* for design, the arts and entrepreneurship since the 1990s when entrepreneurship for non-business students started becoming more widely offered (Roberts, 2002). However, articles on entrepreneurship and design or creative arts students are reasonably accessible, (Carey & Matlay, 2010; Sawyer, 2006; Cross, 1982). This anomaly is not the subject of this thesis but perhaps it stems from the seconding of business school lecturers to design faculties expressly to provide the commercial subject matter. This secondment approach appears logical and may be a reason that the ubiquitous bank manager model mentioned in Section 2.9 is taught to so many non-business students. This model offered to design students at CPUT has steadily been losing ground within FID, especially in the Industrial Design Department.

The Industrial Design department at CPUT integrates professional practice into the major design subjects particularly in the fourth year (B. Tech) and to a lesser extent in the three-year diploma. The teaching staff did this by starting what is known as "the R 5K Project" which also became one of the WDC2014 projects. This approach has been led by the ethos of the design department lecturers themselves. Its efficacy as a tool to promote the career of local industrial design graduates is mentioned by various interviewees in the research analysis in Chapter 4 and in the research findings in Chapter 5, which speaks about transformation of the object into a desirable outcome. The R 5K Project model asks industrial design students to formally register a design business and open a bank account and earn at least R5 000 with their business idea. It was not used in the Graphic Design department however; from the graphic design National Diploma Professional Practice subject guides the following is revealed:

The overall view was that the first year curriculum revolved around understanding entrepreneurship, business types, ethical behaviour and recognition of business opportunities. The second year looked more at marketing, competitive advantage and understanding financial statements. Year three which had more topics, looked at statutory requirements like tax compliance, business management, operations management, project management and finally e-commerce; all three study guides are included in the Appendix. This approach to a professional practice course is typical of the bank manager model (Carey

& Matlay, 2010). It requires the sort of information that is used where a business is applying for a loan through a bank manager; much the same approach was used in the B Tech year.

2.12 A framework in which to explore curricula in supercomplexity

As this study explores aspects to transform a course of study suitable to design, a next step is to uncover theoretical approaches that would aid academic learning of these aspects. Vygotsky's ZPD concept recognises that there is learning space where a teaching mechanism is appropriate. In this zone or place of learning, a student learns what he is unable to discover for himself unaided. Vygotsky recognised that human effort has direction; it is goal-driven but beset by complexities and contradictions for cultural and historical reasons and that these need to be addressed for better learning (Garraway, 2011).

In his acknowledgement of the contradictions that exist in human endeavours (like learning), Vygotsky saw opportunity for new learning to occur as dialectically opposed contradictions interacted. He recognised that the student (the subject in his model) needs to act upon some mediating artefact (for example the curriculum) by using mediating tools and signs (like lectures, demonstrations or field trips), to achieve a desired goal (an object in the form of knowledge learnt or qualification gained) which is manifested as meaning-making for a learning outcome, illustrated in Figure 2.

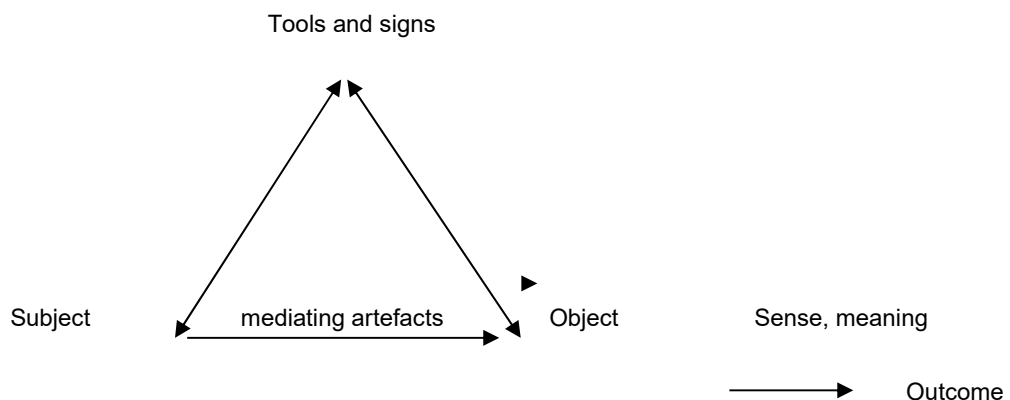


Figure 2: Vygotsky's Activity Theory diagram from 'the structure of a human activity system' Engeström (1987), cited in Engeström (2001:135)

Today this framework is known as "first generation Activity Theory" (AT) and was only useful when considering a single individual. Leont'ev and later Engeström expanded and elaborated on Vygotsky's original learning theory to make it applicable to a group of people (a whole system, like a university learning environment or a business entity or a hospital). Second

generation AT included a lower piece to the triangle which included nodes (also called elements) for societal and cultural rules, community and division of labour, all of which occur in an Activity System (AS). Subsequent to this, Engeström considered the network interaction of two or more activity systems and showed how new learning was possible amongst interacting activity systems, (third generation AT) Engeström, (2001). His additions to Vygotsky's original triangle diagram included showing that societal rules, culture and dividing of various tasks within an AS were all inter-related and inseparable from the individual or groups in whatever activity was under review; each was a valid input in either affording or constraining an outcome.

An inference can be drawn here from viewing Habermas and Mezirow's third domain of adult learning (the emancipator or self-reflective domain) Mezirow (1981) and Prayer (1993), found in 2.3. A critically self-reflective opportunity occurs where a student participates in a real workplace project which precipitates a transformative change in perception. This happens as critical reflection is undertaken of the historically received paradigm of the rules, community and division of labour of the student's anticipated workplace but also on the tools, object and outcomes of a particular WDC2014 project.

Activity theory is an appropriate learning framework for use in the 21st century economic environment where many and complex variables mean there is no formulaic answer to questions like what inputs are best to include in a curriculum. It takes cognisance of supercomplexity by including the variables that impact decision-making. It is appropriate to designerly ways of working which frequently have open-ended outcomes and iterative processes that develop and change over time. AT will be explored more fully in the next chapter on research design, questions and methodology.

Figure 3 shows Engeström's elaborated AT diagram showing the inter-connectedness of elements (nodes) in any human activity system, the subject in this context is the student, or students in an AS, the mediating artefacts are the human activities undertaken to attain goal(s) (object), the outcome of which is new learning and thus a transformed student body or AS.

The object is what the subjects are working on, the raw material, of the activity system. What actually transpires depends on the actions of the subjects, the tools they have at their disposal and the affordances offered by the other elements of the system, namely the community in which the activity occurs and the rules and divisions of labour operating within this community. The object could be considered an incomplete and unique developing item of learning attained by each subject in an AS. As with the mediating tools element, other AT

elements particularly the subject's historicity (valid life experience, culture and rules of what may be known and learnt) impacts on how and why the object is transformed Engeström, (2001).

Rules, culture and how activities are shown as component parts and inseparable from the learning process.

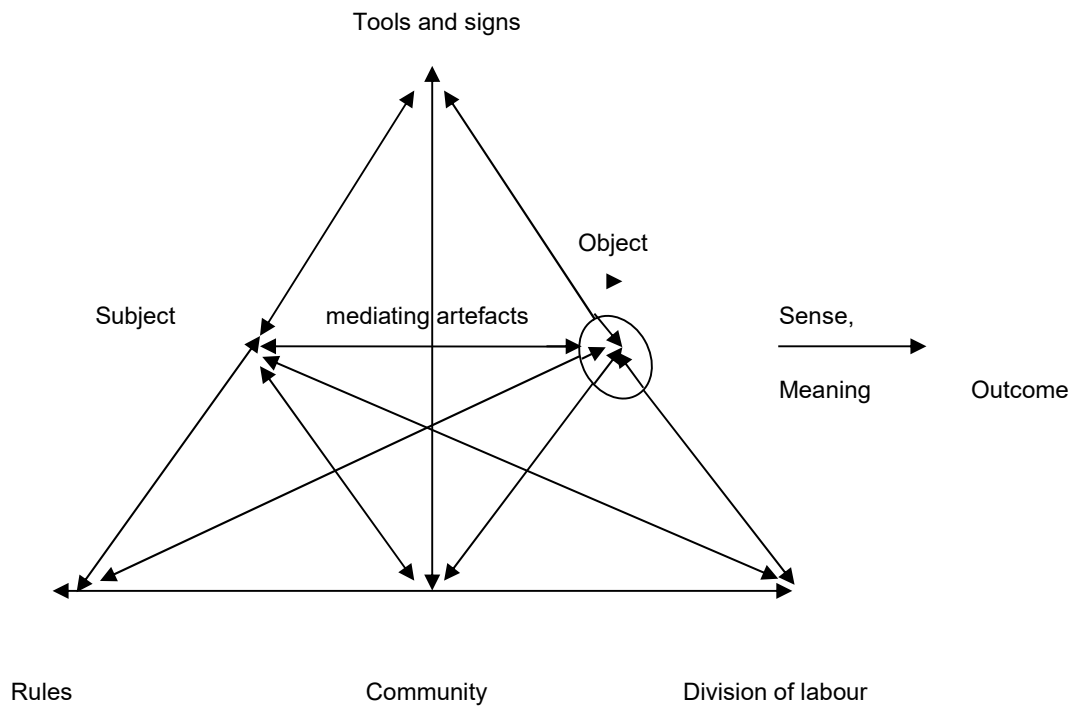


Figure 3: Engeström's model of AT from 'the structure of a human activity system' Engeström (1987), cited in Engeström, (2001:135)

2.13 Literature Review summary

The literature review has revealed the complex and uncertain nature of the knowledge economy and how this affects the 21st century workplace and society. Innovations and inputs that may promote thriving in uncertainty need to be considered in the development of the professional practice curriculum. These include known graduate attributes (see Table 1), like on-going learning and good communication ability which are recurring themes. Increasing flexibility, creativity, ideas and lateral thinking are being more valued in the knowledge economy. Remarkably, personal qualities of criticality, thoughtful self-reflection, humility and resilience which assist in thriving in uncertainty are indicated. Table 1 also indicates how

much more is expected of the 21st century knowledge worker than of earlier graduates. Personal, ethical and virtuous qualities are becoming important as employability and graduateness indicators. The employer requirements and societal and economic conditions reflect a shift in the collective consciousness of desirable qualities, traits and values.

The HEQF acknowledges both Knowledge Society and global economic necessities are required in local qualifications and that critical cross-field outcomes promote knowledge-society employability and graduateness and include life-long learning and problem-solving skills, and self-management and self-reliance in increasing measure.

Also important was the finding that curriculum developers need to build relationships with industry partners to promote better cross-boundary learning between work and academic institutions in a scholarly way yet there is also a framework for authentic situated learning in the classroom and it is possible to use this to develop the professional practice curriculum of the future.

Job insecurity and scarcity are making entrepreneurial skills essential for all graduates but graduates more than any other group are likely to start successful small businesses that give employment to others.

The teaching entrepreneurial and business skills to design students is enhanced through using their own designerly paradigm. This designerly way of knowing include living with indeterminate inputs to wicked problems and creating open-ended solutions; this way of thinking is advantageous in a supercomplex, uncertain economic environment.

Activity theory (AT) is a useful learning theory for exploring curriculum transformation in an age of contradictions and uncertainty as it simplifies complex systems by separating out and examining each element individually as well as in relation to the other elements in thus clarifies contradictions and contrasts within a system and ultimately facilitate action leading to better outcomes.

With all the above factors in mind Chapter 3 frames how the study was designed based upon the philosophical stance of the radical humanist. The imbalances of the knowledge economy in favouring only certain skilled individuals and the slowness of HEIs to respond to socio-economic challenges remained uppermost in the study. The use of Activity Theory as both a framework and methodology were justified for analysis of the research data as it has the ability to clarify complex multi-layered and contradicting elements. Chapter 3 explains the use of the philosophical stance, the AT theoretical framework and the design of the research

and details of how AT simplifies complex situations through dividing an activity system into seven elements which are examined separately and together.

3 RESEARCH METHODOLOGY

3.1 Introductory background

As a university lecturer of the course known as 'professional practice', within several different programmes, I became aware that the workplace increasingly expected graduates to be entrepreneurial in their approach to their own career paths. I lectured first to commerce students and subsequently to design, information, technology and communication (ITC) and public relations (PR) students. This was coupled with my decade-long experience in corporate financial management.

The insight gained from my experience and knowledge of business operations led me to recognise that this entrepreneurial approach to one's own career was not catered for meaningfully in most curricula. There were few or no bridging mechanisms for teaching students to be entrepreneurially career-minded or how this was to be achieved. The problem underlying this research is that the professional practice curriculum has not necessarily kept in step with best teaching and learning practices for the would-be design graduate.

Changing world dynamics mean that graduates cannot now be protected from unforeseen economic calamities, and thus, support mechanisms for learning to navigate complexity and uncertainty are required in the curriculum. Any mechanism to aid supportive learning for this on graduation will be of special interest in the data analysis. Third-generation Activity Theory is the mechanism used to analyse the data.

3.2 Research questions and sub-questions

The thesis title: *World Design Capital 2014 opportunities for transforming business studies curricula*, was born out of the idea of the possible usefulness of the experience of CPUT Design Department in the participation of various WDC2014 projects, (which serve as a proxy for the workplace). One possible benefit of that experience would be in fostering economic resilience in students for their future working careers, given the current socio-economic paradigm of job-scarcity. Thus, the question is asked as to whether any curriculum-useful learning opportunities emerged from the participation of the FID Design Department with WDC2014 projects. Stated differently:

- *What curriculum-useful learning opportunities emerged from the interaction of FID Design Department and WDC2014 projects?*
- *How did these curriculum-useful learning opportunities arise?*

I am trying to establish whether more or better curriculum inputs may be found to promote design student success after graduation in the KE from students' experience of WDC2014 projects. Transforming or adapting the professional practice curriculum to incorporate factors which facilitate student learning to thrive in the KE and not to attain only employee status, given the job shortage is important. Any learning that will improve and promote the graduate's ability to earn a living is of interest especially where this may be replicated or used in some way in future curricula.

Given the AT lens, the following sub-questions arise:

- *What shared objects were created in the WDC2014 projects activity system?*
- *How did these shared objects arise?*
- *How may these shared objects be useful in curriculum design?*

The HEI activity system had to interact with outsiders to participate in the WDC2014 experience and complete projects. This implies that new thinking could be required. The semi-structured interviews with various lecturers in Graphic Design and Industrial Design departments who participated in WDC2014 are used to answer these questions, thus, how they interacted, what goals each had, and what new learning occurred through the dialectic opportunity which occurred become areas of research interest.

3.3 Research context

Lecturers and their students experienced a new and temporary Activity System (AS) with outsiders who participated with them in WDC2014 projects. The WDC2014 projects activity system was a proxy for the workplace activity system. Participating lecturers and students represent the professional practice activity system. This situation provided an opportunity to collect data primarily on the interaction of students and the workplace. This was to explore whether any better learning or ways of being and doing emerged from the interaction of these activity systems, and whether that could be included into the professional practice curriculum of the future. Data was gathered from open-ended interviews of participating lecturers to explore the research questions and sub-questions.

Only design lecturers were interviewed as the primary focus of this research is curriculum development and most interviewees participated with their students in various WDC2014 projects. Interviewing National Diploma or B. Tech design graduates who had returned to further their studies was also considered a possibility as their perspective on the curriculum inputs would have been valuable. As in most cases all diploma and B. Tech graphic and industrial design students participated in some projects to varying degrees and they numbered about 350, interviews with them were impractical and beyond the scope of this study but the possibility of an anonymous questionnaire was considered but not followed up as the lecturing staff interviewed gave sufficiently rich information to guide curriculum development.

Interviewing design industry members was also considered as being able to provide valuable input into curriculum development and this was attempted very early on in during the WDC2014. Public lectures known as the Design Dialogues were held demonstrating local design industry thinking. Puzzlingly, very few industry members were willing to be interviewed at these meetings and the lack of participation of the local commercial design industry in the WDC2014 generally, was remarked upon by interviewee 007 in the data extract below and thus this avenue of data collection was not available for this study:

it didn't grab the imagination of the advertising industry. Didn't necessarily grab the imagination of very commercially-driven design operations. I was involved in the Cape Town Design Network and the Design Dialogues was used as a means of broadcasting [the] WDC concept and the promise of what it could be to the Design community very early on. That was a bit of a disappointment (007)

3.4 Philosophical stance

I used the lens of Traditional Activity Theory ontology of the cognition of the individual in society, (Jonassen, 2000:101-102). AT recognises that there are fixed realities in society that influence and even condition the way people can act, yet what transpires depends upon the agency of the people both in groups and individually and their interaction with these given realities. For example, there would be rules of division of labour.

Added to the AT structure, Burrell and Morgan's (1979:4) scheme of analysis is used here, as it is considered a useful way to think about social scientific research generally. It recognises that an inquiry may be more subjective in nature, and apply to the individual's way they see themselves in society, or more objective and generalised, and apply to society as a whole. This study examines what individual design lecturers considered was being

learnt by their students when participating in WDC21014 projects, and is an example of a subjective social scientific inquiry, depicted on the left-hand side of Figure 4b.

Burrell and Morgan (1979:2) viewed epistemology and research methodology as either objective or subjective and at opposite ends of a continuum. This means that epistemologically a human being could know things through insight or revelation and the research methodology approach would be purely interpretivist in-depth research of a specific social setting which is exploratory and useful in understanding as specific setting. At the other end of this continuum, the epistemological stance would be considered a more objective research methodology providing more generalizable observations. (Burrell & Morgan, 1979:2; Morgan & Smircich, 1980; Neuman, 2011:81).

The paradigm of *regulation/functionalism* (the *objective*, right-hand side of the continuum in Figure 4b, or of *radical change* (the *subjective*, left-hand side of the continuum in Figure 4b), is used depending on the nature of the research study and questions asked. This thesis is concerned with social change and individual knowledge gained, and enquires into the way things are done and learned by individuals (that is, what is taught and learnt through the WDC2014 project experience), and whether this may be used to transform the local professional practice curriculum of the future.

Following on from Burrell and Morgan's useful social science research scheme, Roode (1993:5-7) represented the above four paradigms in Figure 4a. Roode's four paradigms' interpretation of Burrell and Morgan's scheme, is further interpreted in Figure 4b as 'the 4 Research Quadrants', clarifying succinctly the ontological and epistemological differences and research methodology best suited for each quadrant, from a post-graduate research seminar series given to novice researchers in FID, adapted by de la Harpe (2009).

Four paradigms for the analysis of social theory

Sociology of radical change			
Subjective	Radical humanist	Radical structuralist	Objective
	Interpretivist	Functionalist	
Sociology of regulation			

Figure 4a: The four paradigms for analysis of social theory (Roode, 1993:7)

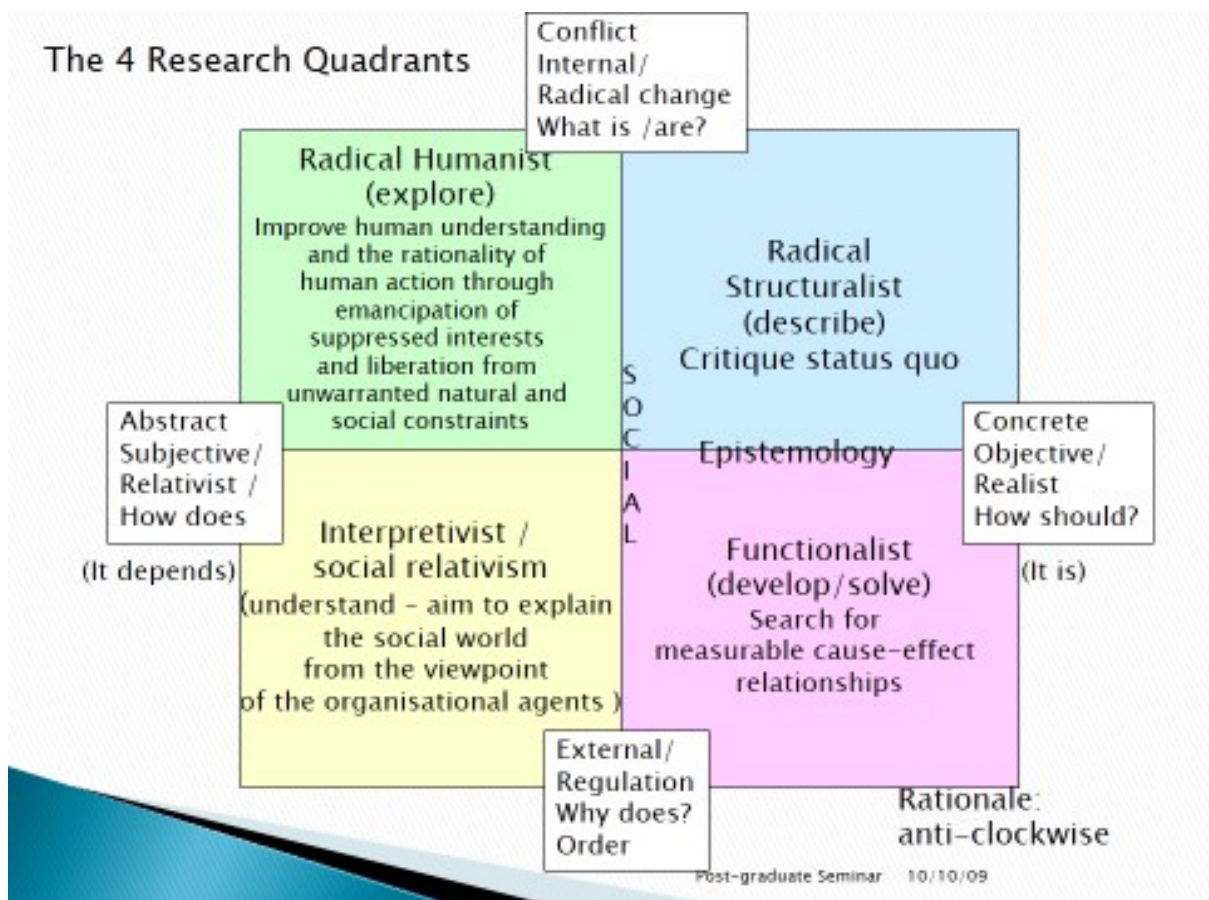


Figure 4b: The four quadrants research diagram (de la Harpe, 2009)

According to both of the above diagrams, this research thesis is of a subjective nature, falling epistemologically and as a research methodology, on the left-hand side of the diagram, as it uses personal experiences of individuals. Sociologically, it belongs in the upper portion of Roode's diagram, where 'sociology for radical change' resides, as it is concerned with transformation of a socially constructed paradigm, (the curriculum), which requires greater relevancy to the present socio-economy, as is borne out by Table 1. The present curriculum resides in a post-WW II paradigm, rather than in 21st century KE reality.

This upper left-hand quadrant of the diagram is termed *radical humanist in the 4 quadrants research diagram*. The intention of radical humanism is to develop a sociological radical change from a subjective stance because it is believed that constricting or restricting boundaries must be breached for community well-being. I am considered a radical humanist, searching to explore better ways of being for the design student and graduate in society. Thus, it is appropriate to ask questions of a '*what is/are?*' nature, and sometimes of a more interpretivist '*how does?*' nature, but not '*how should?*' or '*why does?*', as those questions are positivist and objective in nature and concern the sociology of regulation.

Historically, humanism generally stems from the philosophical stance that people have value and ability to act (agency); radical humanism originated in Marxist philosophy from the desire for radical social change. Today, radical humanism seeks to improve organisational structures through emancipation (Morgan, 1980).

Value assumptions of the researcher exist which inform the research, particularly through that which seeks to change the reality of under-preparedness of graduates for a career in the Knowledge Economy.

The use of AT as the research framework, articulates well with that of the radical humanist stance; both have their origins in some form of Marxist philosophy and both recognise the validity of the individual's experience and seek better ways of allowing the individual to be within social reality.

3.5 Research design

Vygotsky's version of constructivist-based learning theory reminds us that all human effort is goal-directed, making active participation in goal-based learning activities fundamental for knowledge-construction. Knowledge cannot simply be disseminated; it is in the process of participating in the activity that new knowledge is internalised and the student changed by

acquiring that new learning (Russell & Schneiderheinze, 2005; Jonassen, 2000:96). Activity Theory (AT), or Cultural Historical Activity Theory (CHAT), as a socio-cultural learning theory interrogates the contradictions, inconsistencies and complexities of reality to discover what was learnt (the outcome), who learnt (the subject), and how it was learnt (the mediating tools), as played out in the interaction of an AS. Third Generation AT views the interaction of AT elements of two or more activity systems, in this case, the proxy workplace AS of the WDC2014 projects and that of the participating design lecturers and students who represent the curriculum AS.

The analysis interrogates whether any new learning or a better way of doing things has occurred through the WDC2014 projects activity system. It looks at whether contradictions were experienced within each AS between individual elements. An example could be that tools used may be inappropriate for the object worked upon, and thus, the outcome is different from what was envisaged. Rules and norms that restrict or hinder the mediating activity would also be a contradiction. Contradictions within individual AS elements may exist, which curtail internal functioning of that element, for instance, if computer-assisted programs were required to complete a task (a mediating tool in AT), but a desired program upgrade was unavailable, this would impede progress towards achieving the object. These contradictions should be exposed and interrogated in the data analysis.

Activity theory recognises various levels of contradictions that can occur; primary contradictions cause a disturbance within an element of the system, usually described in its Marxist origins as being a difference between an item's use value and exchange value. Secondary contradictions are disruptions between at least two AT elements causing a disharmony in the system and a search for a new equilibrium. After a new equilibrium is introduced, contradictions occur through the old ways of doing things and the newly implemented ones; these are called tertiary contradictions. Quaternary contradictions occur between two whole activity systems and are discussed in this work as they relate to the WDC2014 AS and the Curriculum AS (Virkkunen, 2009: 150-151).

Below is a quick reference table showing the sequence and chapter of aspects of the research process:

Table 2: Research analysis sequence

1	Survey instrument: Open-ended interview questionnaire	Chapter 3: 3.6
2	Interview data transcribed in detail	Appendix
3	Categorisation of data into 7 AT elements	Chapter 3: 3.8
4	Discussion on each AT element with data samples	Chapter 4: 4.3
5	AT pictogram summary of WDC2014 Projects AS data	Chapter 4: 4.4
6	Categorisation of existing Professional Practice Curriculum	Chapter 4: 4.5
7	AT pictogram summary of Professional Practice Curriculum AS	Chapter 4: 4.6
8	WDC2014 affordances	Chapter 5: 5.2
9	Tensions and contradictions uncovered	Chapter 5: 5.3
10	Contradictions of the WDC2014 Projects AS and the Curriculum AS	Chapter 5: 5.4

The semi-structured interviews with participating design lecturers are analysed into the seven AT elements, of Object, Community, Division of Labour, Rules and norms, Subject, Mediating Tools, and Outcomes. The interaction of the HEI AS with the workplace AS is analysed to uncover whether any new leaning arose that could be useful in a transformed curriculum to alleviate the research problem and answer the research questions. Each AT element's data are further examined to uncover interactions between them relevant to the study. All of this data is triangulated with the literature review. A design expert opinion was used to peruse the division of the data into the seven AT elements to obviate researcher bias and mere arbitrariness. The full table of elements is presented in the appendices. The sequence of the elements is explained shortly.

3.6 Data gathering techniques

The semi-structured interview questionnaire used for data gathering is presented below, and is followed by an explanation of the reasoning behind the questions. Interviews were numbered from 000 to 009. Interviews 000 and 001 were conducted with design lecturers and were then discarded as pilot interviews; therefore, interview numbers quoted in the data gathered are from 002 to 009.

SECTION 1: Introductory and background

1. Why was WDC created?

2. In which WDC2014 projects did you/your students participate? (List below).

SECTION 2: WDC 2014 – CPUT involvement:

#WDC 230	Chapel St Clinic: Co-designing healthcare services	
#WDC 245	Driving dreams	
#WDC 248	Design storming toolkit	
#WDC 250	R 5K	
#WDC 334	mTriage	
#WDC 346	Informal trader	
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC)	
#WDC 439	Urban Studio	
#WDC 465	Design Garage	
#WDC 490	Cape Town Society for the Blind (CTSB): Design for the visually impaired	
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014	
#WDC 679	Shaping a shared world exhibition	

SECTION 3: WDC 2014 – specific project details

3. Please explain the project(s) in which you were involved.

SECTION 4: Interaction of the CPUT Design Dept. with projects and stakeholders

4. What techniques, ways of collaborating and learning from each other were experienced between CPUT and the WDC2014 project stakeholders?

5. What difficulties were experienced in the collaboration?

6. How did the collaboration experience relate into academic theory for teaching & learning and assessment purposes? – describe and explain

7. Who experienced learning from this collaboration, and what was learnt?

SECTION 5: Thank you and additional comments

Is there any further comment you would like to make?

Questions 1 to 3 were designed to focus the interviewee on the interview task, but after two interviews it was evident that a guided conversation and the story each lecturer had about their WDC2014 projects experience and objectives, would give a richer picture and better data than too many formal interruptions about moving on to following questions. Transcriptions of interviews in the appendices demonstrate this. See, for example, interviews 002 and 003, versus interviews 004 and onwards. This approach possibly required a more thorough analysis, but preserved the flow of thought of each interviewee, and therefore allowed a better analysis.

Questions 1 and 2 were to gauge the interviewee's understanding of the purpose of WDC, and to remind them of the various projects. Question 3, describing the projects in which they and their students were involved, gave lecturers an opportunity to recall experiences of projects, how they and their students reacted, and an opportunity to elaborate on how each project worked. Questions 4 and 5 were to gauge further information which may not have been forthcoming from answers to question 3.

Question 6 about turning the WDC2014 experience into academic theory for future generations of students, was considered a vital aspect for ultimately using the practical experience of the WDC2014 projects into sound academic learning. Theorising learning

principles has impact on meaningful teaching and learning, assessment at university, and career progression for graduates later in the working life.

Question 7 about who experienced learning and what that learning was, is considered important from the AT standpoint, data about the subject, object and outcome of the interaction of the two activity systems, and the contradictions which could give rise to improved learning.

3.7 Data analysis

The qualitative nature of the research could lend itself to the flexibility thematic analysis allows (Braun & Clarke, 2006); as Activity Theory is the theoretical and methodological framework used, the more defined AT elements are well-suited to be used as data analysis tools. I was acquainted with each interviewee on a collegial level and that most were familiar with AT as a research framework. Nevertheless, interpretation was required to gauge whether a statement could be categorised as perhaps an *object* or a *tool*. For example: “We used it [WDC2014] as a *project to let students exceed our expectations; students grabbed onto the WDC train to drag them forward*” (008). This could be interpreted as a mediating tool because indeed as is discussed later, the whole WDC2014 experience can be viewed that way but in the context of interview 008, it was considered that the interviewee meant it as the true object (subject matter worked upon), of what was to be achieved and thus it was categorised as *object* rather than *tool*. It is in this process that the assistance of the design expert was used. The expert perused the categorisation. Where there was doubt, a discussion ensued and logical persuasion prevailed as to final categorisation. Each interview transcript was perused to capture how different lecturers considered the AT elements.

3.8 Activity Theory elements: definitions and interpretation

Definitions in Table 4 are gleaned from various AT research sources to give a meaningful working definition of each element; the short explanation in italics is my own, to allow the reader quick access to understanding each element. The ordering of the AT elements was chosen to promote logical progression from element to element, as when one asks of any activity, questions as to what, who, how, and why? Thus, *object* as the subject matter worked upon, or even the goal of the AS comes first, *community* next, who does the various goal-orientated tasks follows, (*division of labour*) and what the *rules* within the AS are for achieving the goal follow. Next comes who benefits from the AS effort (*the subject*), what

they use to work on the goal (*tools*), and finally, what the *outcome* of the whole AS effort is. Other ordering of elements may be equally valid, but the above is used here.

Table 3: Data analysis per AT element

AT element	Definition and explanation in terms of AT usage
Object	<p>In an AS this is the problem space the subject acts upon and transforms. It is the motive or true goal leading to an outcome. (Kaptelinin, Kuutti, & Bannon, 1995:191; Kaptelinin, 2005; Garraway, 2010). The object may be changed through activity, leading to new or better outcomes – <i>“what do they (the subject, but also the community members) believe matters, drives and focuses the system and is being achieved”</i></p> <p>The object could be considered an incomplete and unique developing item of learning attained by each subject in an AS and the AS, as a whole, in the case of interacting activity systems. As with the mediating tools element, other AT elements particularly the subject’s historicity (valid life experience, culture and rules of what may be known and learnt) Engeström, (2001) impacts on how and why the object is transformed</p> <p><u>Example</u>: The Urban Studio project which ran over four years with different lecturers was experimental and developmental as an object; learning achieved varied from almost nothing to gaining practical research skills depending on how well students participated in the project</p>
Community	<p>Members involved in the AS community (Hardman, 2005)– <i>“who is in this space?”</i></p> <p>Community in this context comprises the stakeholders who have an interest in the subject achieving a successful outcome. The lecturer, head of department, student, parents and guardians, perhaps bursars or financiers and the design industry which a student intends to enter on graduation, all form members of this community</p> <p><u>Example</u>: The head of the industrial design department would want statistics on the number of students at risk of failing with reasons why because this has implications for teaching and learning practice and departmental management, government subsidy per student received by the HEI and so on</p>
Division of labour	<p>How tasks are divided up to reach the object of the specific AS; these labour divisions could be horizontal or vertical in a hierarchical sense of power, authority or status (Konkola et al., 2007) – <i>“who does what around here and with what authority”</i></p> <p>There exists within the HEI AS lecturers who would design the university’s project for student participation in the WDC2014. This may be a group or even a senior and junior lecturer with</p>

	<p>differing tasks. Some would personally participate in projects; others not. Students could be from more than one discipline or even HEI or level of study. The workplace project could be represented by municipal officials with varying hierarchical status, industry participants or other stakeholders in a specific project. Students also may divide themselves (or be assigned) into teams or roles, in order to achieve a successful project outcome</p> <p><u>Example:</u> Municipal representatives in various projects were more conscious of budgetary and time constraints where lecturers gave high priority to student teaching & learning, ethical and user-inclusion considerations; yet all standpoints are valid and necessary to achieving the AS <i>goal</i></p>
Rules and norms	<p>Historically accepted ways of doing things in an AS. They include formal and informal rules, policies and unwritten rules (Konkola et al., 2007) – “<i>how things are done around here</i>”</p> <p>The rules and norms of any AS may be overt or tacit, formal or even rigid or informal and somewhat flexible. Rules of a perpetual institution like a university system would carry with it specific culture and traditions and many inflexible administrative processes which individuals within that organisation will confront and need to assimilate into their own way of thinking if they are to work together to achieve a successful outcome – for example student graduation</p> <p><u>Example:</u> Students must comply with assessment deadlines and examination procedures, in order to be eligible to obtain a grade and ultimately a qualification in compliance with HEI rules and standards</p>
Subject	<p>The entity (an individual or entire organisation) doing the learning (Konkola et al., 2007) – “<i>for who’s benefit is what’s done</i>”</p> <p>In the HEI AS the student is always the subject who achieves something (learning) through the formation of an agreed upon object. This is a developmental process using tools (both technical and psychological) and thus impacts upon the actual learning outcome. How the subject interacts/uses these mediating tools is closely dependent on who the subject is, the rules of the AS described earlier, the community, division of labour within the AS and so on</p> <p><u>Example:</u> Participation in WDC2014 R5k projects gave 4th Year industrial design students (<i>subjects</i>) opportunity to test their design entrepreneurial ideas (<i>object</i>), in a relatively safe business environment as preparation for their life after graduation, allowing them to experience workplace frustrations, challenges, successes and new paradigms (<i>outcomes</i>)</p>
Tools	<p>Mediational artefacts or means for example: reading, writing, music, speaking, course notes, project briefs (Konkola et al., 2007; Engeström, 2001) - “<i>what are they using to accomplish the activity</i>”</p> <p>Tools may be both psychological and knowledge-based (thinking tools) or technical and artefact-based (physical tools). The tools are used to form the inchoate learning object unique to each subject which leads to a learning outcome. Poor outcomes could be caused by the use of inappropriate or inadequate tools and poor interaction of the subject with the</p>

	<p>learning tool. An ill-prepared lecturer or inappropriate curriculum would make a positive learning outcome more difficult to achieve for the student</p> <p><u>Example:</u> Internal procurement processes of the HEI AS delayed students collaborating with outside projects and hindered progress towards a successful outcome but nevertheless taught students how to work around real-life difficulties like “supplier-shortages”</p>
Outcome(s)	<p>Meaning made or sense gained; the actual achievement through the activity system dynamic; distortions within the AS elements consequentially misalign the <i>object</i> and the <i>outcome</i> Mwanza & Engeström, (2003:1345) “<i>What actually is being achieved</i>” by the AS?</p> <p>Where <i>outcomes</i> are unexpectedly poor, it is due the interaction of all the other AT elements leading to an ill-formed <i>object</i> which in turn promotes the inadequate <i>outcome</i>. For example, a student who is unable to comprehend the class notes or is obliged to attend lectures in a second language may misunderstand assessment requirements and fail a test or academic module, leading to the possibility of non-graduation and thus a more limited career choice</p> <p>Perhaps more often than total failure to attain any positive <i>outcome</i> is the case of unintended outcomes be they positive or negative</p> <p><u>Example:</u> Students and lecturers found that they unexpectedly developed project management skills through participating in WDC2014 projects. More certain positive outcomes included job opportunities for graduates and further research opportunities for lecturers</p>

Deciding from each transcript, whether and which AT element(s) had been expressed by the interviewee, required close attention to their turn-of-phrase and context of each comment made, to avoid personal bias of the researcher. To do this, transcripts were printed and read then re-read looking for specific AT elements as found in the table above. Because AT elements, (especially in second and third generation AT) are both interpersonal (upper portion of the AS triangle), and organisational/social (lower portion of the AS triangle) in nature, they may overlap. For example, “Rules” impact on the “Subject” or the “Mediating tools”. This highlights the internal cohesion or contradictions that exist within a given AS. The same may exist in the interaction of two or more activity systems. An example of contradiction was expressed in the snail’s pace procurement process of the HEI (the Rules of the curriculum AS) which hindered the student (the Subject) from acquiring the necessary equipment (the Mediating Tool) to proceed and achieve the goal (Object) of completing the project successfully in good time. This impacted the Workplace AS. The Object (focal point of activity) was altered and the ultimate result (Outcome) for that specific project also.

Data that could be considered as belonging to more than one element were duplicated into the varying elements as interpreted by the researcher. This gave a vast table of AT elements and was thus not very useful in the analysis process. It did, however, highlight the overlapping nature of the interpersonal and organisational elements of upper and lower triangle AT elements as discussed above. Various colour highlighter pens were used in differentiating data. Data allocated to more than one AT element were noted for further analysis. Ultimately a decision was made to choose the 'best fit' for each datum so that it fell into only one AT element. This is a subjective process and the researcher recognises that because a different mind with different views and experience could allocate data differently, a design education expert was asked for their interpretation also. AT Element allocations that differed from my own were discussed and an element chosen based on logical persuasion.

Thereafter, the data was re-examined to uncover tensions and contradictions and even possible harmonies within the temporarily formed WDC2014 projects AS. Explanations were given alongside for the reader to follow my classification as to what a tension was. Next, recurring themes were noted. The notion of uncovering harmonies was done to highlight tensions and contradictions.

3.9 Delimitation of the research

The research project was delineated by limiting the many WDC2014 projects to only those participated in by CPUT (15) and only interviewing lecturers from two CPUT FID design departments, namely: Industrial Design and Graphic Design. No data was collected from the various other design disciplines in FID, namely fashion, interior, jewellery or surface design, nor from any other HEIs.

3.10 Contribution of the research

Theoretical contribution:

Findings have significance for the curricular development and teaching and learning practices of professional practice within design disciplines at CPUT, specifically regarding relevancy in an uncertain economic paradigm.

Practical contribution:

Over time, the reputation gained for career relevant curriculum which promotes career and economic resilient graduates leads to the CPUT Design programme being a supplier of

choice for people entering the field. Indirectly the reputation of Cape Town as a design centre of excellence through the quality of design education offered locally is also enhanced.

3.11 Ethical considerations:

The necessary University and Faculty Research Committees Ethical Clearance processes were observed. The nature of the research does not involve participants who are unable to give informed consent or other sensitive circumstances expressly mentioned in FID Research Ethics Review Checklist. Permission has been obtained from the HoD Design to enable interviews with design lecturers to occur. Individual permission was obtained on a written consent form from each interviewee. Each participant was made aware of the purpose of the study and the nature of their participation. Details of data, information confidentiality and conservation are all considered. Interviewee participation was voluntary and could have been withdrawn at any time without prejudice to themselves in any way, is also stated in the consent form to be found in the Appendix. Institutional consent to the research was obtained by compliance with the University Research Committee ethical clearance process and no interference in the research process was experienced, demonstrating the independent and original nature of the research.

3.12 Summary

Chapter 3 explained the background as to why this research was undertaken and why specific questions are asked. The use of 3rd Generation AT as the framework allows the examination of the temporarily formed WDC2014 projects AS. The use of the Burrell & Morgan's 1979 social science research scheme has been explained. The research undertaken has been demonstrated to be of a subjective nature, falling within the quadrant of radical humanism which seeks transformation of a perceived social system inadequacy or injustice. Details on how data gathering, and data analysis were done was explained in terms of the seven elements of AT and the ethical considerations, delineation of the research and possible theoretical and practical uses of the research were discussed.

What follows below is the AT categorisation of the data captured from the interviews with analysis and explanation as to why they are grouped in a certain way. Examples from various interviews demonstrate the AT categorisation and expose individual points for further discussion.

4 PRESENTATION AND DISCUSSION OF DATA COLLECTION AND ANALYSIS

4.1 Introduction

In this chapter, the data is thematised from the staff interview transcripts, according to the elements of activity theory for the activity system of the WDC2014 Projects. The purpose here is firstly to better understand what is happening when students work on WDC 2014 Projects, what is being done for what purpose, and what and who is involved in working on the projects. Secondly, the thematisation helps us to highlight what factors come into play that may enable/disable what is being done in the projects.

In the next section, a single interview excerpt is given to demonstrate the nature of interviews and extraction of AT elements from interviews. In section 4.3, a narrative of each AT element is expressed with embedded data extracts to demonstrate analysis of each AT element as it pertains to the research questions asked. In section 4.4, a pictorial summary of the WDC AS is given in the form of the AT triangle diagram. Section 4.5 offers a summary of the professional practice curriculum for the Graphic Design Department is given ultimately, for comparison with the WDC2014 AS, section 4.6 offers the accompanying pictorial triangle summary of the professional practice AS.

4.2 Interview excerpt

One of the WDC2014 projects was called Urban Studio and involved students from two HEIs and at different academic levels of study, and was begun in 2011 with the idea of culminating in the WDC of 2014. The concept involved students interacting with the community using the eastern district of the city of Cape Town, and included the inner-city ward known as District 6. It was about looking at the available space and what that space could become. The following quote illustrates how a single project can be analysed into component parts, all focussing on what staff saw as the overall purpose of the WDC for student. The example below also illustrates the complexity of the system.

The B. Tech students of 2014 would be out working now. The thing that worked was working in different groups - both interdisciplinary and [...] gaining that cross-cultural experience was useful – taking projects into the urban space was interesting – not all sitting at your desk Googling and coming up with solutions – Even with the early days of going down, they saw the

homeless people, the dirt, they got a sense of things. The research-gathering was very real - in their groups – you guys talk to [...] the homeless, people who park there [...] the human capital who were using the space. Students got a real-world experience. As designers they learnt: *don't make assumptions based on your preconceived notions* and [...] that is problematic – they learnt humility themselves. The idea that - if they are designing a logo, we say *what are you doing here?* – you must go and look and document, photo, find samples, talk to people.

Excerpt from Interview 009: Graphic Design Dept. lecturer

Here, the focus of the homeless people was to give students a sense of the real-world out there; students got a 'real-world experience'. This was the *object* of the project. For this to happen successfully they had to follow certain principles or *rules*, for example they needed to work in interdisciplinary groups and not make assumptions about others but actually go out and talk to people. They also learnt about an attitude or approach of humility (another norm or *rule*). In terms of *tools*, students had to get out there and document what was happening; 'Googling' was not a sufficient tool for these projects. The *community* here is that of fellow designers from different disciplines and particularly the recipients of the design projects. It was necessary to work across differences in culture between themselves and the poor and homeless and differences between themselves and designers from other design disciplines, in an equivalent fashion, thus a flattened *division of labour* approach became important.

4.3 Discussion on development of AT elements from extracted data

In the narrative below, each AT element is expressed. This includes interview excerpts pertaining to a specific element. As some of the comments related to more than one element, individual phrases had to be separated out and allocated where considered best suited. For greater clarity and economy of space, only a few extracts per AT element are given here, the full table of elements may be found in the Appendix on pages 169 - 181. The origin of each comment is indicated by the interview number in parenthesis after the quotation, for example: (009). Interview comments are shown with a reduced font size and an indented margin. The ordering of the elements given below was explained in 3.8 except for the object and outcome elements have been categorised together here as they are closely related; the *object* being the inchoate and changing aimed at item. The *outcome* is what actually transpires when the subjects and whole AS acts on the object; this may be different from the original intention. Later in section 4.4 which displays the AT diagram (figure 5), these two elements are separated to show how they interlink but are not the same. The *object* is what the students actually did, where *outcome* is what they obtained from their action.

4.3.1 **Object:** *subject matter worked on* and **Outcome:** *what's achieved*

The **Object** is the problem space that the subject in an AS acts upon and transforms. It is the motive or true goal leading to an outcome. The object may be changed through activity, leading to a new or better outcome: *what they (the subject, but also the community members) believe matters, drives and focuses the system and is being achieved*, whereas the **outcome** is the final element and asks what meaning is made or sense gained from the activity; the actual achievement through the activity system dynamic. The outcome is affected by distortions that occur within the AS and thus the consequential misalignment of object and outcome may exist, crisply stated as: *what is achieved by the AS?*

The object revealed in the data for each interviewee had similarities and differences to the others, but a common object theme was that the WDC2014 projects gave exposure to students of possibilities for future design career areas. It stimulated thinking about ethics and how design could be used in a socially conscious way, leading to future work or job opportunities; it showcased student and lecturer design to outsiders but also showcased the workplace to students and lecturers, thus it gave:

international perspective to local design, using design to solve real-world problems, ability to connect with greater audience - giving greater design job opportunities and students took up socially conscious design careers (participatory, social universal design) (003);

It contextualised design problems, gave urgency to good citizenship, social orientation and reality generally (002).

A number of them have moved to the Woodstock Exchange where they have set up companies and these are a direct result of their participation in the design (003).

Commonly recognised graduate attributes like working in teams, being a good communicator, problem solving, time and resource management and so on, gained purchase:

It contextualised a lot of soft skills we describe in our documentation (007).

Civil society and local government experienced design more clearly, they were exposed to what design could do to find better solutions to practical real-world challenges:

The lecturers, students and City all experienced learning (007).

People now seeing design requirements from multiple perspectives. Now seeing the complexities of trade and have new requirements for design from the Dept. of Economic Development (002).

Thus, an overall outcome perceived was that the WDC2014 projects contextualised design's place in society and provided an interface between those inside and outside the academy. It was perceived as a bridge of learning for both those inside and outside the academy as to why design and design graduates should be more and better deployed:

It was about showing people how design is used; the process of design; it was not necessarily about finding a solution (005)

The relationship between object and outcome are the motivation for activity; the object is transformed into an outcome (Kuutti, 1995:26). We infer that the whole activity system is geared towards a learning outcome from the various AT elements. Learning differs for each AS member depending on their relationship with historical rules, other subjects, mediating tools and so on. Learning has occurred not merely because something was done, but because it was reflected upon (Jonassen, 2000:106). This reflection constructs meaning and thus an outcome occurs. Where any of the various AT elements are distorted in the AS, an unexpected outcome occurs.

A common view expressed was that because students were participating and experiencing actual workplace frustrations and operations, they were able to integrate that into their existing learning thereby bolstering their expectations and understandings for future reference:

...frustrations with procurement lags, budgetary constraints" (007, 009)

"Doing projects develops your resilience because it simulates the world of work (005).

Some people had to have non-disclosure stuff. Real-world project-based learning is Important (005).

This exercising of new workplace-useful learning muscles was also acknowledged:

[...the need for flexible approaches, reflective and reflexive adaptation; move towards multi-literacies and trans-disciplinarity, recognising need for management skills (007)

It has had impact on our re-curriculation process, impact on process of developing more structure, had an impact on graduate attributes. It's given clarity to flexible approaches, resilience in design students, need to be adaptive, reflexive and reflective (007).

I think purpose, resilience and drive developed through projects most accurately simulates [the] WOW. Doing projects develops your resilience because it simulates [the] WoW. Project-based learning is always useful (006)]

Project-based learning simulates the unforeseen calamities and mix of different personalities that exists in the WoW. Students have one foot in each world in doing a project (005)

Various data extracts indicate that projects generally are a better learning opportunity than classroom-based theoretical learning because of their interactive nature with the outside world. They promote resilience and practical experience in students, something that needs to be considered in creating the curriculum of the future.

The excerpts above refer to a broadening and deepening understanding of workplace necessities; learning how to approach things like procurement lags or why trans-disciplinarity is useful, providing greater insight and reflection and thus the ability to adapt. They promoted resilience, (that is, an ability to bounce back from a set-back or ability to adapt to changing circumstances), which is a skill required in an increasingly complex environment.

There was realisation that the curriculum could be made significantly more relevant by including project experiences like WDC2014 because of its realistic nature; it provided understanding of client relationships and demands and accountability for use of public money and promoted conative resilience demonstrated below:

As designers they learnt: don't make assumptions based on your preconceived notions; that is problematic; they learnt humility, themselves (009).

... it was beneficial for student to handle such a complex project, (R 5K) at university. It was a complex learning environment. It builds resilience in the WoW (005).

The reason why R 5k [projects] worked is because the self-growth happens. ... the EQ (emotional intelligence) happens and students figure themselves out – and that's why they are employable (008).

The WDC2014 Projects object was *in the opinion of lecturers*, all the ups and downs of real-world workplace experience; that students had learnt important ways *to be* in the world of

work. Calamitous and complex situations and experience gave impetus to resilience but also the need to be humble.

Lectures also gained some of this learning which is recognised in the outcomes as impacting the re-curriculation process through moving toward multi-literacies and trans-disciplinarity, promoting better curriculum structure and recognising the need for general and project management skills.

4.3.2 Community: *who is in this space*

Community encompasses all people who are involved in the process of attaining the goal; they are the AS members or those *who are in this space*. They are stakeholders who have an interest in the process of attaining the goal/object and therefore ultimately the outcome. They influence the subject and the object, to a lesser or greater extent, depending on circumstances.

Data extracts too numerous to include here but which may be found in each interview in the Appendix, mention many community members; they are recorded in five categories below. A few pertinent extracts are given to underline Community members. The Community components have been grouped based on whether they are educational, governmental, a business community member or merely a member of society at large; this is the so-called “quadruple helix” way of referring to stakeholders. However, a fifth category of Community featured very strongly and that is non-profit organisations, most of which were directly design related:

1 Educational Community stakeholders:

- a. CPUT Faculty of Informatics and Design: Design Departments, especially industrial, and graphic design departments, this includes the Dean, heads of departments, academic researchers, curriculum designers, lecturers, students and administrative departments

So, students benefitted quite a bit because of the ability to connect with a greater audience, particularly with those that did not understand or appreciate design (003).

Students discovered a whole eco-system of what was happening that you can't see with naked eye. (008)

- b. Other local HEIs: University of Cape Town, Stellenbosch University, Vega School of Design, Marketing and Branding (Cape Town)

- c. Foreign HEIs: University of Cologne, University of Alto, Finnish Academy

2 Governmental Community stakeholders:

- a. City of Cape Town, including executive members and mayoral committee

They [City of Cape Town], learnt how ubiquitous design is and how embedded it is and the value of design-thinking (007).

They ... were incredibly forward-stepping in terms of how they ran about 70 workshops. That was the City really engaging with community-connect, with community and co-designing and problematising projects (007).

Nothing beats the scale of WDC – the budget that was put towards it – the City put forward R 40 million. I know of no other project that has that commitment or reach. (007)

- b. The 111 individual wards into which the City is divided:

Engaging of design for complexity and complex challenges as well as design as a strategy to unlock potential (not just in Cape Town), tried to redress some of the *apartheid* legacies of the City. Because of the co-design and 'design storming', the City has the so-called 111 ward projects where everyone embraces the idea of Participatory Design and active citizenship (003).

3 Business Community stakeholders:

- a. Woodstock Exchange (a refurbished factory-come-office block for young designers and entrepreneurs in the suburb of Woodstock, Cape Town)
- b. Design Indaba (the local 'festival of design' arm of the international publication of the same name which seeks to empower communities through design and creativity)
- c. Suppliers of goods and services to the various WDC2014 Projects

4 Society-at-large stakeholders:

- a. District 6 Planning Committee (Committee that looks after the interests of an inner-City ward, District 6 where more than 60 000 people were displaced and removed through forced *apartheid*-era spacial planning in the 1970s)

The District Six organisation became interested. There had been no Inclusive Design. One student from *Koln* University spoke about what they had done here, and various

people spoke about WDC and Design Park. No-one had ever spoken to the people on the ground. (009)

- b. Dutch and Italian Consulates in Cape Town
- c. Societal members of Cape Town who may be influenced or included in any WDC2014 activities

In the beginning it was an assessment of the area. There were regular presentations. They (students) would come back with designs. Homeless people became a big area (009)

I believe for most people there is a certain skewed understanding of what design is and most people we spoke to first could not see the relevance and thought of design as mostly fashion or graphic design; they could not see the relevance of what design could do as a social conscience (003)

5 Non-profit organisation stakeholders:

- a. WDC Organisation (Icsid); The creator of the WDC concept is the reason for the existence of the World Design Capital phenomenon:

Icsid, the International Council of Societies of Industrial Design of as you know, recently renamed the WDC organisation ... decided to pilot the WDC concept and the prototype was Turin in Italy in 2008 and the idea was to showcase how design was used to advance the developmental agenda as well as urban renewal as well as a myriad other challenges that cities in the 21st century face (003)

WDC 2014 gave urgency to good citizenship, social orientation and reality generally (002)

- b. Cape Town Partnership: a collaborative effort formed in 1999 to mobilise and align public, private and social resources towards Cape Town's urban regeneration
- c. Bid Committee for Cape Town to become the 2014 WDC city of choice
- d. Cape Town Design Network; an independent NPO in Cape Town that facilitates connecting designers/ design in the City, this grew out of Creative Cape Town from 2008

- e. Cape Town Design NPC: the WDC2014 implementation company responsible for ensuring that the requirements of the World Design Capital 2014 Host City Agreement were met, and that the programme delivery was aligned with Cape Town's vision of bridging historic divides and repositioning the City for a sustainable, inclusive future through design

The point of listing all these organisations and individuals is to indicate to the reader the scope and complexity of the community with which the students participating in the WDC2014 had to deal, including business organisations, overseas colleagues, suppliers and fellow students and lecturers.

4.3.3 Division of labour: *who does what around here and with what authority*

How tasks are divided up to reach the object of the specific AS is known as the **Division of Labour** (DOL). These divisions could be horizontal or vertical in a hierarchical sense of power, authority or status, paraphrased by myself as *who does what around here and with what authority*.

There is a mediatorial relationship between the division of labour and the object as is borne out by the Third Generation AT triangle; we are interested here in the role of the student within the DOL element. The AS achieves its goal through the various labour division agents. Poorly understood hierarchy, chain of command, execution or purpose may distort the AS object and ultimately lead to inadequate outcomes, there may be unforeseen outcomes even where the various vertical and horizontal hierarchical members of the labour-force acted appropriately or not. The focus is on lecturers' labour effort to facilitate the learning object for students and student labour efforts to learn through the various WDC2014 projects. From the data, a definite teaching and learning theme threads through the labour done. A prime learning opportunity occurred when students had to replace inadequate suppliers; they gained experience as to what it means to be in charge and make important and difficult decisions.

Students learnt a lot in R 5K projects (I was not keen on R 5k project at first – but they learnt things that they would not learn anywhere else as students). Sometimes they had to *fire* a manufacturer – this was *huge* for students. They had to open companies (005).

These were new ways of doing things for students; they demonstrated how positions of authority functioned, that important, difficult and uncomfortable obstacles needed to be overcome when in positions of responsibility and authority.

Students gained experience and knowledge as business and project managers responsible for delivering projects on time, within budget to required specifications. They learnt liaison, public speaking skills and human interface management skills as they moved through phases of different projects.

University of Koln ran workshops and there was a great handshake between them and us and Vega. ... It was ... more about “how did we make this work” – it was really project management skills (009).

(It echoed the core principles for *design thinking*, which is the observation, listening phase, of problematising phase) (007).

That was a wake-up for a lot of students and staff because we worked with outside experts and partners, to sensitively and ethically place ourselves in that space where informal traders operate (007).

These are characteristics of resilience – these are the pragmatics and the: *how to work with others*. We talk[ed] a lot about agency, developing agency (007).

So, these guys [i.e. students], were made head of sections and had people underneath them (009).

The data demonstrates that students developed capabilities to accomplish workplace functions through WDC2014 participation; they gained the agency needed to operate beyond theoretical knowledge learnt in the academy; sometimes they were in positions of authority and their actions had consequences.

4.3.4 Rules: *how we do things around here*

Rules, culture and norms are historically accepted ways of doing things in an AS. This includes formal and informal rules, overt and tacit rules or policies and unwritten rules which are embodied in the phrase: *how things are done around here*.

The rules are mediated by community and impact on the subject. The primary reason for the existence of the WDC2014 projects AS was because of the WDC Organisation’s strategy to facilitate showcasing of design (particularly industrial design) to governments everywhere. They believe design has an integral role to play in improving the artificial world which is the

domain of design and looked for a mechanism to demonstrate this around the globe, ultimately this constitutes a rule which is the backdrop for all other rules in the AS.

In about 2006 WDC Organisation observed the changing role of cities and how they worked: national and international paradigms were receding, and regional and local metropolises were rising as hubs of economic prominence. (003)

In choosing Cape Town as the winning bid city, the local rules and norms of the City also came into play as well as those of the participants in WDC2014 like CPUT. As every new participant was included, rules and norms from those communities also impacted on the WDC2014 AS. It was inevitable that so many differing sources of rules, standards and norms would require good communication which was not always the case. However, out of this was borne the WDC2014 Projects norms for doing things; primarily for students the rule was about project-based activity and integration with the world beyond the university:

Projects create excitement; students get more invested in real-world projects with external 'briefers'. Any project e.g. WDC that brings students closer to real world is good but maybe this is true of projects generally not just WDC – which is useful for future (005).

This real-world integration was a norm within the WDC2014 environment. It included facing workplace challenges like unforeseen situations and solving developing problems within finite timeframes whilst interacting with cultural 'others'. WDC2014 norms included tackling practicalities of the research project at hand, recognition that different skill-sets needed to be consulted and that trans- and multi-disciplinary approaches yielded better solutions, all of which is corroborated by the Division of Labour data extracts related earlier.

The following extracts demonstrate some of the more implicit rules, norms and culture of WDC2014 projects including the expectation of multi-cultural experience and meaningful interaction with outsiders:

Gaining that cross-cultural experience was useful – taking projects into the urban space was interesting – not all sitting at your desk (009).

The idea that if they are designing a logo, we say what are you doing here? – you must go and look and document, photo, find samples, talk to people (009).

Deadlines, standards, and legal compliance are overt rules within the workplace environment, something both students and lecturers came to appreciate in the WDC2014 projects. Previously agreed-upon deadlines are invariably met in the workplace owing to budgetary and time constraints, but this way of working does not necessarily impact student

thinking unless they are obliged to deal with such matters as occurred in the WDC2014 projects.

Legal contracts for example had to be faced. (006).

It was deadline driven. ... We couldn't have a never-never ending, there were deadlines. It was the most intense year (007).

The necessity of good administrative support processes (essentially rules) in the workplace was also experienced when the university procurement process impeded projects through slow delivery. Project completion on time and within budget was the norm in the workplace and in the WDC2014 Projects.

I worked with a student on Nicky's Drive and the Universal Design Tool (Ackerman funded UD kitchen tool). It showed up university in worst light bureaucratically – internal processes and procurement issues were very poor. Academia was shown in worst light possible. Procurement issues, red tape, students given responsibility but no clout to see things through. Students were resentful towards the system thereafter. (005)

Outside of the academy, project deliverables are tightly time [deadline] driven as costs and budgeting deficits bear imminent consequences (007)

Societal and environmental good were implicit standards in the WDC2014 projects:

Work was around sustainability, service learning, and social upliftment (007).

An ethical stance towards community inclusion, product-testing and the appreciation of wisdom and knowledge of workplace outsiders became norms for WDC2014 Projects. Some of this was new to the City and some students but familiar to the University Design Department as '*design thinking*':

Ethics of design was a new perspective for the City especially where the design prototyping and community inclusion approach appeared to retard real-world project delivery. The City moved away from imposing decision-maker to more inclusivity of communities they serve (008).

The following extract is included both here as a Rule and in the Division of Labour AT element as it demonstrates the link between these two AT elements; working in different roles with different people is a rule in the WDC2014 and the workplace but also in a hierarchy (or at least a designation of duties and responsibilities) required for completing a project

It (WDC2014) echoed the core principles for *design thinking*, which is the observation, listening phase, of problematising phase". "That was a wake-up for a lot of students and staff because we worked with outside experts and partners, to sensitively and ethically place ourselves in that space where informal traders operate (007).

Another norm for the WDC2014 AS was that many of the projects were not being graded ("not for marks"). Students participated because they saw other value than merely marks; an interesting contradiction as it demonstrates that lecturers were unsure as to how or whether to incorporate the WDC2014 Projects into the academic learning programme curriculum, but they recognised its value, nonetheless. Herrington and Oliver would recognise this as an *authentic learning* opportunity which has all the elements necessary for academic and workplace-useful learning, (see Chapter 2 and Chapter 6), (Herrington & Oliver, 2000). Because the WDC2014 projects were voluntary meant that the usual academic programme already existed and carried on; this took a toll on participating students and staff as the curriculum went ahead as though the WDC2014 was not occurring.

The Exhibition wasn't for marks. There was mutiny in my class and most classes in WDC year because we had to run normal curriculum and then add on all these extra things. Our students were burnt out, utterly, utterly burnt out. As were we. We should have, as a department decided to teach half as much or do half the projects. This was a great lesson (008)

Yet another WDC2014 norm occurred in that students were obliged to work alongside culturally different people some of whom had no design knowledge and with a variety of personality types. This gave opportunity to reflect on their attitudinal approach to future colleagues and potential clients after graduation. Facilitating the best possible outcomes despite working with a variety of personality types needs to be implicit as a way of thinking and working for students and graduates:

Project-based learning simulates the unforeseen calamities and mix of different personalities that exist in the workplace. Students have one foot in each world in doing a project (006). In any workplace you have bossy or lazy people etc. (005)

Overall the WDC2014 rules, culture and norms were that it was project-based, integrated with the real world beyond the university, simulated functions and behaviour required in the workplace and promoted understanding of working with an assortment of personalities, cultures, skills and abilities which students would not have experienced merely from classroom activity. This new norm developed the ability to cope better with unforeseen circumstances and recognise that obstacles were merely the daily challenges that life

proposed in the working world and thus students developed abilities to overcome setbacks; some resilience was achieved.

4.3.5 Subject: for whose benefit is what's done

The **Subject** is the entity (an individual or entire organisation) doing the learning, hence the phrase: *for whose benefit is what's done?*

In the temporarily-formed WDC2014 projects AS, the subject, includes students, lecturers and the workplace project participants. However, in this thesis the student is the paramount subject as the research concerns curriculum inputs which primarily affect student learning. The subject acts upon the object to transform it into an outcome.

Mediation is demonstrated in the relationship between the student and the lecturer throughout the WDC2014 Projects experience. Without lecturer willingness to participate in WDC2014, students would probably not have had opportunity to experience WDC2014 Projects. A consequence of participation was that both student and lecturer gained insights, experience and learning in various ways. But for these insights to be realised, students at different levels of learning needed to have an interest in the WDC2014 projects. Student learning is recorded in Chapter 4, which includes project writing opportunities, exhibiting work, demonstrating design methodology usefulness for community improvements, business and project management skills and so on, all of this is facilitated through the *tools* element of the AS, discussed in the next section.

4.3.6 Tools: *what is used to accomplish the activity*

Tools are mediational artefacts or means, for example reading, speaking, demonstrations, electronic devices, course notes, people (lecturers, mentors) or project briefs and can be thought of as *what is being used by the subjects and to work on the object to accomplish the activity*.

Mediational artefacts may be anything that acts as a transforming agent between the subject and the object in an AS. Tools may be both thinking (knowledge-based) tools like lectures or physical tools or apparatus which aid the subject in creating the object. Examples from the interviews demonstrate the interconnectedness of each aspect of the AS but especially the role of mediating tools and artefacts to promote the object of learning about real workplaces in design.

What was evident is that some mediating tools were facilitated mainly by human intervention via the lecturer, mentor or outside project participant. For example, the following extracts indicate human intervention as a mediating tool for student learning:

WDC gave students opportunity of dealing with non-designers and the culturally different, presenting in a public forum or meeting. (006)

Real-world project-based learning is important, but it has to be stepped, scaffolded and supported otherwise it's not an education – what are teachers providing? (005)

Working with outside experts opened up student vision. (007)

The Professional Practice subject was the missing-link in preparing students for the workplace on graduation. Business skills and mentors from industry [are useful]. (003, 008)

Below are extracts indicating that students had to pay closer attention to the learning process or development of a thinking tool or knowledge tool through participation in some way. WDC2014 projects included public exhibitions, talks and displays of student, lecturer and outsider designs. These festivals, exhibitions and other activities were aimed at sharing and including the public-at-large as well as design insiders in learning about the creative usefulness of design within the world of human experience and the talent and capabilities of future graduates available to the design community:

We participated in a way that previously was not possible. There were a number of festivals and *Open Design* activities. We used the *Design Indaba* of that particular year to escalate those conversations globally (003)

The comment below by two lecturers is a reminder that the usual professional practice curriculum does not give students and lecturers this exhibition and exposure space. Students had opportunity to get the outside world to evaluate their work which typically is otherwise only seen in year-end assessment “crit” sessions by their fellow students and lecturers. This outside exposure afforded the chance to compare students’ own standards and capabilities with outsiders as well as to receive feedback from beyond the university design department.

WDC initiative afforded staff and students the opportunity to get work seen (003, 005)

The observation below related to the technological world is also worthy of comment; the ongoing expansion of technological capabilities of design and communication devices and ICT generally, the sharing of knowledge and the opportunity for cross-pollination of thoughts, concepts and designs through social media, comes naturally to students who ‘grow up digital’

(Castells, 2010:xxxii). This has contributed to breaking down knowledge silos familiar to older generations. The inference is that the 21st century student is comfortable with using ideas and methods that are shared socially in some way. They cross learning boundaries which previous 'non-digital' generations were incapable of doing as easily. This new learning space more easily traversed by tech-savvy students is not generally catered for in curricula mostly because they are commonly designed and actioned by lecturers who 'did not grow up digital' and owing to time-lags and slow response times in large organisations like HEIs. The WDC2014 experience provided impetus for curricula to be more multi-disciplinary, providing tools that students need for success in the real world but may not necessarily possess.

Young learners are now tapping into social media to co-create; joint agency and multiple environments with systems-orientation is gaining momentum rather than silo-thinking; previous subject guides had silos of discreet knowledge. (007)

We submitted a number of projects for the WDC process and they were duly acknowledged and recognised and so validated our pedagogic offerings first of all, and a greater audience within the government and civil society was able to access design in a way that previously was not accessible (003)

Although there may be some merit in acknowledging that some tools were more human, or process driven, all had aspects of both and nothing was learnt without student reflection and sometimes reflexion to promote the object. Reflexion describes a reflective analysis of own practice with the purpose of adapting and improving on an on-going basis (Findlay, 2003; ix).

Explicit mediatorial tools were employed mostly for the benefit of students but typically in an AS, even the mediatorial tools develop and here the teaching and learning of the lecturers and students occurred. There were exhibitions, writing workshops, project management workshops and actual physical creation of objects along with the organisational effort required to facilitate object-creation. Presentation skills exerted, scaffolded, supportive teaching, student exhibitions and students creating exhibits, the input of mentors and the character attributes of humility, dealing with diversity, applying knowledge in new scenarios, working with others from other disciplines, learning to document client needs face-to-face and lecturer pedagogic assignments were all tools used to work on the object. This promoted workplace-complexity learning that mere classroom activity could not have provided and is reinforced by the fact that some students opened their own design businesses soon after WDC2014:

Well the R5K project was a big one [...]. A number of them have moved to Woodstock, to the Woodstock Exchange where they have set up companies and these are a direct result of their

participation in the WDC2014 Design. Also leaving the comfort and safety of the academic environment, dealing with real-world challenges, paying rent, surviving, making a living (003)

The WDC2014 gave opportunity to focus students towards socially-themed design workplace possibilities and workplace imperatives like deadlines, budget adherence, taxation knowledge and perhaps most importantly for the creative professional, intellectual property law.

We need to train our students in bookkeeping, accounts and the number of options that they have so that they [their businesses] are tax-compliant, what companies they can put together, to protect their Intellectual property (003)

The Industrial Design Dept. integrated R5K project has really been a great success but we still need to train students in accounting, tax-compliance knowledge and IP [intellectual property rights] (003)

Perhaps the last words on the efficacy of the tools used in the WDC2014 Projects belong to interviewees 005 and 008. (Bear in mind that interviewee 008 is not thinking in terms of AT tools as defined but is simply expressing an opinion about the usefulness of the WDC2014 as a method of teaching and learning).

Students have one foot in each world in doing a project. (005); Allow them to slip a little but not too much. (005)

WDC2014 was a tool that exposed all of us to a world event (008)

R 5K gave students a leg in each world – it allowed them to slip but not too much. (008)

Through participating in the WDC2014 students were afforded tools that developed them as human beings through learning humility. It promoted their professional capabilities in knowledge, thinking and resilience-learning by navigating through unforeseen and calamitous experiences.

4.4 AT pictographic representation of data findings

The AT triangle in Figure 5, is a pictographic representation of summarised main learning from the WDC2014 Projects activity system.

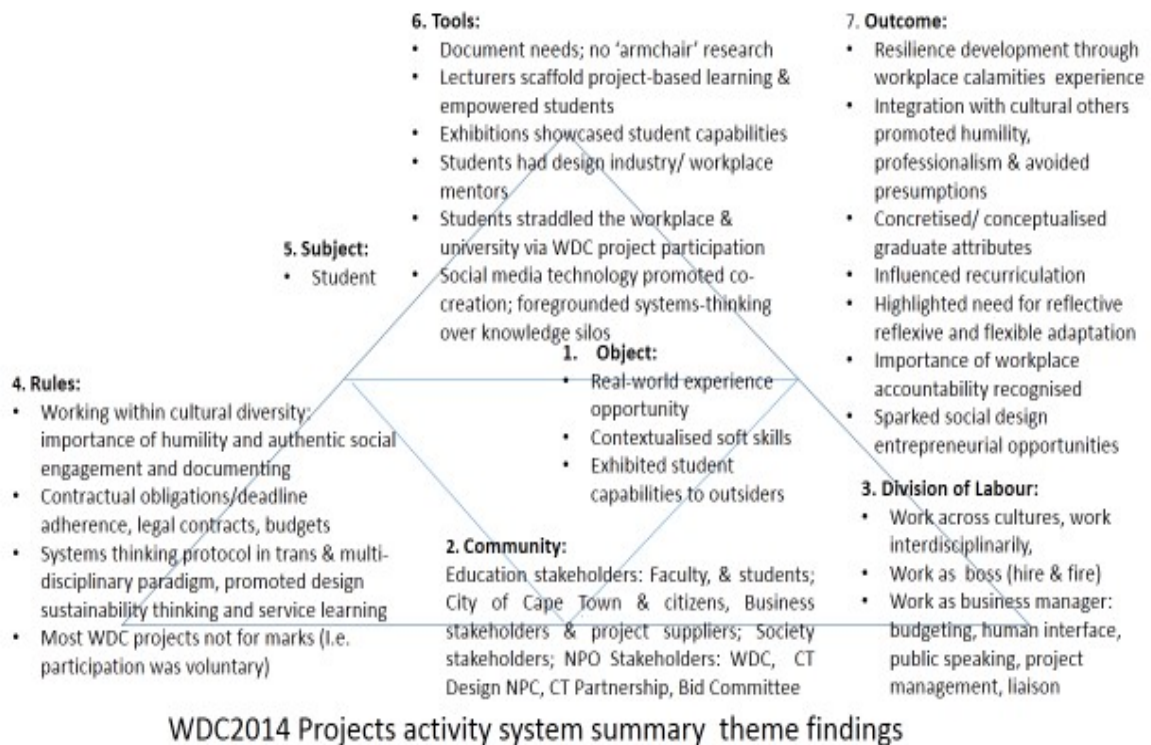


Figure 5: AT summary triangle of WDC2014 AS

Below the curriculum for professional practice for graphic designers is discussed as it existed during the WDC2014 and later. It is given here to support the research problem regarding design student graduate readiness to face the world of work. The reader is also reminded here that the thesis is termed “*WDC2014 opportunities for transforming the professional practice curriculum*” and to provide insight into answering the research questions which are as follows

- What curriculum-useful learning opportunities emerged from the interaction of FID Design Department and WDC2014 projects?
- How did these curriculum-useful learning opportunities arise?

With sub-questions

- What shared objects were created in the interaction of the activity systems of CPUT and WDC2014 projects?
- How did these shared objects arise?
- How may these shared objects be useful in curriculum design?

4.5 The Professional Practice curriculum for Graphic Design

Study guides for the National Diploma in Graphic Design years one, two and three were perused to create an AS of the Professional Practice curriculum. Here a reminder is given of curriculum details from Chapter 2: The overall view was that the first year curriculum revolved around understanding entrepreneurship, business types, ethical behaviour and recognition of business opportunities. The second year looked more at marketing, competitive advantage and understanding financial statements. Year three which had more topics, looked at statutory requirements like tax compliance, business management, operations management, project management and finally e-commerce; all three study guides can be found in the Appendix. The same ordering of AT elements that was used to discuss the WDC2014 AS elements is used now to discuss the existing professional practice study guides Curriculum AS.

In section 4.6, the familiar AT summary triangle is shown, but this time for the Curriculum AS; a discussion on the (quaternary) contradictions that exist between the two activity systems follows in Chapter 5.

The curriculum for each of the three years in each study guide is essentially the same; but each year gives more detail of a particular aspect of professional practice, discussed below. There are strict rules about how assessments are to occur, compulsory class attendance, absenteeism, contact with the lecturer, publication of marks, student behaviour and so on. The aim of the course is stated below:

At the end of this program, the student is expected to have acquired: knowledge with understanding and application. (Study guides for professional practice for graphic design, years 1-3)

How the aim is to be achieved?

The following teaching and assessment approaches are adopted: lessons taught in class might be complemented by visits to the industry/businesses, formative assessment tasks are utilised to gauge student's understanding, projects meant to simulate real - life situations are carried out both as formative and summative assessment. A variety of other methods ...these may include worksheets, assignments, projects, case studies, oral presentations and written tests". (Study guides for professional practice for graphic design, years 1 – 3)

And

Critical cross field outcomes (CCFOs). The aim of CCFO's is to direct educational activities towards the development of learners within a social and economic environment. Critical outcomes are part of the basic approach to this course. (Study Guide for professional practice, 2nd Year)

In AT parlance, the professional practice curriculum AT elements are as follows:

Firstly, the **object** (or subject matter being worked on): The Curriculum AS object provides *knowledge about how to start and run a business* (See Chapter 2); it provides *knowledge preparatory to the world of work* in the form of self-confidence (see next extract) to market a business and recognises the job-scarce nature of the 21st century economy and that therefore that knowledge of how business operates is worthwhile learning.

Given the volatile economic environment confronting most nations today, and the seemingly deteriorating pool of salaried work, the Professional Practice (Business Study) curriculum is designed to give students the knowledge needed to start, own and run own business/practice, as well as prepare them for the work environment. It is also designed to give students the confidence needed to promote business and marketing ideas in the business world. (Study guides for 1st, 2nd and 3rd Years)

At the end of this program, the student is expected to have acquired: knowledge with understanding and application of concepts such as; marketing mix, market segmentation, target market, competitive advantage, income statement, balance sheet, just to mention but the few (Study guide for 2nd Year)

At this stage Professional Practice will focus on very specific topics, such as how to protect business and why, more specifically why to mitigate risk by paying insurance, why to pay taxes. The students must have a clear understanding of management and different areas of management, this includes project management, production management, strategic management, just to mention the few. (Study Guide for 3rd Year)

The next element is **community**, (or who is in this space); in the Curriculum AS the student and lecturer are directly concerned as community members with secondary interests only held by the HEI and student relatives. This is not stated explicitly but is implied in the tone of the study guides; communication is only through the lecturer and students are obliged to comply with assessment procedures, class attendance, late-coming or absenteeism and so on. Below is a sample related in class attendance:

Attendance of all classes is compulsory. Any work given in class may be used for assessment. Missed work cannot be made up later and a zero will be recorded that will form part of the calculation of the year mark. It should be noted that missed classes will still require the

student to find out what material was missed. It is the student's responsibility to make copies of fellow student's notes, handouts or assignments if it was impossible to attend a particular session. (Study guides for 1st, 2nd and 3rd Years)

The **division of labour** element (that is: who does what around here and with what authority), in the Curriculum AS has the lecturer disseminating prepared course material, giving lectures and assessments; students attend classes, do assessments and possibly projects or site visits; again, this can be seen from the examples above.

The **rules** element (how we do things around here), in the Curriculum AS is well-defined. There are strict rules about lecture attendance, assessments and submission of homework by students. Curriculum AS rules are written in the study guide and all assessments carry the same value for each year and for each term. This pre-defined format exists over each of the three years of the diploma study guides with almost no variation in all seven AT elements; see in the extracts above for examples.

The **subject** element (for whose benefit is what's done) in both activity systems is naturally the student but in the Curriculum AS the Professional Practice lecturer looms large as the person coordinating the whole learning experience within the Curriculum AS.

The penultimate element is **tools** (what is being used to accomplish the activity) and in the Curriculum AS this comprises lectures, possible group or individual projects, possible industry visits, formative assessments and tests which is the same in the study guides over all three years of the diploma; all stated in extracts from the study guides above.

Finally, the **outcomes** element of the curriculum AS: (what is being achieved by the AS), is said to be CCFOs but these are not explained. Some theoretical knowledge of business and entrepreneurship is inferred from the lecture topics provided in the study guides. No definite discernible outcomes appear. The HEQF describes CCFOs as generic skills which promote life-long learning along with more specific field-discipline knowledge (Pandor, 2007:7) and qualities that mean graduates will *"contribute to the social, cultural and economic development of South Africa and participate successfully in the global economy and the knowledge society"*

There is no doubt that all the above curriculum content is both typical and necessary for students in a professional practice course. However, it is essentially generic and the information presented in a siloed-fashion and not particularly aimed at design students which is borne out by interviewee 007's comment on the following page. It does not address a rapidly changing socio-economic paradigm. This position is unsurprising in my experience

when one considers that it has been common for the professional practice curriculum to be considered an inconsequential but compulsory additional requirement of the design academic programme.

Most lecturers of the major design subjects themselves are not necessarily equipped with business knowledge and consider themselves unable to teach such a subject. The assistance of a business/commerce faculty lecturer is thus often sought. A business lecturer in turn is not equipped to appreciate the ontology of design; they are unfamiliar with methodology, subject content, assessments and so on.

What is delivered to design students therefore is a generic business faculty method of teaching aspects of business operation and some entrepreneurship which does not entirely meet the design student in their ZPD and is increasingly outmoded in a changing society. This 'bank manager model' was described in Chapter 2. It is not that this knowledge is unnecessary, indeed knowledge of tax compliance and accounting principles all matter materially in a professional practice course but it requires appropriate presentation for design students entering a job-scarce workplace on graduation. The study guide makes mention of possible site visits which are appropriate teaching and learning tools but more emphasis should be made of this in the study guides. Refer to fig 6 below for the HEI AT diagram. Interviewee 007 remarks that subjects taught in a discreet or siloed fashion are not well received by the design student:

We now see young learners tapping into potential for co-creating in multiple environments in social media. They have this amazing leg-up to enable them to meet that joint agency. They have far greater systems-orientated approach. They are not scared of the systemic. They are very shy and put off by the notion of discreet silos of knowledge. Previously old subject guides had discreet silos of knowledge. Learners of today swim more easily in the sea they can see holistically (007)

The analysis of the Professional Practice AS is not as detailed as that of the data collected from the WDC2014 interviews. There are several reasons for this: the analysis of the Curriculum was based upon the Graphic Design National Diploma study guides for years 1-3, from the years 2013 – 2016 and they could never be as detailed as information given in personal face-to-face interviews where nuanced insights are provide, also the researcher had taught all three years of that course in 2009 – 2012 using a more design-friendly approach than the familiar 'bank manager' model in the study guides used from 2013 onwards. As can be read in 3.1, one of the reasons for undertaking the study was precisely because the researcher believed that there was a better way of teaching business principles

to design students in the dynamic 'supercomplex' knowledge economy and that the curriculum required transforming. It is possible therefore that personal bias informed the data drawn from examination of the study guides but the comment of interviewee 007 above indicates that the curriculum requires some improvement.

4.6 The Professional Practice Curriculum AS triangle

The AS triangle diagram below represents a summary of the various AT elements of the existing Professional Practice Curriculum AS.

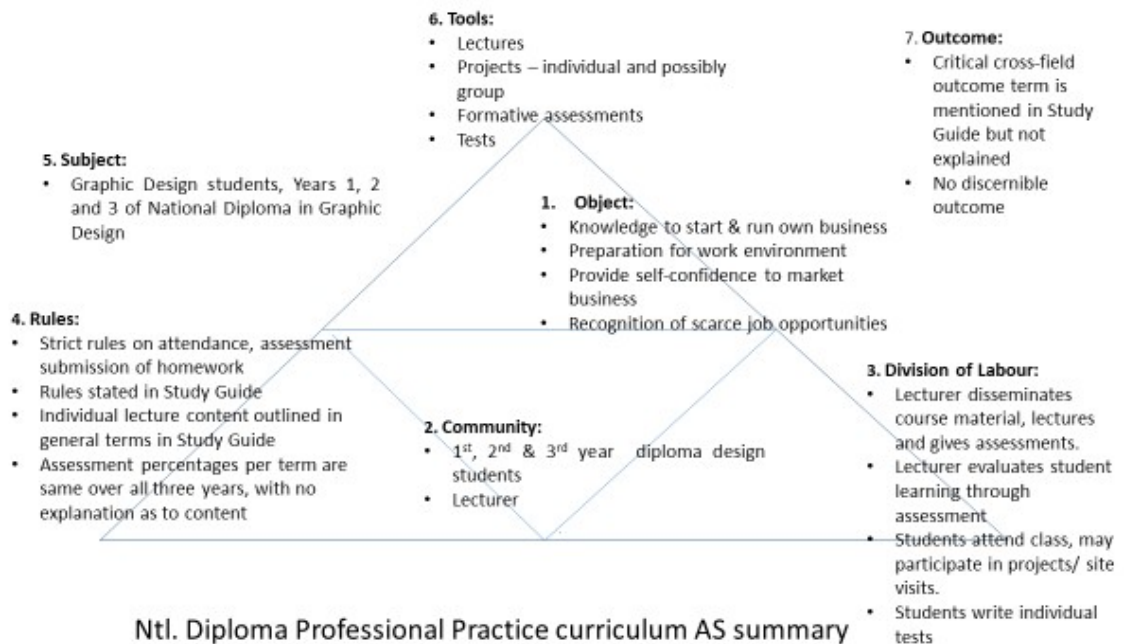


Figure 6: AT summary diagram of the curriculum AS

Contradictions that have emerged between the university and WDC2014 are discussed in Chapter 5.

5 ANSWERING THE RESEARCH QUESTIONS:

“Activity System analysis simplifies, elucidates and even essentialises the data gathered”
Engeström, (2015)

5.1 Introduction: Affordances and contradictions

We take our cue from Engeström’s remark above and shine the light on the positive **outcomes** (affordances) experienced in the WDC2014 AS in section 5.2. In section 5.3, the main contradictions and contrasts staff perceived in the WDC2014 Projects AS are discussed. Section 5.4 discusses the contradictions and contrasts between the WDC2014 Projects AS and that of the Professional Practice Curriculum for Graphic Design. Section 5.5 presents a table of contrasts between the two activity systems for quick access purposes.

5.2 Transformation of the object into desirable outcomes through AT elements

The positive **outcomes** from the WDC2014 AS would not be possible without the support of the other AT elements; The **object** of the WDC2014 projects was rooted (*real-world experience*) beyond the university and enlarged student awareness of possibilities after their university years. This contributed to the **outcomes** of ethical and sustainable community-orientated entrepreneurial ideas not previously recognised some of which came out in the various R 5K projects. Bound up in the real-world experience and broadening entrepreneurial possibilities was the growth in inter-personal skills necessary as part of graduate attributes and resilience. The student was learning to be resilient and be part of a resilient system as described by Manzini, Goede and Folke et al; see Chapter 2, page 15.

The **rules** of the WDC like cultural diversity, collective systems-thinking ways of practice and even Manzini’s concept of the ‘cosmopolitan localism’ (local application of global concepts) are described in the literature review under internationalised higher education. These **rules** impacted the **object** and **outcomes** of the WDC2014. Needs of the local community were addressed with **mediating tools** like authentic research interviewing and team inclusion in decision-making. Industry and other mentors and even external exhibition opportunities demonstrated how the WDC2014 AS was conducted (the **rules** element) and their impact on **outcomes**. This was borne out by broadened entrepreneurial horizons and better understanding of professional workplace requirements. That lecturers and industry mentors

and a broad and diverse WDC2014 **community** were party to the **tool** of student scaffolded learning and contributed further to the useful **outcomes** already elucidated above.

The data recorded demonstrates that the WDC2014 provided student learning advantages through its interface with the world outside the university. It was the opportunity to work alongside professional practitioners from various fields but have the acrobat's safety-net of being allowed to try and test without fatal consequences.

Perhaps the most essential **outcome was** the development of *resilience* in the student; this resilience occurred in various ways: the idea that unforeseen calamities and problems (though not desirable in themselves), ask students to critically evaluate what is occurring and thus fosters a search for other ways, is paramount in the quest for resilience. It allows the student to mature by developing patience, using the collective wisdom of a diversified professional team (instead of silo-thinking) in dealing with difficulties and to grow as a practitioner through searching for ways to circumvent obstacles. It fosters the acknowledgement that hindrances occur regardless of the best possible planning and that they may be surmounted through exercising patience and thoughtful, (often collective) effort.

Students also experienced learning to use group resources, not merely relying on own skills and resources but also on the expertise or abilities of others, often within a project team. Integrated professional and end-user (client or customer) inclusive teams gave multiple perspectives and thus opportunity for holistic vision of a situation. Individual team members developed an appreciation for other team members' cultural historicity, expertise and experience as their relationships developed over the life of specific projects. The psychological growth and development of students was enhanced by working with outsiders; they learnt patience and humility (character development) and avoided presumptuous conclusions. This promoted rapport allowing for further collaboration be it in commercial design possibilities or academic research in future. Overall such learning contributes to a wider repertoire of available tools and a resilient way of being.

These types of **outcomes** are borne out in the literature review: Barnett's '*diversified curricula*' Barnett, (2000) useful to HE in a globalised and internationalised education landscape which experience times of great economic uncertainty and 'supercomplexity' Barnett (2004), (see Chapter 2). Manzini corroborates this by concluding that resilience enables sustainability within a system in the future. He states that systems require a diversity of possibilities because the future is unpredictable and thus having alternative options will be useful. In addition, having some redundancy to facilitate choices and the ability to learn and respond positively to feedback are indications of resilient systems Botha, (2015:2). The

student resilience **outcomes** of the WDC2014 Projects data findings show that receptive, thoughtful beings who looked beyond the surface to overcome difficulties were developed, precisely what future careers require.

Included in this outcome is the development of *graduate attributes*. The data tells us that students gained inter-personal skills in learning how to deal with others, learnt to work as part of both culturally and professionally diverse teams, learnt time management skill through adherence to deadlines, learnt situational evaluation skill and flexible thinking qualities especially where unforeseen delays or frustrations occurred. They gained insight through mentorship experiences and exposure of their work to outsiders. The table in Chapter 2, page 17 on vocational vulnerability and changes in expected graduate attributes over time, reveals how the above skills are necessary for the knowledge worker in the KE. The knowledge worker needs to be 'creative, flexible, multi-disciplined, thriving in increasing uncertainty and precariousness' and a flexible thinker, good communicator and life-long learner'. Barnett states that better learning outcomes necessary in riskier and 'supercomplex' times, occur through personal transformative insights, (see Chapter 2). His 'transformative pedagogical options' model indicates that it is the way of being (our ontological aspect philosophically speaking) that becomes important in complex uncertainty. More transformative ways of thinking and being, doing and interacting were learnt by students participating in the WDC2014.

Recognition that doing projects external to the classroom, getting student (and staff) designs exhibited externally and working with industry mentors, was important in interviewee lecturer thinking. Industry and other mentors external to the university enhanced student learning and understanding of workplace priorities and ontologies by helping students work through new areas and gain new insight and understanding. Students listened more attentively to successful external mentors who acted as role-models for their own future careers. By being external mentors, they approach the student in the ZPD allowing better learning to occur in a more meaningful way than would occur from mere classroom activity.

Understanding the necessity for accountability in the workplace became evident for both students and staff through understanding the necessity for ethical treatment of all AS community members (stakeholders in projects), also the commitment to finishing projects on time, within budget; these related to the WDC2014 culture and therefore stem from the **rules** AT element. The far-reaching lesson learnt: that those in authority sometimes had difficult decisions to execute like firing non-performing suppliers is one not generally afforded students in the classroom but was the reality experienced in the WDC2014. The lesson that

non-performance jeopardises successful outcomes and consequently impacts financial business continuity, was valuable to students who gained managerial experience in the WDC2014.

This section concludes by concurring with Engeström; analysing an activity system highlights the essence of what has occurred so that lessons are clear and simple; the WDC2014 AS promoted learning **outcomes** appropriate in a rapidly changing and unpredictable world and are worthy of inclusion in a curriculum of the future.

5.3 Contradictions that emerged through staff perceptions of the WDC2014

The following tensions and contradictions were extracted from the research data relating to the WDC2014:

1. Silo-thinking, silo-knowledge disciplines and curricula are inadequate to meet the needs of graduates in the 21st century Knowledge Economy as the complexity of problems cannot be addressed by a single discipline. According to staff interviews millennial students recognise and appreciate the benefit of sharing across various disciplines via ever-changing technological enhancements which are not necessarily integrated in conventional academy curricula
2. Well-executed procurement processes, administrative procedures and compliance with statutory requirements all form the backbone of sound operational platforms necessary for the success of any project or entrepreneurial endeavour, particularly in rapidly evolving technology-driven environments. Inefficient use of human and other mediating tools through poor training or out-dated technology and equipment impedes the greater academic project as well as the individual graduate's readiness to face the workplace. Gaining experience and insight into this concept are part of managerial science not generally addressed in most university courses
3. Just as opportunity to travel is said to broaden the mind, opportunity to appreciate the necessity for sustainable design, climate-change opportunities and changing societal needs which exist outside of the academy, broadened student entrepreneurial thinking previously not imagined. Entrepreneurial thinking of future graduates is constrained by them remaining solely in the insular academic environment which is unable to provide external opportunity or stimulus for graduates to become as enterprising as possible in a complex and rapidly changing socio-economic paradigm

4. The university ontology is limited to its own AS; it is not directly part of the workplace. Thus, the contradiction of preparing students for the workplace but being outside of that workplace exists. The WDC2014 ontology in contrast provided workplace preparedness in the form of wider entrepreneurial vistas, psychological, economic and social insights, accessing multiple design-discipline knowledge sets and exposure to workplace necessities and realities

5.4 Discussion: contradictions of WDC2014 AS and Curriculum AS

The **community element** of the two systems differed significantly; while both activity systems had common education stakeholders in the form of students and lecturers, the WDC2014 AS included a far wider community group in the form of project beneficiaries, NGOs, other universities, City of Cape Town and product suppliers all of whom had an interest in the success and societal impact of various projects, in varying degrees. The vista of student thinking and being was opened as they interacted with people different from themselves and from each other, possibly creating a spirit of humility not perceived through the Curriculum AS. Possible site visits mentioned in the curriculum study guide, if done properly would have expanded the *community* element of the curriculum AS; this in turn may have expanded the *rules* thus making the curriculum more integrated with the world beyond the university.

The **subject** element of both activity systems remained the student as expected but the **object** element although theoretically the same in fact contrasted a great deal. The Curriculum AS provided largely theoretical knowledge on how to start and run a business and the recognition that job opportunities were scarce whilst the WDC2014 AS promoted real-world experience in running projects and businesses, contextualising the attributes required of students on graduation and provided insight into potential entrepreneurial ideas not previously recognised, given the nature of society and job scarcity. Thus, the WDC2014 object integrated with the world outside the university to provide skills that bridged the divide between knowing about something and knowing something, ensuring that the **outcome** would be changed for the better. Actual experience relevant to the future career of the student changed them fundamentally from the proverbial armchair traveller into a real-life explorer.

The **outcomes** element of the two systems possibly showed the sharpest contrasts, this was partly as the CCFOs mentioned in the study guides were never explained and therefore couldn't be determined but the WDC2014 outcomes included students gaining abilities to

recover from deviations or set-backs, gaining greater inclusivity through working in culturally and vocationally others and the importance of accountability, which promoted reflective and reflexive accountable human beings as described by the interviewees. (Reflective practice implies deep thinking about what is being done where reflexive practice is a social science method of taking account of the effect of the practitioner in what they are reviewing or investigating); both look for critical insights into practice (Billett, 2009). These developing traits promote the ability of students to 'stand on their own two feet', that is to gain the advantage of economic resilience learning in an uncertain and complex world.

Within each AT element, differences were observed between the two activity systems, in the **tools element**, the WDC2014 required students to interview citizens and find out their thinking about specific requirements. Lecturers were available to students in this wider arena to scaffold and grow student learning in this broader environment than the classroom situation would allow. Students developed skills in interviewing, research methods, human interaction, listening, subject knowledge and personal psychological development that were not evident in the Curriculum AS. External exhibition of work gave students opportunity to have their design capabilities seen by potential employers or business partners and to appreciate the work of other designers and potential future design collaborators for their post-university careers. Working alongside industry and other mentors brought insight into good design, business practices and human interaction, again something which performance was limited in the classroom environment where the lecturer is the only source of knowledge and experience. Finally, participating in meaningful designerly ways in projects that impacted the lives of human beings outside of the academy provided the opportunity to reflect on future design opportunities and possibly entrepreneurial opportunities, whilst allowing the safety-net of being within the tertiary education system; *the foot in each world*.

The **division of labour** element displayed a particularly interesting contradiction between the two activity systems; where students were very definitely under the lecturer control in all aspects of the Curriculum AS and gained no special insight into practicalities of the world beyond the university, the WDC2014 AS gave them opportunity to act in different roles and with varied authority. Students experienced collaborating as equal partners with lecturers, mentors, outsiders and students from other disciplines or universities. They also experienced being in positions of authority and the discomfort of having to make and execute difficult decisions like firing suppliers and devising ways to accommodate deviations from planning owing to poor administrative or other unforeseen circumstances. Through this empowering experience they gained skill and appreciation for practical business skills like project management, budgeting processes and operational deadlines adhered to in the workplace.

The **rules and norms** element of the two activity systems also showed clear contradictions; where the rules of the Curriculum AS were predefined and very precise about student responsibilities via the study guide, the WDC included far more flexible norms as well as rules. WDC2014 norms included working in cultural and vocational diversity, using a holistic 'systems thinking' approach to tasks and projects and promoted graduate attributes like working with others and being a reflective and reflexive learner. WDC2014 rules included linking time and financial discipline which could not easily be done in the Curriculum AS given its differing nature from the WDC2014 projects AS.

5.5 Summary of contrasts of WDC and Curriculum activity systems

Table 4: Contrasts of WDC and Curriculum activity systems

WDC 2014 Projects AT Triangle	Professional Practice Curriculum AT Triangle
Object	
Contextualising design in the real-world More than a proxy for workplace; authentic and worthwhile experience Contextualised necessary graduate attributes	Knowledge of start & run own business Preparation for work environment Provision of self-confidence to market business Recognition of scarce job opportunities
Community	
Many and various stakeholders both internal and external to HEI	Graphic Design students, 1 st , 2 nd & 3 rd years Lecturer
Division of Labour	
Cross-cultural, interdisciplinary work as business manager with varied roles including boss, human resource & project manager, public speaker & liaison for both students and lecturers	Lecturer disseminates course material, gives lectures and assignments Lecturer evaluates student learning through assessment Students attend classes; may participate in projects or site visits Students write individual tests
Rules	

<p>Culturally diverse environment</p> <p>Contractual obligations & deadline adherence; legal contracts & budgets</p> <p>Systems thinking protocol</p> <p>Trans & multidisciplinary paradigm</p> <p>Flexible curricula & resilience graduate attributes</p> <p>Reflexive learning</p> <p>Rise of local economic importance of cities and regions</p>	<p>Strict rules on attendance, assessment, submission of homework</p> <p>Rules stated in Study Guide</p> <p>Individual lecturer content outlined in general terms in Study Guide</p> <p>Assessment percentages per term are identical over all three years with no content explanation</p>
Subject	
<p>Design students (and to a lesser extent lecturers), have agency to experience and adapt to new learning through all other AS elements</p>	<p>Design students in years 1, 2 and 3 of national Diploma in Graphic Design</p>
Tools	
<p>Projects gave students a foot in each world</p> <p>Industry mentors promoted authentic workplace learning</p> <p>External exhibitions gave exposure of students' workplace capabilities</p> <p>Lecturers scaffolded project-based learning opportunities & empowered students</p> <p>Authentic real-world methods avoided mere desk-based research practice</p>	<p>Lectures/lecturer</p> <p>Class projects/ maybe in groups</p> <p>Individual formative tests</p> <p>Individual summative test</p>
Outcome(s)	
<p>Resilience development occurred through experience of workplace calamities and interface with culturally different personalities</p> <p>Graduate attributes were conceptualised/ concretised</p> <p>Recurriculation and economic resilience were structured</p>	<p>CCFO term mentioned as directing learners within a socio-economic environment, but not explained – thus no discernible outcome</p> <p>Acquisition knowledge, understanding and application – but not explained; thus, no discernible outcome</p>

<p>Need for adaptive reflective and reflexive learning was highlighted</p> <p>Importance of accountability in the workplace</p> <p>Local knowledge sparked design entrepreneurial opportunities</p>	
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6 CONCLUSIONS AND RECOMMENDATIONS

The golden thread running through the data and findings is that better graduate preparation for a changing society and economy lies in authentic real-world mentored projects; projects that reflect the types of challenges and experiences to be faced in the workplace.

The literature review gave a backdrop of challenges; increasing graduate unemployment, the relevance of HE in the Knowledge Society and the necessity but difficulty of job-creation in the KE. The current economic system may provide entrepreneurial opportunities under some conditions but diminishing employment opportunities are common. Even HEIs are required to be more entrepreneurial by promoting relevant internationalised courses to compete for the best lecturers and students.

Researchers and scholars who recognise these challenges look for ways to understand HEIs changing role and how to face up to them. The changes in graduate attribute requirements over time and the idea that both student and lecturer would be better equipped to face riskier and uncertain socio-economic conditions, is worthy of our attention. We found out in the literature review that the job-scarce KE favours creative professions like research, design and ICT that is, knowledge workers, who can create and use new and existing knowledge in new ways.

An important positive **outcome** uncovered in the research includes that there are ways of being resilient in times of transition and complexity. For the university design graduate, becoming more resilient means being able to reflect and be prepared for adversity, what Manzini terms having some choice through having more than one skill-set available (Botha, 2014:2). In the WDC2014 projects this was done through working in multi-disciplinary groupings. These groupings or teams had options with which to approach problems because they were multi-disciplinary and worked trans-disciplinarily. Teams were multi-cultural; student members performed different roles in various settings often with industry and lecturer mentorship, enabling them to gain leadership and managerial experience but within a scaffolded environment. Design is one of the best placed professions to be resilient in uncertainty as the nature of design deals with so-called wicked problems which by definition means knowledge is incomplete and situations uncertain (Buchanan, 1992).

The data findings indicate that real-world integrated projects that impact society in some way provided students (and lecturers) with expansive learning. The realisation of this expansive

learning derived from the analysis of the contrasts between the current curriculum and the positive outcomes of the WDC2014 projects. Gaining experiences which encouraged students to be flexible and adaptable, able to research and recognise economically exploitable design opportunities and work in multi-cultural and multi-skilled teams, all contributed to expansive transformations and resilience learning.

These expansive transformations need to be fostered through opportunity to experience them. The task of the lecturer is to provide the expansive learning opportunity which promotes such learning (a place where “*thoughtfully mastered learning activity*” occurs) Engeström, in Sannino, et al., (2009:xii). The ZPD constitutes an opportunity for expansive learning; this involves having an *authentic learning environment* where the lecturer uses guided teaching and learning activity towards productive outcomes, which better match actual workplace needs.

6.1 Authentic learning environments

Students need authentic learning tasks which promote working in complexity where there are no clear answers, working within diversity and with an ill-formed problem, yet within a monitored classroom environment. The necessity of an appropriate interface between university and the workplace was discussed, followed by the characteristics of a framework developed by Herrington and Oliver (2000), whereby it is possible to find classroom learning activities with academically sound aspects, which also represent real life workplace activities. The nine characteristics of this framework include: authentic contexts and activities, expert performances and modelling, multiple roles and perspectives, collaborative construction of knowledge, reflection to enable abstraction, articulation to make explicit any tacit knowledge, provide coaching and scaffolding and provide authentic assessment of learning within tasks (Herrington & Oliver, 2000).

The research findings indicate that the WDC2014 projects provided all these aspects to meet the criteria for appropriate university teaching and learning through allowing students to participate as team-members and leaders in real-world projects where they were mentored and had opportunity to reflect on practice. They avoided limiting silo-knowledge learning through working in a multi- and trans-disciplinary environment and thus experienced expansive learning which contrasted and contradicted what learning would have been in the current curriculum.

Where the academy can provide classroom-based projects from authentic real-world situations that can be academically structured for monitoring and assessment, the divide

between workplace and academy can be bridged. The student will be provided with aspects of theoretical learning and situated learning that the current curriculum does not provide.

6.2 Reflections on the original research problem and research questions

AT analysis elucidated the goals and contradictions existing in the curriculum and the WDC2014 activity systems; it brought into focus how and why the AS' function the way they do and allowed the shared object of better learning to emerge.

The research problem, that too many design graduates are underprepared via their business studies curricula, to thrive economically in the KE has been confronted through examination of existing research in the literature in Chapter 2.

The research questions as to whether any curriculum-useful learning input opportunities emerged from the interaction of FID Design Department have been explored.

Theorising about these contradictions enables us to think usefully about new ways to build bridges between the two systems, to discover whether any shared object(s) between the two activity systems were created. Thinking and understanding that authentic workplace-type projects with properly devised assessment and monitoring criteria would be useful in the classroom environment has been suggested by Herrington and Oliver. Barnett has suggested a more transformative learning environment is one which challenges both the student and the lecturer, challenging them as individuals more so than as practitioners and one which is required as the world becomes increasingly 'supercomplex' and solutions are temporary and information incomplete. The WDC2014 Projects experience attests to authentic learning. Where WDC2014-type learning activity can be properly academically structured to meet academic learning and assessment standards, it can provide a valid bridge of learning between classroom and workplace. Given this exploratory study, designing a professional practice curriculum would be a logical next step.

6.3 The way forward

The use of **Activity Theory**, and particularly that of the third-generation Activity System framework has facilitated the analysis of the WDC2014 projects in such a way that we have been able to uncover useful teaching and learning findings to answer the research questions meaningfully. Analysing the data into each element of the WDC2014 AS and examining how each element affected the student learning environment provided findings useful for future research and development in the following ways:

Although this thesis focussed on **lecturer feedback** on a very large real-life project, **student feedback** of large projects could be researched in a future study. If this were a longitudinal study that could assess student experience before graduation and possibly several years after graduation, useful curriculum development aspects are likely to arise.

The fact that so many different field knowledges were involved in doing the WDC2014 projects promotes reflection on the **rules** aspect for the creation and development of the professional practice curriculum; a multi-disciplinary academic team would certainly be advantageous for student learning; a research area also likely to be fruitful.

What was also highlighted is that broadening the **community** aspect of the future curriculum needs to be considered. Including industry stakeholders for their knowledge regarding current business and industry practices is invaluable.

The entrepreneurial aspect of the curriculum has not been concentrated on in the findings here but is perilously ignored in the development of future curricula given the nature of the KE and the necessity for the university to remain socially and economically relevant. The economic realities facing the socially dissonant Cape Town communities, the nature of the growing informal economy and the shrinking pool of available formal-sector employment all speak to the necessity to create more small businesses and that the tertiary educated graduate is most likely to do this better than anyone else.

The designer is a front-runner in this space already as the Knowledge Society values creativity, inclusivity and sustainability. The Knowledge Economy favours those who can live better with complexity, even supercomplexity and with uncertainty and wicked problems. The professional practice curriculum of the future must consider socio-economic and environmental realities in providing the best possible launch-platform for the design graduate to become both economically resilient and socially relevant.

In the attempt to bridge difficulties and contradictions experienced between training for a career while at university, the student encounters the tough and changing world to which Manzini refers (see in Chapter 2, sections 2.5 and 2.10), and thus new ideas are formed. These new bridging ideas are called 'germ cells' in AT and are formed because a functional relationship exists between the university AS and that of workplace AS. Like all thinking and learning, germ cells develop as the learner abstracts meaning from practical actions like experimentation, practical transformation and changes. This concept can guide both the idea of a new professional practice curriculum and be used as a central tenet within it ensuring continued usefulness and resilience to the design graduate of the future in a changing world.

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APPENDIX A

HDC 1.1 form; Registration of topic for Thesis



January 2014

HDC 1.1: Registration of Topic for Dissertation/ Thesis

Student's surname	Barnes	Student no.	207149941
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Nationality: South African			
Prior qualifications: BCom. (Accounting Economics) Diploma: (Fashion Design & Textiles), HDHET: (Teaching & Learning in Tertiary Education)		Status: full-time / <u>part-time</u>	
Provisional title of dissertation/ thesis: <i>World Design Capital 2014 opportunities in transforming business studies curricula at CPUT</i>			
Indicate whether a 50% dissertation or 100% thesis		50% dissertation	<u>100% thesis</u>
Faculty	Informatics and Design		
Department	Design		
Degree	M.Tech (Design)		
Supervisor	Prof. Mugendi M'Rithaa		
Position	Coordinator: Postgraduate Studies in Design	Qualifications: DTech: Design, MDes. (Industrial Design), HDHET, BDes. (Hons)	
Co-supervisor(s)	Prof. James W. Garraway		
Position	HoD: Academic Development Foundation	Qualifications: PhD Higher Education :	

*The university is required to record this information for national reporting purposes.

Signed (Student)		Date: 03 February 2015
Signed (Supervisor)		Date: 3 rd FEB. 2015
Signed (HoD)		Date: 06.02.2015

Faculty approval	Date of FRC minutes in which recorded:
-------------------------	--

Signed
(Chair of the Faculty
Research Committee)

Date:

HDC 1.2 form: Registration of Proposal for Thesis

HDC 1.2: Registration of Proposal for Dissertation / Thesis

Student's surname	Barnes	Student no.	207149941
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Nationality: South African			
Prior qualifications: HDHET, B.Comm (Accounting), Dip Fashion Design		Status: full-time / <u>part-time</u>	
Confirmed title of dissertation/ thesis: World Design Capital 2014 opportunities for transforming business studies curricula			
Indicate whether a 50% dissertation or 100% thesis			
		50% dissertation	<u>100% thesis</u>
Faculty	Informatics and Design		
Department	Design		
Degree	MTech (Design)		
Supervisor	Prof. Mugendi M'Rithaa		
Position	Coordinator: Postgraduate Studies in Design	Qualifications:	DTech: Design, MDes: (Industrial Design) HDHET, B.Des (Hons)
Co-supervisor(s)	Associate Prof. James Garraway		
Position	HoD: Academic Development Foundation	Qualifications(:	PhD Higher Education

*The university is required to record this information for national reporting purposes.

Summary ((Insert a summary of approximately 250 words)

This research shall examine ways in which the business studies curriculum may be transformed to be more relevant to the design graduate in an age of increasing job scarcity and graduate unemployment. The study will use opportunities presented by the World Design Capital 2014 (WDC 2014) award made to the city of Cape Town. Many of the WDC 2014 projects could engage students in projects related to the various sub-themes of its main theme: Live Design, transform life.

The literature review briefly examines Cape Town's present circumstance as dictated by its *apartheid* past and South Africa's current socio-economic position on the neoliberal treadmill of jobless growth and downgrading of skilled and unskilled workers. The social dislocation of communities from each other, poor social cohesion and democratic are included as backdrop for showing the necessity of relevant education that can create an economically resilient graduate who can thrive in a jobless growth environment.

Activity Theory (AT) is used as a framework for examining various learning activities facilitated by WDC 2014 and annotated AT diagrams will be created to explore how these various activities may be useful as inputs in a transformed business studies programme.

inputs in a transformed business studies programme.

Philosophically the stance is that of the radical humanist; epistemologically how knowledge manifests is personal and individual and thus antri-positivist. The ontological stance is nominalist as what is real to the individual within the neoliberalist socio-economic system in which we live, is relevant. The researcher takes a criticalist stance of neoliberalism and thus axiologically this informs the study.

Data will be collected from semi-structured interviews with local design industry members, CPUT design lecturers and the Faculty of Informatics and Design WIL Programme co-ordinator during the last few months of 2013 and in the first semester of 2014.

The thesis should be completed in 2014 for graduation in Fall of 2015.

Key terms (max. 10 words or phrases)	World Design Capital, Business Studies, Social cohesion, Economic resilience, Graduate attributes, Neoliberalism, Social entrepreneurship
--	--

Student undertaking:

I, the undersigned, certify that:

- This project has not been submitted to any other educational institution for the purpose of a qualification.
- All subsidy-earning outputs (artefacts and publications) from my postgraduate studies will be regarded as the property of the Cape Peninsula University of Technology (CPUT) for subsidy purposes.
- Where intellectual property (IP) is developed under the supervision of the CPUT involving institutional or government expenditure, such IP will be subject to the IP Policy of CPUT and the National Act on Intellectual Property generated from Government funded research.
- I understand that the dissertation/ thesis is the copyright of CPUT and may not be published or reproduced in any form without the prior permission of the university.
- I understand that I am required to submit an article for publication based on my research results, with the CPUT affiliation clearly stated.
- I understand that plagiarism is wrong, and incurs severe penalties including possible suspension or expulsion, according to the university's Policy on Plagiarism.
- I shall list all assistance obtained, such as editorial, financial and statistical assistance, and assistance from other institutions or persons, clearly on the Acknowledgements page of the dissertation/ thesis.
- I have read and taken cognisance of the responsibilities of students and supervisors, as included in the Memorandum of Understanding (MoU) signed with the Faculty.
- I will follow the CPUT guidelines for writing dissertations/ theses.
- I have read and taken note of the guide to postgraduate studies published in the document "Postgraduate Studies @ CPUT" at <http://www.cput.ac.za/postgraduate-information>.
- I understand that all subsequent registrations are not automatic, but depend on the approval of my supervisor and are based on measurable progress.
- I understand that I may appeal, if my registration is not approved, through the appropriate CPUT appeals system.
- I understand that non-compliance with the MoU may result in disciplinary action that may culminate in de-registration.

Ethics and data collection:

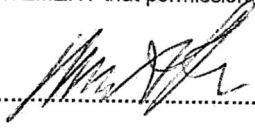
Is ethics clearance required for this study?	Yes	
Is data collection permission required for this study?	Yes	

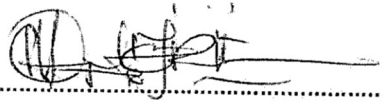
If Yes, the student must:

1. Obtain ethics approval for the research from the Faculty Ethics Committee.
2. ATTACH a STATEMENT of the approval.
3. Obtain data collection permission for the research from the relevant institution.
4. ATTACH a STATEMENT of the permission.

If No, the student must:

1. Obtain ethics clearance for the research from the Faculty Ethics Committee.
2. ATTACH a STATEMENT that ethics approval is not required.
3. Obtain data collection clearance for the research from the relevant institution.
4. ATTACH a STATEMENT that permission is not required.

Signed  Date 14 November 2013
 (Student)

Signed  Date 14th NOV. 2013,
 (Supervisor)

Signed J.P. van Graan Date 18 November 2013
 (HoD)

Faculty approval:

Review Panel* (please print names)		Qualifications (and field)
Dr A Chisin		D Tech: Design
Mr R Rossouw		MA: Psychology.
Recommendations	Approved	
Signed (Panel Chair)	Prof R de la Harpe.	Date

*The Panel reviews the merit and viability of the research project proposed and so must be comprised of experts in the field to be researched, and at least one member of the FRC.

Date on which proposal was presented in the Faculty:	26 November 2013
Date of FRC Minutes in which recorded:	27 Nov. 2014

Signed Date.....
 (Chair: Faculty Research Committee)

MEMORANDUM OF UNDERSTANDING BETWEEN POSTGRADUATE STUDENT AND SUPERVISOR

We, the undersigned, have read and agree to the general terms of the CPUT Memorandum of Understanding (MoU)* between research students and supervisors, and submit the following additional points of agreement in relation to the details of the intended work.

**Notes on MoU provided on page 5 of this document*

Research programme:

Post-doctoral	Doctoral	100% Masters X	50% Masters
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1. STUDENT DETAILS:

Full name of student:	Michelle Andrea Barnes
Student number:	207149941
Full-time or part-time:	PT
Dissertation/ thesis title:	World Design Capital 2014 opportunities for transforming business studies curricula
Email:	BarnesM@cput.ac.za
Telephone no:	021-864 5274 or 082-412 4448
Faculty:	Faculty of Education: CMGE

2. SUPERVISOR DETAILS:

Title, Initials, Surname:	Prof. M.K. M'Rithaa
Staff no:	30008730
Telephone no:	021-469 1027 or 072-655 8727
Faculty:	Informatics and Design
Department or Unit:	Industrial Design

3. SUPERVISOR'S EXPECTATIONS AND ARRANGEMENTS

Supervisor's expectations:
After discussion, the supervisor should set out what he/she expects of the student in terms of reaching certain milestones or goals during the course of the research.
Expected date of submission of HDC 1.2 to FRC which should be <u>within 6 months</u> of initial registration: 27 th November 2013
Other expected milestones or goals: <ul style="list-style-type: none"> • Mock defence and preparatory work on the research proposal.

Supervisor's plans and commitments:	
The supervisor should record his/her plans for providing supervision, including the pattern and intended frequency of meetings, contributions from other researchers etc:	
<ul style="list-style-type: none"> • The supervisor commits to holding regular one-hour consultation sessions at least once a fortnight in person, and also via video conferencing whilst on sabbatical leave (from July to December 2015). • The supervisor will assist in the formulation and editing of scholarly outputs for academic papers. • The supervisor will liaise with the co-supervisor to ensure that the student receives adequate academic guidance and support throughout her studies. 	
Supervision arrangements:	
(a)	Expected absence of supervisor(s) on leave/ sabbaticals/ conferences (giving arrangements for supervision if away for more than 2 months in any one year)
<ul style="list-style-type: none"> • The supervisor will proceed on sabbatical leave for a period of 6 months from July till December 2015. He has requested Drs Aletta Chisin and Eddie Appiah to assist the student in his absence. • Additionally, the co-supervisor Prof. James Garraway will be available to guide the student during this period. 	
(b)	Field work: Outline arrangements for field work:
<ul style="list-style-type: none"> • Arrangements are in place for requisite interviews to take place with selected informants/respondents. 	
(c)	Laboratory work:
<ul style="list-style-type: none"> • Not applicable to this study. 	
(d)	Outline lab arrangements (if any) and supervision arrangements for lab work:
<ul style="list-style-type: none"> • Not applicable to this study. 	
(e)	Estimated timing of formal seminars:
<ul style="list-style-type: none"> • 45 minute sessions wherein the candidate will make presentations at least once every term to the Design Research Activities Workgroup (DRAW) postgraduate forum. 	
(f)	Access to computers and software:
<ul style="list-style-type: none"> • Institutional and personal equipment is available. 	
(g)	Responsibility for payment of costs (printing, stationary, copying, etc):
<ul style="list-style-type: none"> • Within reasonable limits, FID will assist with costs relating to the printing of the final thesis. 	
(h)	Any departmental commitments by the student and details of remuneration:
<ul style="list-style-type: none"> • None at present. 	
(i)	Courses and classes:
List any class, workshop or course that the student <u>must attend as a pre-requisite</u> and costs associated with this. Clarify the responsibility for costs associated with these (if any).	
<ul style="list-style-type: none"> • Optional and on an ad hoc basis. 	

Co-Supervisory roles (if applicable):

The role of co-supervisors should be clarified. It should be noted that any co-supervisory suggestions and proposals by the student should be discussed with the supervisor.

- To support the student with theoretical contributions and to offer useful contacts and other resources to facilitate the study.
- To meet the student as often as practically possible for the above purpose.
- To carry out critical reading of any research output prior to publication of the same.

Funding plans:

Specify any approved financial assistance to be provided, or organized, by the supervisor(s) to support this study (e.g. bursaries, teaching allowance etc.).

- Funding will be sought through the URF should such funding be deemed necessary to support the study.

If, on withdrawing or being refused re-registration, the student becomes contractually obliged to repay any of the above, **this should be noted**. Funding from external agencies may stipulate such a provision.

- Duly noted and acknowledged.

4. EXPECTATIONS AND PLANS OF THE STUDENT

After discussion, the student should set out any expectations and requests to the supervisor and the department

- The student expects adequate support and guidance from the supervisor on all matter pertaining to her study.

Comment by the supervisor on this:

- Duly noted and acknowledged.

The student and supervisor should record their agreed plan and broad timetable for the completion of the thesis/ dissertation. The candidate should be informed on the Faculty's maximum time limits for completion.

- Duly noted and acknowledged.

Agreed intended date of completion:

30th October 2015

5. INTELLECTUAL PROPERTY ISSUES AND ETHICS**Intellectual property:**

CPUT policy on intellectual property (IP) is available on request. Students and supervisors should make themselves aware of University policies relating to both ethics and IP.

(a) Authorship:


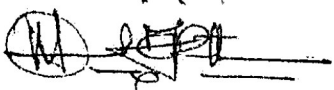
Points on authorship must be noted here by the supervisor, including arrangements about the order of listing of co-authors:

- The student shall be listed as the first author in all publications emanating from her research study.


<p>(b) Ownership of intellectual property rights developed in the course of the research: The IP emanating from research conducted at CPUT is (in general) owned by the University but additional points on this to be noted below:</p> <ul style="list-style-type: none"> • This matter will be guided by the Technology Transfer Office guidelines on IP.
<p>(c) Patents: Should any patents emanate from this study, in whose name(s) will this be registered.</p> <ul style="list-style-type: none"> • This matter will be guided by the Technology Transfer Office guidelines on IP.

<p>Assessment of ethics in research: The supervisor and student should discuss the ethical issues involved in the research project and record their conclusions here. The student should confirm here that she/ he is aware of the requirement to complete and submit an ethics form prior to collecting or analysing data.</p> <ul style="list-style-type: none"> • The student shall endeavour to uphold expected institutional ethical standards and allied guidelines throughout her study and take full responsibility thereof.
--

6. SIGNATURES:

Student signature:		Date: 18 th March 2015
Supervisor signature:		Date: 18 th March 2015

7. CONFIRMATION BY THE HoD

I have reviewed this completed MoU and am satisfied that it reflects the shared understanding of the supervisor and the student and that the department is able to meet the obligations to candidates set out in this MoU:	
Name:	pp J Purcell van Breda
Signed:	
Date:	7 May 2015.

Faculty of Informatics and Design Research proposal checklist

Candidate	Michelle A. Barnes	Date submitted	6 th Novemeber 2013		
Degree	MTech: Design	Department	Design		
Approved topic	World Design Capital 2014 opportunities for transforming business studies curricula.				
Supervisor	Prof. Mugendi K. M'Rithaa	Co-supervisor	Prof. James Garraway		
1.	Research Topic	Yes	No	Un-clear	Comment
1.1	Research problem: Is the research problem clearly stated? Does the problem relate to a significant area which warrants research at the level of the degree?	Yes to both			Timeous and relevant, real world study
1.2	Research question: Are they clear, concise and unambiguous? Will the answering of the research questions result in solutions to the problem? Is it feasible to answer the questions witin the scope of the qualification?	Yes to all			
1.4	Is the scope appropriate for the qualification?	Yes			
1.5	Is the research appropriately delimited?	Yes			
1.6	Are the research aims and/or objectives clear?	Yes			
1.7	Is the terminology adequately defined?	Yes			
2.	Literature review				
2.1	Redundant - question 2.4 answers this..				
2.2	Has an adequate conceptual framework been developed?	Yes			
2.3	Is the literature current?	Yes			
2.4	Has the relationship between the research topic and previous research been outlined?	Yes			
2.5	Are textual referencing and bibliographic citation correct and consistent with the Harvard style?	Yes			Before quote introduce the colon not comma or full stop
3.	Research design and methods				
3.1	Does the research design address the research problems/questions?	Yes			
3.2	Are the data collection methods appropriate?	Yes			
3.3	Are the data analysis methods appropriate?	yes			
3.4	Have ethical considerations been addressed?	Yes			
4.	General				
4.1	Is the proposal free of writing/typographical errors?	Yes			
4.2	Is the proposal free of plagiarism?	Yes			
4.3	Is the research manageable in terms of timeframe?			X	No frame given
4.4	General comments Well structured and argued, relevant proposal				

Recommendations	ACCEPTED		
Reviewer	DR A.V. CHISIN	Date	12/11/2013

Faculty of Informatics and Design

Research proposal checklist

Candidate		Michelle A. Barnes		Date submitted	6 th Novemeber 2013	
Degree		MTech: Design		Department		Design
Approved topic		World Design Capital 2014 opportunities for transforming business studies curricula.				
Supervisor		Prof. Mugendi K. M'Rithaa		Co-supervisor		Prof. James Garraway
1.	Research Topic	Yes	No	Un-clear	Comment	
1.1	<p>Research problem:</p> <p>Is the research problem clearly stated?</p> <p>Does the problem relate to a significant area which warrants research at the level of the degree?</p>			X	<p>What problem needs to be solved? Neoliberalist economic paradigm? Job scarcity? Economic resilience in the curriculum?</p>	
1.2	<p>Research question:</p> <p>Are they clear, concise and unambiguous?</p> <p>Will the answering of the research questions result in solutions to the problem?</p> <p>Is it feasible to answer the questions within the scope of the qualification?</p>			X	<p>Relates to problem statement. The research questions in general are ok. Problem statement needs improvement to better link to research questions.</p>	
1.4	Is the scope appropriate for the qualification?	X				
1.5	Is the research appropriately delimited?			X	Needs minor clarification	
1.6	Are the research aims and/or objectives clear?	X				
1.7	Is the terminology adequately defined?	X				
2.	Literature review					
2.1	Redundant - question 2.4 answers this..					
2.2	Has an adequate conceptual framework been developed?	X				
2.3	Is the literature current?			X	Generally yes, only a few cases this could be addressed	
2.4	Has the relationship between the research topic and previous research been outlined?	X				
2.5	Are textual referencing and bibliographic citation correct and consistent with the Harvard style?	X				
3.	Research design and methods					
3.1	Does the research design address the research problems/questions?	X				
3.2	Are the data collection methods appropriate?	X				
3.3	Are the data analysis methods appropriate?	X				
3.4	Have ethical considerations been addressed?	X				
4.	General					
4.1	Is the proposal free of writing/typographical errors?			X	Numbering and layout to be considered. Consistency.	
4.2	Is the proposal free of plagiarism?	X				
4.3	Is the research manageable in terms of timeframe?			X	Not provided	
4.4	General comments				<p>Would suggest that the document starts with a brief introduction, rather than clarification of keywords. The introduction to provide the reason for the reader to continue reading.</p>	

Recommendations	CAN BE APPROVED IF ISSUES RAISED ARE ADEQUATELY ADDRESSED		
Reviewer	PL ROSSOOUW	Date	8 NOVEMBER 2013

ETHICAL CLEARANCE PROCESS:

Research Ethics Review Checklist signed by student and supervisor

Faculty of Informatics and Design

Research Ethics Review Checklist

All post-graduate students and researchers are required to complete this form before commencing with research. Post-graduate students are requested to please submit this form together with HDC 1.2 (proposal submission) to the Faculty Research Committee (FRC).

(Where applicable mark relevant boxes with an X)

Project Title: World Design Capital 2014 opportunities for transforming business studies curricula
--

Applicant / Researcher: Mrs Michelle Andrea Barnes	Under-graduate		Post-graduate	X	Staff	
Office Telephone: 021 469 1139	Cell:082 412 4448	eMail: barnesm@cput.ac.za or micbarnes99@gmail.com				

Supervisor (if applicable): Prof. Mugendi M'Rithaa (supervisor) and Prof. James Garraway (Co-supervisor)		
Office Telephone: 021 469 1027 (M'Rithaa) 021 959 6214 (Garraway)	Cell: 0726558727 (M'Rithaa) 084 477 8462 (Garraway)	eMail: mugendim@cput.ac.za , garrawayj@cput.ac.za

Research Checklist:		Yes	No
1:	Does the study involve participants who are unable to give informed consent? Examples include children, people with learning disabilities, or your own students.		X
2:	Will the study require the co-operation of a gatekeeper for access to the research participants. Examples include students at school, members of self-help groups, residents of nursing homes — anyone who is under the legal care of another.		X
3:	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? — e.g. covert observation of people in non-public places?		X
4:	Will the study with the research subject involve discussion of sensitive topics? Examples would include questions on sexual activity or drug use.		X
5:	Will the study involve invasive, intrusive, or potentially harmful procedures of any kind (e.g. drugs, placebos or other substances to be administered to the study participants)?		X
6:	Will the study involve testing on sentient subjects?		X
7:	Will financial inducements (other than reasonable expenses and compensation for time) be offered to participants?		X
8:	Will your research involve materials or processes that could damage the environment?		X

If you have answered '**No**' to **all** questions, submit the completed and signed form to the FRC together with the research proposal.

If you have answered 'Yes'...

If you have answered 'Yes' to one or more questions, kindly attach a report describing how you plan to deal with the ethical issues raised by your research. This does not mean that you cannot do the research, only that your proposal will need to be approved by the Research Ethics Committee. You will need to submit your plans for addressing the ethical issues raised by your proposal to the FID Research Ethics Committee.

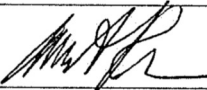
Declaration

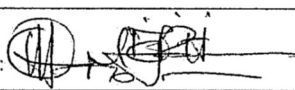
As Researcher / Applicant I acknowledge that:

- It is my responsibility to follow the CPUT Code of Practice on Ethical Standards (which is currently being drafted) and any relevant academic or professional guidelines in the conduct of my study; and
- that this includes providing appropriate information sheets and consent forms and ensuring confidentiality in the storage and use of data.
- Furthermore that in the event that there are any significant changes in the design, or conduct over the course of the research, that I will notify my supervisor (where relevant) and inform the FID Research Ethics Committee if new ethics approval is needed.

By my signature below I declare that I am not aware of any potential conflicts of interest, other than those declared on THIS form, which may influence the ethical conduct of this study.

Signatures:

Researcher:	
Date: 11 October 2013	

Supervisor:	
Date: 11 th Oct. 2013	

Letter to Head of Ethics Committee of Faculty

PO Box 495
MALMESBURY
7299
5 September 2013

The Chairman: FID Faculty Ethics Committee
CPUT
ICT Building
CAPE TOWN

Dear Mr Barnes

Re: Permission to collect research data prior to proposal defence due to unique opportunity to do so:

My research "World Design Capital 2014 opportunities for transforming business studies curricula" will use non-probability sampling using semi-structured interviews with members of Cape Town's design business community, design education lecturers at CPUT and returning fourth year (B.Tech) and fifth year (masters) students at CPUT, to collect data. It will also require surveys from Diploma design students in years one to three, using convenience sampling.

A unique opportunity has arisen for data collection on Thursday 19th September when the Cape Town Design Network shall hold one of their "Design Dialogue" sessions. This particular dialogue focuses on business in design and will comprise a panel of six local design business people. The presentations and discussion is expected to yield data that speaks directly to my research questions regarding graduate attributes, skills and expertise needed within the industry.

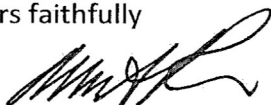
The convenor of this session, Bruce Snaddon, of our Graphic Design Dept, FID will ask the panel members on my behalf for permission to record the conversation of the Design Dialogue of 19th September for research purposes. All panel members will be given an ethical clearance permission form in advance of this session to ensure no data collected is improperly used. Mr Snaddon will also inform the audience of the intention to record the evening's proceedings for research purposes as audience members may be incidentally recorded in the process.

I intend using dictaphone and video film to record the proceedings.

Prof. JC Cronjé has suggested that I have a unique opportunity for data collection from this panel discussion, although my proposal defence is on 31 October 2013, hence this request for advance permission to collect some data.

Please feel free to request further information should anything be incomplete or unclear.

Yours faithfully



M A Barnes (Mrs)

Confirmation of ethical clearance from the Faculty



P.O. Box 652 • Cape Town 8000 South Africa • Tel: +27 21 469 1012 • Fax +27 21 469 1002
80 Roeland Street, Vredehoek, Cape Town 8001


Office of the Research Ethics Committee	Faculty of Informatics and Design
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At a meeting of the Faculty Research Ethics Committee on 26 November 2013, ethics approval was granted to MRS MICHELLE ANDREA BARNES, student number 207149941 for research activities related to the MTech: Design degree at the Faculty of Informatics and Design, Cape Peninsula University of Technology.

Title of dissertation/thesis:	World Design Capital 2014 opportunities for transforming business studies curricula
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Comments

Research activities are restricted to those detailed in the research proposal.

 Signed: Faculty Research Ethics Committee	26 November 2013 Date
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DATA COLLECTION:

Request to HOD for permission to interview Design Department lecturers:

Dear Mr Vervekken

Re: Permission to collect research data from certain lecturers and students in your department:

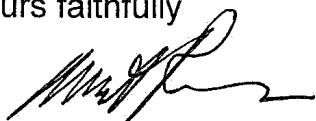
The title of my master's research is "World Design Capital 2014 opportunities for transforming business studies curricula", requires semi-structured interviews with some industrial and graphic design lecturers as well as fourth year (B.Tech) and first year (masters) students, all of whom fall within your department. It may also require surveys from diploma design students in years one to three, using convenience sampling. All participants will be asked to sign an individual consent form, using standard FID ethics consent form.

The purpose of this letter is to ask your prior permission to interview and survey above members of your department for the purposes of data collection for this research.

Confidentiality will be strictly adhered to and anonymity of all participants is assured and all original data collected will be stored in an encrypted format but a copy will be retained by me for academic audit purposes. Where confidentiality may be impractical, for example in photographic images, participants will be made aware of any risk to them.

Please feel free to request further information should anything be incomplete or unclear.

Yours faithfully



Michelle Andrea Barnes

CPUT student number: 207149941

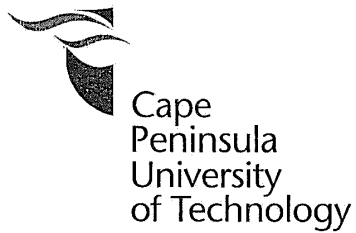
Contact details:

Tel: 021 469 1139 (office)

Cell: 082 412 4448

marnesm@cput.ac.za or micbarnes99@gmail.com

Permission granted by HOD to interview Design Department staff:



HoD: Dept of Design
Faculty of Informatics and Design
CPUT
Design Building
CAPE TOWN

16 October 2013

P O Box 495
MALMESBURY
7299

Dear Michelle

Re: Permission to collect research data from certain lecturers and students in the Design Department:

I give you permission to undertake interviews and surveys with the Design department's staff and students as required for the purposes of your research. I understand the implications of this request and that the participants concerned will be asked to give their individual consent.

Yours sincerely



Bart Verveckken

HoD: Department of Design
Faculty of Informatics and Design
CPUT
Cape Town

APPENDIX B

Interviewee consent formsConsent form front page...



FACULTY OF INFORMATICS AND DESIGN

Individual Consent for Research Participation

Title of the study: World Design Capital 2014 opportunities for transforming business studies curricula

Name of researcher: Michelle Andrea Barnes
Contact details: email: barnesm@cput.ac.za phone: 021469 1139/ 0824124448

Name of supervisor: Prof. Mugendi M'Rithaa
Contact details: email: mugendim@cput.ac.za phone: 021469 1027/ 0726558707

Purpose of the Study: Gain better teaching and learning focus in the business studies curricula of the design programme to enable design graduates to be more economically resilient in the prevailing economic climate.

Participation: My participation will consist of a lecture given by me to B.Tech Public Relations Management students in the Faculty of Informatics and Design of the Cape Peninsula University of Technology on Wednesday 25th September 2013, to be held in lecture room 0.2, 80 Roeland Street, Cape Town at 13h00. This lecture will include economic realities faced by the graduating student in the search for employment and career advancement.

Confidentiality: I have received assurance from the researcher that the information I will share will remain strictly confidential unless noted below. I understand that the contents will be used only for an M.Tech (Design) thesis or journal articles and that my confidentiality will be protected by use of a *pseudonym*.

Anonymity will be protected by blanking out faces/places or names in any visual or written material should this be necessary. Where anonymity cannot be protected due to the public nature of the data recording, there may be the possibility of risk to me or my organisation.

Conservation of data: digitally recorded interviews will be encrypted and kept in a password controlled environment. Original data or a copy of the data shall be kept for audit purposes.

Voluntary Participation: I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be destroyed.

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:	✓	✓	✓	
My name may be used:	✓	✓	✓	
My exact words may be used:	✓	✓	✓	
Any other (stipulate):				

Acceptance: I, (print name) _____

agree to participate in the above research study conducted by Michelle Andrea Barnes of the Faculty of Informatics and Design, Design Department at the Cape Peninsula University of Technology, which research is under the supervision of Prof. Mugendi M'Rithaa

If I have any questions about the study, I may contact the researcher or the supervisor. If I have any questions regarding the ethical conduct of this study, I may contact the secretary of the Faculty Research Ethics Committee at 021 469 1012, or email naidoo@cput.ac.za.

Participant's signature: _____

Date: 22 APR 2014

Researcher's signature: _____

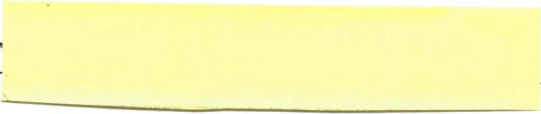
Date: 22/04/2014

any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be destroyed.

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:			X	
My name may be used:			X	
My exact words may be used:			X	
Any other (stipulate):				

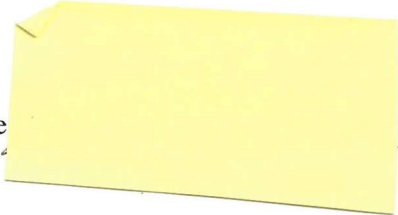
Acceptance: I, (print name) _____



agree to participate in the above research study conducted by Michelle Andrea Barnes of the Faculty of Informatics and Design, Design Department at the Cape Peninsula University of Technology, which research is under the supervision of Prof. Mugendi M'Rithaa and Prof. James Garraway

If I have any questions about the study, I may contact the researcher or the supervisor. If I have any questions regarding the ethical conduct of this study, I may contact the secretary of the Faculty Research Ethics Committee at 021 469 1012, or email naidoo@cput.ac.za.

Participant's signature _____



Date: 03 JUNE 2014

Researcher's signature: _____

Date: 03 . 06 . 2014

Form 003

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
My name may be used:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
My exact words may be used:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Any other (stipulate):				

Acceptance: I, (print name) _____

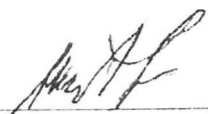
agree to participate in the above research study conducted by Michelle Andrea Barnes of the Faculty of Informatics and Design. Design Department at the Cape Peninsula University of Technology, which research is under the supervision of Prof. Mugendi M' Rithaa

If I have any questions about the study, I may contact the researcher or the supervisor. If I have any questions regarding the ethical conduct of this study, I may contact the secretary of the Faculty Research Ethics Committee at 021 469 1 01 2, or email naidoove@put.ac.za.

Participant's signature: _____

Date: 2ⁿ SEPTEMBER 2016

Researcher's
signature:



Date 02/09/ 2016

Form 004

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:				
My name may be used:				
My exact words may be used:				
Any other (stipulate):				

Acceptance: I, (print name) _____

agree to participate in the above research study conducted by Michelle Andrea Barnes of the Faculty of Informatics and Design, Design Department at the Cape Peninsula University of Technology, which research is under the supervision of Prof. Mugendi M'Rithaa and Prof. James Garraway

If I have any questions about the study, I may contact the researcher or the supervisor. If I have any questions regarding the ethical conduct of this study, I may contact the secretary of the Faculty Research Ethics Committee at 021 469 1012, or email naidoo@cput.ac.za.

Participant's signature: _____

Date: 01.03.2017

Researcher's signature: _____

Date: 01.03.2017

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:	✓	✓		
My name may be used:	✓	✓		
My exact words may be used:	✓	✓		
Any other (stipulate):	✓	✓		

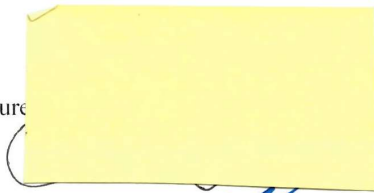
Acceptance: I, (print name) _____



agree to participate in the above research study conducted by Michelle Andrea Barnes of the Faculty of Informatics and Design, Design Department at the Cape Peninsula University of Technology, which research is under the supervision of Prof. Mugendi M'Rithaa and Prof. James Garraway

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Participant's signature _____



Date: 2.3.2017.

Researcher's signature: _____

Date: 02/03/2017

006

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:	✓	✓		
My name may be used:	✓	✓		
My exact words may be used:	✓	✓		
Any other (stipulate):	✓	✓		

Acceptance: I, (print name) _____

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Participant's signature: _____

Date: 02-03-2017

Researcher's signature: _____

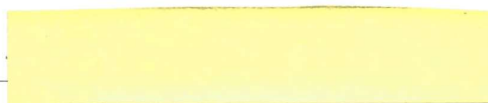
Date: 02/03/2017

007

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:				
My name may be used:				
My exact words may be used:				
Any other (stipulate):				

Acceptance: I, (print name) _____



agree to participate in the above research study conducted by Michelle Andrea Barnes of the Faculty of Informatics and Design, Design Department at the Cape Peninsula University of Technology, which research is under the supervision of Prof. Mugendi M'Rithaa and Prof. James Garraway

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Participant's signature: _____



Date: 08.03.17.

Researcher's signature: _____

Date: 08/03/17

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:			✓	
My name may be used:			✓	
My exact words may be used:			✓	
Any other (stipulate):			✓	

Acceptance: I, (print name) _____

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Participant's signature: _____

Date: 14/03/2017

Researcher's signature: _____

Date: 14/03/2017

Additional consent: I make the following stipulations (please tick as appropriate):

	In thesis	In research publications	Both	Neither
My image may be used:				
My name may be used:				
My exact words may be used:				
Any other (stipulate):				

Acceptance: I, (print name) _____



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Participant's signat



Date: 24/03/17

Researcher's signature:

Date: 24/03/17

SEMI STRUCTURE INTERVIEW TRANSCRIPTS:

Interview 000 (pilot)

INFORMAL PILOT INTERVIEW QUESTIONS: questions with answers in *italic script*

Fri 7 February 2014

1. What is your role in WDC CT 2014?
 - a. *Imaginethat.org.za - CPUT projects, some student involvement*
 - b. *Lecturers: Alice for lecturer list – project specific*
2. What's been your biggest challenge at CPUT FID as a lecturer (relating to WDC)?
 - a. *Hurdle: to translate visionary thought into action FID into WDC – tangibles are the challenge. Talk design in non-design faculties – Engineering was easy, others not so.*
3. What projects have been specifically allocated to CPUT students from the WDC stable?
 - a. *See Imagine That site*
4. Are you directly involved in teaching/supervising any of these?
 - a. *Co-supervising 2 master students? One involved in WDC*
5. Who is?
 - a. *Main subject lecturers – get from Alice's list*
6. The term has only just started, what prep has had to be done towards these projects/student participation?
 - a. *See Alice's list*
7. Who needed to be on board to facilitate student participation?
8. How have assessments been created - (to meet t & l criteria)?
9. How have they been moderated/by who?
10. At which levels are these projects (1st year – post-grad)?
 - a. *Various: Diploma to masters. EG: Informal trader project (3D class) – whole class – become a syllabus project*
11. How do you see the 'quad helix' [quadruple helix: HEIs, Community, Business, State] benefitting from these projects?
 - a. *All community, academic, business – not all, government. – some do*
12. Will students gain better knowledge for their future career prospects from participating in these projects than not participating? Why?
 - a. *Biggest benefit for WDC participation means visibility to the activity(particular project), a global platform(like WDC) is good for career prospects – Quad helix included*
13. Is it possible they may forfeit some essential learning opportunity/experience (from CPUT) as a result of participating in this project?
 - a. *No – ask individual lecturers*
14. What else do you surmise they will gain?
 - a. *Personal confidence building – stretching themselves*
15. Are any of these potential gains measurable in some way?
 - a. *Very hard to measure – only after they got jobs on qualification, lifelong learning, issues external to self, Development of personal agency – economic resilience – more adaptive, awareness that you can initiate. In order to have a sense of agency, you must know yourself – also Ubuntu – your fit in the world and the impact you can have in co-creation in the world*
16. Will all students at a particular level participate in WDC projects or are they selected out of the class in some way?

- a. *Some yes some not (Media 24 competition to re-design outside of building) – some 4th Y architect students involved, others not.*
17. Will they benefit financially?
- a. *Project specific, Design Garage – items sold will benefit individuals – 5K project nests in the Design Garage.*
18. Do you think these kinds of projects should be permanently brought into the syllabus?
- a. *Already are through Service Learning (Community Outreach) but new WDC projects are generating further projects*
19. Why?
- a. *Drawing students outside of university to engage with communities in need. To see how “good design” is practised and can improve people’s lives. “Socio-technical continuum” Relevant, participatory, co-design, sustainable? All these processes safeguard sustainability – co-creation gives ownership*
20. How do you see this possibility developing, going forward?
- a. *See 18*
21. We know graphic design graduates end up in many creative spheres; is it envisaged that participating in WDC could expand this further or at least improve job prospects for graduates? How so?
- a. *Yes: for years social awareness SAPPI “Ideas that matter” Campaign has been done in GD, that shifts perceptions/call to action, this makes the graduate realise that campaigns are easy, much easier than social projects)! Participating – seeing results of their design in shifting behaviours/attitudes empowers them to see designing products is easy!*
22. Do you see the possibility that students may gain entrepreneurial or other skills not directly in the syllabus from Years– What kind of skills? How do you think this will happen?
- a. *WDC is about expanding notion of what design is and can be used – any student will gain an understanding of where design is used (multi-disciplinary real-world) to become more civically-minded – e.g. electric car (PLMCC Google, Shatters the mould e.g. designers working with engineers. E.g. the car PLMCC – building a “skin” for the car, shape of the car – the designer’s field. Engineers are realising it is sound, but designer makes it far more viable and appealing (marketable).*

Interview 001 (pilot)

Pilot Interview 001 held in Design Building CPUT CT campus Tuesday 22 April 2014 12.30 – 13.15.
Answers in italics

1. In which Dept. are you?
Industrial Design: B.Tech programme
2. What do you teach?
Design IV, Professional Practice IV, 3rd Yr. Technology, Main B.Tech supervisor
3. To what types of career fields do your students/graduates gravitate?
Industrial Design/ design field, many of my students get head-hunted through our industry contacts. 100% placement for the last 4 years

4. Examples?
 - a. *Industrial, but recently a student went into "Experience Design" (new field)*
5. Have you seen this change over the last few years?
 - a. *Industrial has not been well-known as a field, but the WDC is helping with this*
 - b. *SOLID ("Students of life and ID") – Facebook group of Industrial Designers +/- 400 – mostly CPUT graduates but also others – been going since about 2012*
 - c. *UJ also has group*
 - d. *There was an ID Federation but it faded away due to politics*
6. What do you hope they become?
 - a. *see above*
7. What is the aim of this project?
 - a. **R5k Project:** *Aim: Students earn money using Industrial Design (ID), get pre-work real experience and also have a job to go to on graduation - until they find more regular work, or remain in their own R5K business. Businesses are properly registered and bank accounts are opened. Project's been running for 4 years now, this way students earn more and get more experience*
 - b. **Urban Studio:** *this project is also 4 years old, a collaboration of ID, Graphic Design (GD) and Vega Branding School 4th year students. Project looks at the "Fringe" area of CT City to showcase Design Thinking. WDC is useful to help create awareness/profile of "Design Thinking"*
 - c. **Design Garage:** *An outlet for the R5K Project. A place to increase sales culture and thus a R5K outlet and a way of rolling out R5K project to all design students. WDC is a catalyst to get income-earning capacity going, decrease the gap between academia and industry and increase the relationship of academia and the public.*
8. What is your special interest in this project?
 - a. *Work preparedness for graduates*
9. What do you hope to get out of it – generally?
 - a. *See above*
10. What do you hope to get out of it – from a T & L viewpoint?
 - a. *There have been unintended advantages: students give 90% more effort/energy into these 3 projects because of their perceived value. We register the company, open bank accounts so it is a real trading entity. It makes T&L much easier. Advantages from being a WDC project are increased exposure and sales. Alessi is one of the companies*

joining us and bringing world learning in design to us. WDC is the catalyst for the Design Garage.

11. What attributes do you believe you and students have /are gaining from participating in this project?

a. Real-world experience in an academic way. Business studies tends to be about academic knowledge where Professional Practice is about WISDOM – (See article written by Mugendi & Johan on Wisdom).

12. Do you see any particular aspect of the project that should be included into a Biz Studies curriculum of the future?

a. WDC has not essentially added anything new. (Please ask for my electronic year-planner to see where projects fit in).

13. Does this project contribute anything to student learning that they would not have acquired through the regular WIL or Teaching programme?

a. Yes, about 90% of previous projects have all been socially orientated (not just commercial) (so this contributes to good citizenship). Mugendi teaches UDL which teaches students how to fix real world problems and at least 50% of B.Tech theses are socially minded.

14. What specifically? /Why not?

a. See above

15. Do you see more students interested in social entrepreneur?

a. See above

And Green design?

Green Design is also equivalent to Social Design

16. Are more students thinking locally now or globally in terms of their career reach?

a. Very few students go overseas; B.Tech facilitates a think and stay local approach, which even applies to “imported” students from elsewhere. Most foreigners coming into the course are Europeans but we also have some from Kenya and Congo.

17. To what do you attribute the above?

a. Both the Course and culture has given a feeling of urgency to good citizenship and shared space.

18. Are there any aspects you believe are missing from the Biz Studies programme?

a. Reality is missing from the Diploma stage of professional practice, it seems to be decades old. Part of Business Studies should include social media and living or organic Intellectual Property components. E.g. MP3s work with social media.

Course requires a really good lecturer to teach without a text book, you require an academic who brings industry players and cares what becomes of the students. Holding tenure is almost impossible therefore as lecturers need also to have a foot in industry to maintain contacts and understanding of industry direction for student benefit. But without tenure concentrating on excellent teaching is difficult.

19. Why do you think this is so?

20. How aware are your students of graduate unemployment?

a. ID students are not experiencing graduate unemployment in this programme. My responsibility is to get them work. We have no graduate unemployment – this consumes a lot of time. In the B.Tech we push for “organic portfolios” that are constantly being renewed and updates with on-going design experiences. We encourage the raising of the student business and social profile to ensure students become known and know about jobs and work; it is an unofficial mentoring programme. One project is to interview a professional designer, this very often leads to mentorship

21. What are they doing about it?

a. See above

22. What are you doing about it?

a. See above

23. Do you know of any graduates that have remained unemployed/under-employed for a prolonged period?

a. No – see above

24. What did they do in this period?

a. Not applicable

25. What are they doing about it?

a. We do have a Facebook site – an alumni bulletin board where we post data on unwholesome company experiences by students – this “blacklists” companies who abuse students etc.

26. What are you doing about it? Have you changed anything you teach as a consequence?

a. See above

27. Do you have anything else you would like to add?

a. One needs to change constantly to seek to set up long-term systems that “run themselves”, the old efficiency versus effectiveness debate comes in to play here as the course and content need to constantly evolve to increase effectiveness

28. I believe the Biz Studies curriculum should empower the graduate to be as economically resilient as possible, i.e., they have the attributes of life-long learning, self-starter, good

time/resource/self-management, good communication skills, team player as well as have entrepreneurial qualities like hard-working, fast learner, risk manager, connected, wealth-seeker – would you add or subtract anything to the above?

a. See above

29. Why?

a. The programme needs to be adaptable to be “future-proof”; instead of teaching the “why” of systems, teach the theology and methodology of how to think, not what to think. Teach the laws of technology to understand; start with Aristotle, teach knowledge, understanding which leads to wisdom – “phronesis” – practical wisdom which is also ubuntu and shalom

Interview 002



QUESTIONNAIRE

World Design Capital 2014 opportunities for transforming Business Studies curricula

Hello. My name is Michelle Barnes; I am a master’s student in the Faculty of Informatics and Design (FID), Cape Peninsula University of Technology (CPUT). I am presently conducting a survey to gather data about the use of World Design Capital 2014 projects created through FID that may assist design students and graduates in promoting their economic empowerment by incorporating them into the Business Studies/Professional Practice curricula. I would be grateful if you would answer the following questions for me. Your responses will be kept confidential. If you would like me to contact you for further information, please indicate this at the end of this questionnaire in Q 34.

QUESTIONNAIRE SERIAL NUMBER:				0	0	2	
Interviewee’s name:	[REDACTED]						
Date:	02 June 2014			Female	1	Male	2x
Organisation’s name:	CPUT			Position held:		Programme leader/ lecturer	
Type of position held:	Lecturer ¹ x	Industry member	Design business	Other (explain)		Student:	

			share-holder		Year of study ³
Subject(s) lectured ¹ :	Three dimensional design (3D) Masters supervision				
Phone (Landline):	021 460 3444	Mobile:	[REDACTED]		
Email:	[REDACTED]				
Specialisation ²	Industrial Design				

SPECIALISATION² CODES

Specialisation	Code	Specialisation	Code	Specialisation	Code
Industrial Design	[REDACTED]	Graphic Design	B	Town & Regional Planning	C
Industry	D	Other	E	Architectural Technology	F

YEAR OF STUDY³ CODES

Year 1	Year 2	Year 3	B.Tech	Master's	Doctoral	Post-doctoral
1	2	3	4	5	[REDACTED]	7

SECTION 1: Business Studies teaching and learning (T & L) context	
1. Does the current business studies curriculum at CPUT in FID provide sufficient T & L to empower the student/graduate to thrive economically?	No
2. Why do you believe this is so? No proper business studies curriculum. Curriculum studies vary so much because of constant change in lecturers. No permanency and temp staff often inadequate with the understanding of design	
3. What aspects do you believe are adequately covered? Don't know – cover "Business Plan" too much	
4. What aspects do you believe are insufficiently covered? Location of business within the design field, i.e. contextualisation of business for design. More business practice rather than lectures. Business is not a theoretical subject.	
5. Is FID's participation in WDC 2014 projects promoting student/graduate economic empowerment?	Yes
6. Please explain your answer. The R 5K project recognised (but existed before WDC2014). 4 th Year is main exit level; students gaining access to other potential work opportunities through being on WDC projects. Even 3 rd year students also working on WDC projects that had industry links and local government (City of Cape Town) gained a better understanding of the workplace.	

<p>7. Is participating in WDC 2014 projects contributing anything to learning that would not have been acquired through the existing Work Integrated learning (WIL)/Service Learning programme or perhaps some other T&L activity?</p>	<p>Y/N/?</p>
<p>8. Please explain your answer.</p> <p>It has stepped up the Service learning component by being part of WDC. (Third Year students working on 'Informal Trader' project for example. Also helped integrate theory and practice better. More grounded research, applied research and ethnographic research, this helped with co-design. People now seeing design requirements from multiple perspectives. Now seeing the complexities of trade and have new requirements for design from the Dept. of Economic Development – structures for tenders now have design requirements.</p>	

SECTION 2: Graduate attributes: (exit profile of students) A: Desired B: Actual	
<p>9. To what type of fields are positions do your students/graduates gravitate?</p> <p>Very varied – industrial design firms, many now work for smaller companies set up by previous students; the whole industrial design community in the Western Cape are old <i>alumni</i>.</p>	
<p>10. Do any examples stand out for you?</p> <p>Model working – the film industry, POS – but not interesting – designing packaging/shelving Some take B.Tech projects further – they find investors from existing industrial design firms. Furniture design: Main industry focus for graduates – batch production, e.g. Pederson & Lennard (design and furniture makers), use plywood and bent steel DIY</p>	
<p>11. Have you seen any changes in this pattern in the last few years/lately?</p> <p>More students getting jobs because the industry is growing because the alumni is growing, Industrial Design Dept. began in 1991/2</p>	
<p>12. To what do you attribute this?</p> <p>Monopoly – no other school in Cape Town is a s good with business set up. The industry is growing so easier to get jobs. Also growing internationally so WDC gives us more exposure.</p>	
<p>13. What is/are your career aspiration(s) for your graduates?</p>	
<p>14. <u>Research indicates that desirable graduate attributes for appropriate workplace integration include: a life-long learning attitude, being a self-starter, having good time-, resource- and self-management, having good communication skills and being a team-player and so on.</u> <u>And desirable entrepreneurial qualities include: being a hard-worker, fast learner, risk manager, connected and a wealth-seeker.</u></p>	<p>Some</p>

<u>Do your students actually have these attributes/qualities on graduation?</u>	
15. Please explain your answer. Desirable entrepreneurial traits can be taught, ideas can be fostered. Quantities are hard to teach – not all students will progress. Attributes are important to designers; ability to connect the dots, social awareness and constructive self-criticism are useful	
16. Are there any desirable attributes a graduate should have that has somehow not been considered above – please explain what you me Ability to contextualise and adapt and 'big picture' thinking are important – seeing beyond the specific focus.	Yes

SECTION 3: Implications for business curricula: economic resilience	
17. Has the problem of rising graduate unemployment impacted you/ your students/graduates/intake? See previous answer	No
18. Do you see the necessity of altering any T & L inputs to alleviate rising graduate unemployment? Why/Why not? Not relevant for local industrial design students – see previous answer. We do 'differentiation' of projects and develop courses; we are constantly tweaking curriculum	No
19. What changes would you make/ have you made to T & L in the circumstances? Adaptable curricular; Industrial Design Dept. is student centred and skills are taught and built up in weaker areas; some are good with conceptual thinking, others with technical skills.	
20. Are you aware of any graduates in your field remaining involuntarily unemployed for longer than six months after graduation?	No
21. What did they do in the intervening period to remain economically afloat? The M.Tech Design 2013 cohort were all employed within 5 months. Most worked in bars/waited tables/went home. Some continued with their R 5K projects. All go out to work 1 – 2 years before doing a master's degree.	
22. From your perspective do you see that the business curriculum should include teaching aspects of graduate and entrepreneurial attributes mentioned in Section 2, as well as 'soft skills' like emotional intelligence, ethics and ubuntu in an effort to minimise graduate unemployment? And to promote 'wholeness' in students	Yes

<p>23. Why? What would you include?</p> <p>Basic costing is important Contextualise 'Design Thinking' in business</p>	
<p>24. “Economic resilience” is the phrase I am using to describe all attributes a graduate should learn in the business studies course – does this idea resonate/describe adequately your concept of what questions 22 and 23 embody?</p>	<p>Yes</p>
<p>25. What would you add/what phrase would mean more to you?</p> <p>Like resilience, especially from biomimicry, it speaks to adaptability and evolutionary space as design is constantly changing. Students need to adapt/evolve to survive. Reframes what 'money' is, what can you make?, what must you buy?</p>	

SECTION 4: WDC 2014 – CPUT involvement: Specific interventions:

<p>26. In which of the following WDC2014/CPUT projects are/have you/your students participated/ing?</p>		
#WDC 230	Chapel St Clinic: Co-designing healthcare services	X
#WDC 245	Driving dreams	
#WDC 248	Design storming toolkit	
#WDC 250	R 5K	
#WDC 334	mTriage	
#WDC 346	Informal trader	X
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC)	
#WDC 439	Urban Studio	
#WDC 465	Design Garage	
#WDC 490	Cape Town Society for the Blind (CTSB) : Design for the visually impaired	
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014	
#WDC 679	Shaping a shared world exhibition	
<p>27. What is/are the aim(s) of the project(s) in which you and/or your students are involved?</p> <p>See above</p>		

<p>28. How does this help you/your students?</p> <p>Exposing them to existing systems in the world, interconnectivity and helps contextualise design in the real world</p>
<p>29. What attributes do you believe you/your students shall gain from participating in this/these project(s)?</p> <p>An informed world view, empathy, ability to look beyond the product</p>

SECTION 5: Promising cases	
<p>30. Are you aware of any specific projects/interventions, at CPUT or other institutions both local and foreign which may not be WDC2014 projects but which hold promise for contributing to graduate economic resilience? For example the Facebook forum SOLID (Students of life and Industrial Design) where information about local industrial design business is shared.</p>	Y/N
<p>31. Please elaborate on the above.</p> <p>Don't know. There are a few local networks ARDUINO (open source software/hardware platform in the interaction design field. Also design networks like SOLID (see pilot interview 001)</p>	

SECTION 6: Thank you and additional comments
<p>32. Is there any further comment you would like to make?</p>
<p>33. How may I improve on the quality of data collected in this questionnaire?</p> <p>Seems quite cohesive</p>
<p>34. A separate authorisation document has been provided; should you wish to know the outcome of this study please indicate this in that document.</p>

THANK YOU FOR YOUR VALUED TIME AND INPUT.

Official use only	Interviewer's name: Michelle Barnes			Signature	
Date	/ /201	Start time	H	End time	H
Scrutinised by				Signature	
QUESTIONNAIRE SERIAL NUMBER					002

1 Sept 2016

SEMI-STRUCTURED INTERVIEW QUESTIONS

World Design Capital 2014 opportunities for transforming Business Studies curricula

Hello. My name is Michelle Barnes; I am a master's student in the Faculty of Informatics and Design (FID), Cape Peninsula University of Technology (CPUT). I am presently conducting research exploring aspects to transform the Business Studies (Professional Practice) curriculum for design students and using the World Design Capital 2014 experience in an effort to establish whether such an experience promotes graduate career resilience/economic empowerment in the Knowledge Economy of the 21st Century. I would be grateful if you would answer the following questions for me. Your responses will be kept confidential. If you would like me to contact you for further information, please indicate this at the end of this questionnaire in section 5.

INTERVIEW SERIAL NUMBER:				0	0	0	1
Interviewee's name:		[REDACTED]					
Date:	2 ND SEPTEMBER 2016			Female	1	Male	2 X
Organisation's name:	CPUT			Position held:			
Type of position held:	Lecturer ¹ X	Industry member	Design business share-holder	Other (explain)		Student ¹ :	
						Year of study ³	
Subject(s) lectured ¹ or taken ¹ :	ERGONOMICS, DESIGN FOR SOCIAL INNOVATION & SUSTAINABILITY, UNIVERSAL DESIGN, INDUSTRIAL DESIGN						
Phone (Landline):	021-469 1027		Mobile:	[REDACTED]			
Email:	[REDACTED]						
Specialisation ²	INDUSTRIAL DESIGN						

SPECIALISATION² CODES

Specialisation	Code	Specialisation	Code	Specialisation	Code
Industrial Design	A	Graphic Design	B	Town & Regional Planning	C
Industry	D	Other	E	Architectural Technology	F

YEAR OF STUDY³ CODES

Year 1	Year 2	Year 3	B.Tech	Master's	Doctoral	Post-doctoral
1	2	3	4	5	6	7x

SECTION 1: Open-ended questions

1. Why was WDC created?

Icsid, the International Council of Societies of Industrial Design of as you know, recently renamed the WDC organisation was formed in 1957. Around 2006 we started seeing a shift in how cities worked. As you know cities are designed by people for people but they don't always work very well. So we decided to pilot WDC concept and the prototype was Turin (Torino) in Italy in 2008 and the idea was to showcase how design was used to advance the developmental agenda as well as urban renewal as well as a myriad other challenges that cities in the 21st Century face. So that was the first call in 2008. We have had one any two years, in 2010 (Seoul) 2012 (Helsinki) 2014 (Cape Town), 2016 (Taipei) and 2018 Mexico City.

2. What has this opportunity meant to you as an industrial designer/lecturer/student/ industry member? In terms of X learning/own learning/student learning taking your queue, I wore a number of hats – I was on the Bid Committee that led to the successful bid. I was then subsequently on the Icsid Board as well. I was then appointed to the international advisory council of the WDC and I played the role of educator, industrial designer as well as getting a local and international perspective for local design. What it did was galvanise the energy around one issue: WDC. This enabled them to showcase their talent, secondly to showcase their talents engagement with some kind of design activism and design advocacy which brought in partners from industry and government which previously had been missing for most of the discourse and importantly gave our students at CPUT a unique perspective on what a world event could do. because CPUT is the only Icsid member in the Country

3. How do you think participants – students benefit/staff benefit/did PJs benefit/ benefitted from being part of a WDC2014 project?

I believe for most people there is a certain skewed understanding of what design is and most people we spoke to first could not see the relevance and thought of design as mostly fashion or graphic design but that they could not see the relevance of what design could do as a social conscience. Understanding of what design could do, the engaging of design for complexity and complex challenges as well as design as a strategy to unlock potential (not just in Cape Town), tried to redress some of the *apartheid* legacies of the City. Because of the co-design and ‘design storming’, the City has the so-called 111 ward projects where everyone embraces the idea of Participatory Design and active citizenship and also meant we could democratise the understanding of design and made it more accessible to people who did not know what design was. It was an exciting year because we got a lot of support from the Government of the Netherlands through the Consul General who personally got very involved, as did the Italian Government here in Cape Town so the International perspective on how we were using design to engage in our own challenges was useful as well as giving us a platform to connect with other parts of the world.

4. What did it offer how is it different why/ what sorts of learning were possible here/ academic use were WDC2014 projects for teaching & learning tools and for assessment purposes? Johan van Niekerk will give you examples of the specific examples R5K project. But we submitted a number of projects for the WDC process and they were duly acknowledged and recognised and so validated our pedagogic offerings first of all because, and a greater audience within the government and civil society was able to access design in a way that previously was not accessible. We participated in a way that previously was not possible. There were a number of festivals and Open Design activities. We used the Design Indaba of that particular year to escalate those conversations globally. So students benefitted quite a bit because of the

ability to connect with a greater audience, particularly with those that did not understand or appreciate design. So what happened first was an increase in demand for design services. Also a number of students took up the field of Socially Conscious Design as an area of professional endeavour. So we have got a number of them that have paired up in home companies that are looking at Design for Sustainability, Universal Design, and Participatory Design and so on.

5. How has the generally deteriorating employment rate amongst university graduates generally and some design and creative fields specifically affected your design programme/syllabus/teaching? When we began the R5K project with Bart (Verreckken) (HOD) and Johan (van Niekerk) (lecturer) in 2009, it was because we looked at the exit-profile of our B.Tech students and realised that they were not equipped to meet the challenges that they faced when they got out (of university). Firstly they were not enough places that could absorb them in formal employment, and secondly, because we were training them in a very unique kind of thinking, like Design for Sustainability, the clients had not even realised there was a need for them, so we found they needed to start their own companies. And so the R5K Project became the place where we simulated that in the classroom. What happily happened, Johan will tell you is that we superseded the R 5 000 which was a requirement of the project and many of them are still in business today and making money. Prior to that we had much lower employment rate and we thought this was a way to ameliorate that.

6. Describe how your syllabus and teaching & learning techniques help graduates transition from student life into the workplace? We adopt a problem-based learning model so we adopt problems so we set real-world problems with actual working constraints. Students have to work around that as a mode of engagement, as opposed to a solutions-based mode of engagement.

7. Describe how you see the role of the Professional Practice/Business Studies course within your field of design. I think it's a missing link really, if we had better prepared students in terms of business skills, this is where most designers falter, so we recognise that as a weakness. So this year we started something ... mentors (who were out in business) to assist our students. But still we need to train our students in bookkeeping, accounts and a number of options that they have so that they are tax-compliant, what companies they can put together, to protect their Intellectual property and so on. So this still needs to be done and we need greater involvement.

8. What career-promoting opportunities or transitioning techniques did you perceive as being created/ learnt through participation in WDC2014 projects? Well the R5K project was a big one. Then our students also got involved in a number of projects like Harrington Street where the Design Precinct was.....so that was very useful for the student. A number of them have moved to Woodstock, to the Woodstock Exchange where they have set up companies and these are a direct result of their participation in the Design.. Also leaving the comfort and safety of the academic environment, dealing with real-world challenges, paying rent, surviving, making a living.

9. In which WDC2014 projects did you/your students participate? (List below).

10. Describe what you liked most/least about participation in WDC2014 projects?
11. Describe what else in your opinion, could be added to the student learning experience that may further promote economic opportunities on graduation?

SECTION 2: WDC 2014 – CPUT involvement: Specific interventions:		
#WDC 230	Chapel St Clinic: Co-designing healthcare services Johan	
#WDC 245	Driving dreams – I was the lead in that project	X
#WDC 248	Design storming toolkit – participant/contributor	X
#WDC 250	R 5K participant/contributor	X
#WDC 334	mTriage	
#WDC 346	Informal trader - yes	X
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC) - yes	X
#WDC 439	Urban Studio	
#WDC 465	Design Garage - yes	X
#WDC 490	Cape Town Society for the Blind (CTSB) : Design for the visually impaired - yes	X
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014 - yes	X
#WDC 679	Shaping a shared world exhibition – yes?	X

SECTION 3: Thank you and additional comments
Is there any further comment you would like to make?
A separate authorisation document has been provided; should you wish to know the outcome of this study please indicate this in that document.

THANK YOU FOR YOUR VALUED TIME AND INPUT.

Office use only	Interviewer's name: Michelle Barnes		Signature	
Date	/ /201	Start time	H	End time H
Scrutinised by			Signature	
QUESTIONNAIRE SERIAL NUMBER				003

Interview 004



SEMI-STRUCTURED INTERVIEW QUESTIONS

World Design Capital 2014 opportunities for transforming Business Studies curricula

Hello. My name is Michelle Barnes; I am a master’s student in the Faculty of Informatics and Design (FID), Cape Peninsula University of Technology (CPUT). I am presently conducting research exploring aspects to transform the Business Studies (Professional Practice) curriculum for design students and using the World Design Capital 2014 experience in an effort to establish whether such an experience promotes graduate career resilience/economic empowerment in the 21st Century. I would be grateful if you would answer the following questions for me. Your responses will be kept confidential. If you would like me to contact you for further information, please indicate this at the end of this questionnaire in section 5.

INTERVIEW SERIAL NUMBER:									
Interviewee’s name:	[REDACTED]								
Date:	1 March 2017			Female	1	Male	X		
Organisation’s name:	CPUT: FID: Design Dept			Position held:		Senior lecturer			
Type of position held:	Lecturer ¹ X	Industry member	Design business share-holder	Other (explain)		Student’:			
						Year of study ³			
Subject(s) lectured ¹ or taken:	Industrial design, levels 1,2,3 & 4								
Phone (Landline):	021 460 8308		Mobile:	083 634 8333					
Email:	verveckenb@cput.ac.za								
Specialisation ²	See above								

SPECIALISATION² CODES

Specialisation	Code	Specialisation	Code	Specialisation	Code
Industrial Design	A	Graphic Design	B	Town & Regional Planning	C
Industry	D	Other	E	Architectural Technology	F

YEAR OF STUDY³ CODES

Year 1	Year 2	Year 3	B.Tech	Master’s	Doctoral	Post-doctoral
1	2	3	4	5	6	7

SECTION 1: Introductory and background

1. Why was WDC created?

I was at the Icsid AGM in Copenhagen in 2005: a decision was made there to do WDC. It was a gamble that turned into a significant success with increasing focus on socially uplifting projects. Initially there was no particular focus. It was an experiment supported by the Mayor of Turin (Torino); there was no

bid at first, Torino was the pilot. It's been interesting to see how it's developed after Torino (2008), then Helsinki (2010), Seoul (2012), Cape Town (2014), Taipei (2016), Mexico City (2018).

Do you have any legacy out of WDC? Interesting to see how it developed from Torino...Cape town – how the project/character/mission changed. Initially transport systems & signage. It changed into social responsibility – due to *zeitgeist (the spirit of our time)* – with every move to next city it became more and more socially relevant. CT did not propose anything, they simply put forward what they would do and were accepted on that basis. I don't know that anything special will be taken away as a legacy of WDC2014. Our projects were in existence – e.g. R 5k. WDC2014 is useful as a project for design students. The City produced a book on WDC2014. I decided not to participate for personal reasons – I needed at least one day off a week!

Will graduates differ as a result of WDC? No, I don't think so, not immediately. Survival is a primary driver when it comes to business at present. There are successful initiatives – I don't see existing businesses changing because of WDC. I don't see any change – the green is a *greenwash*. People talk about it but I don't think designers really make it work in business. Consumers are not in position to make a choice.

Where is design career going: If I had young children, I would not advise them to go into a career in design. There are no 'easy careers. Career of Industrial Design – you try to convince people that you are right and they are wrong – one mistake will mean you are gone. Designers are never givenDesign does confuse people. We understand traditional careers like fireman. Design knowledge structure doesn't exist, there is no vertical structure as it traditional careers like doctors or engineers, just lots of little things to know. Society doesn't 'get' design. Design is a way of connecting things; this is important. Students need to be able to connect things. It's a mind-skill. They must be able to jump to different levels of knowledge depending on your audience. How you frame problems from macro level may be different to how you present it to a particular client. This is a special skill. Also while scribbling on your paper, the process must flow. Mind-jumping ability is important and you must 'sell' your ability to the client. Critical-thinking is important to 'sell' your idea to client and it is difficult. You need to be articulate in your writing skills because your client needs to justify the project to his Board via what you have written. You (design lecturers) are developing a human being to be its maximum. The current economic model isn't working in an uncertain world.

What skills must he develop? A very good question. I have been thinking of doing a doctorate. I did half a M.Ed at UCT. But only did coursework not the thesis. We have an irrelevant curriculum - industrial design (ID) does prepare them because of all the projects students do – there is a depth of personal growth. You can see difference between ID students and other design student. ID does lots of presentations so they can 'sell' their client. The selection of which students we accept into the course can be improved. Only by tracking result of their initial evaluation can one see whether the initial selection criteria are valid. There seems to be a negative correlation between many who come in and them passing 2 years later. So the indicator initial test is not a good indicator of later success – (I see a research project here for a possible doctorate). Look here are 10 habits of mentally strong people: *fight when you feel defeated, delay gratification, make mistakes, start again, focus on details, be kind even to rude people* etc. These 10 habits are learnt by children in the family circle. If not learnt there – it is up to schooling or university. How do we develop mature human beings? Many remain children. Traits of the stuff of being human seem to be vital in a very uncertain world. We have never really tried to develop human beings throughout human existence. With climate change we may well be facing absolute chaos – are we teaching people to cope with this?

No more comment.

2. In which WDC2014 projects did you/your students participate? (List below).

I did not participate in any actual projects for CPUT

SECTION 2: WDC 2014 – CPUT involvement:

#WDC 230	Chapel St Clinic: Co-designing healthcare services	
#WDC 245	Driving dreams	
#WDC 248	Design storming toolkit	
#WDC 250	R 5K	
#WDC 334	mTriage	
#WDC 346	Informal trader	
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC)	
#WDC 439	Urban Studio	
#WDC 465	Design Garage	
#WDC 490	Cape Town Society for the Blind (CTSB) : Design for the visually impaired	
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014	
#WDC 679	Shaping a shared world exhibition	

SECTION 3: WDC 2014 – specific project details

3. Please explain the project(s) in which you were involved.

SECTION 4: Interaction of the CPUT Design Dept. with projects and stakeholders

4. What techniques, ways of collaborating and learning from each other were experienced between CPUT and the WDC2014 project stakeholders?
5. What difficulties were experienced in the collaboration?
6. How did the collaboration experience relate into academic theory for teaching & learning and assessment purposes? – describe and explain
7. Who experienced learning from this collaboration, and what was learnt?

SECTION 5: Thank you and additional comments

Is there any further comment you would like to make?

A separate authorisation document has been provided; should you wish to know the outcome of this study please indicate this in that document.

THANK YOU FOR YOUR VALUED TIME AND INPUT.

Office use only	Interviewer's name: Michelle Barnes			Signature	
Date	01/03/2017	Start time	10H30	End time	11H35
Scrutinised by				Signature	
QUESTIONNAIRE SERIAL NUMBER					004



SEMI-STRUCTURED INTERVIEW QUESTIONS

World Design Capital 2014 opportunities for transforming Business Studies curricula

Hello. My name is Michelle Barnes; I am a master’s student in the Faculty of Informatics and Design (FID), Cape Peninsula University of Technology (CPUT). I am presently conducting research exploring aspects to transform the Business Studies (Professional Practice) curriculum for design students and using the World Design Capital 2014 experience in an effort to establish whether such an experience promotes graduate career resilience/economic empowerment in the 21st Century. I would be grateful if you would answer the following questions for me. Your responses will be kept confidential. If you would like me to contact you for further information, please indicate this at the end of this questionnaire in section 5.

INTERVIEW SERIAL NUMBER:									
Interviewee’s name:	[REDACTED]								
Date:	2 March 2017	[REDACTED]	office	Female	<input checked="" type="checkbox"/>	Male	<input type="checkbox"/>	2	
Organisation’s name:	CPUT			Position held:	Lecturer				
Type of position held:	Lecturer ¹	Industry member	Design business shareholder	Other (explain)	Student’:				
	<input checked="" type="checkbox"/>				Year of study ³				
Subject(s) lectured ¹ or taken:	Design Theory (including history of design) and Research IV								
Phone (Landline):	021 460 3280			Mobile:	[REDACTED]				
Email:	[REDACTED]								
Specialisation ²	Service Design, Design Theory, Design Research								

SPECIALISATION² CODES

Specialisation	Code	Specialisation	Code	Specialisation	Code
Industrial Design	A	Graphic Design	B	Town & Regional Planning	C
Industry	D	Other	E	Architectural Technology	F

YEAR OF STUDY³ CODES

Year 1	Year 2	Year 3	B.Tech	Master’s	Doctoral	Post-doctoral
1	2	3	4	5	Busy with 6	7

SECTION 1: Introductory and background

1. Why was WDC created? **To promote design. I do wonder about Icsid legacy, follow-through and impact. WDC conceptual projects that hadn't taken off or planned projects - be interesting to see where they are now. So much about how to re-introduce social conventions which on-line approach is sucking everything out of you. In ID we push communication from day one. How and when you speak to people, keep appointments. This is 'good designer in training' technique.**

2. In which WDC2014 projects did you/your students participate? (List below).

SECTION 2: WDC 2014 – CPUT involvement:

#WDC 230	Chapel St Clinic: Co-designing healthcare services	X
#WDC 245	Driving dreams (Nicky's Drive)	X
#WDC 248	Design storming toolkit	
#WDC 250	R 5K	X
#WDC 334	mTriage	X
#WDC 346	Informal trader	X
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC)	
#WDC 439	Urban Studio	X
#WDC 465	Design Garage	X
#WDC 490	Cape Town Society for the Blind (CTSB) : Design for the visually impaired	
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014	
#WDC 679	Shaping a shared world exhibition	
Not officially on the list	Also: Dream World, Open Design workshop + Project Workshop	X

SECTION 3: WDC 2014 – specific project details

3. Please explain the project(s) in which you were involved.

Facilitating my students writing the projects. I wasn't involved in writing projects – more facilitating. In DreamWorks I was involved in writing – was a Finish Academy project already running. We launched this as a WDC project. We included Surface and ID students for workshop and exhibition. I.E. using design methods and narrative to facilitate change within communities. We weren't necessarily working towards a solution but showing people how design is used. Set up to show people the process of design. It was not about the end. The Chapel St project has become a blueprint/case study for looking at flow-management for small clinics

SECTION 4: Interaction of the CPUT Design Dept. with projects and stakeholders

4. What techniques, ways of collaborating and learning from each other were experienced between CPUT and the WDC2014 project stakeholders?

I think so, especially Dream World project (was a project that had run for 18 months already and teething with collaboration had been ironed out by then. I don't think either party changed their way of operating as a result of the projects). Most people who knew nothing about design, did not learn anything. If we re-did it now the result would be the same. Projects that worked would have worked anywhere. It was not the collaboration of people but between the people and the artefact/goal. As people saw the value of the design to be achieved. Funding was probably easier to find because of WDC status but one. Neither party changed the way they worked as a result of interacting. Most people who did not know anything about design, didn't learn anything. PJs that worked were going to work anyway.

The focus on the goal rather than the relationship made projects work. It was easier to find funding for WDC projects but they weren't otherwise special.

Did CPUT learn cooperation with City? We worked on Ezezi Clinic Project with Daniel (Sullivan) of City, now City does think that design could be useful in future clinic designs. Designers as a 'species' were perhaps promoted. But people have short memories. I would like to know the ratio of the successful projects vs. those that created expectation that were created on ego. My opinion is that a ton of WDC projects were built on ego and had no real strategy or desire to follow-through – they simply picked a community to 'save' (This did not apply to CPUT projects) CPUT projects strength was that the projects would have existed before WDC. CPUT's benefit was exposure to projects already in pipeline and to get them done – like Design Garage or R 5k! WDC was vehicle for CPUT looked at regional clinic to make space work better. WDC became a vehicle for CPUT to gain momentum but most projects existed beforehand

5. What difficulties were experienced in the collaboration?
6. How did the collaboration experience relate into academic theory for teaching & learning and assessment purposes? – describe and explain

I worked with a student on Nicky's Drive and the Universal Design Tool (Ackerman funded UD kitchen tool). It showed up university in worst light bureaucratically – internal processes and procurement issues were very poor. Academia was shown in worst light possible. Procurement issues, red tape student given responsibility but no clout to see things through. Students were resentful towards the system thereafter. One student wrote M on the failure of academia to help students – we edited out 'CPUT' of his thesis because it showed CPUT in such a bad light. It showed CPUT in an incredibly bad light Nevertheless it was beneficial for student to handle such a complex project at university. It was a complex learning environment. It builds resilience in the WoW. But WDC was merely another opportunity to proxy work experience. The nice thing is: yes it promoted design to bigger audience, there was knowledge-sharing but if you wanted to go and see something, there was not much to see. There was a lack of vision as to what outsiders would see or want to see in WDC. It created a platform for design students to design! It gave them more options. All of our students participated (B.Tech students, lecturers, Ms & Ds) but no under-grads. There was a lack of vision as to what non-Design people see yet you can't hold Icsid responsible for our lack of initiative. For students who wanted to collaborate and gain more options gained that opportunity

7. Who experienced learning from this collaboration, and what was learnt?

SECTION 5: Thank you and additional comments

Is there any further comment you would like to make?

Did WDC provide any resilient learning: I don't think so. So projects *per se* are useful as learning tools and the more real-world the better. Speak to Suné Stassen about how design can be used to empower people to be entrepreneurial etc. She has always been advocate to build design processes and thinking, creative thinking (as a process) into primary schools – as a process – as a design of solutions in your own life! Design in Basic Education is probably more important than at tertiary level. How do you empower kids to survive in the real world? See design as a way of working: learning for the future. Tertiary is about a profession, in

Basic it's about survival – in SA it's always a numbers game! How do you teach maths/science etc. with design – i.e. learning for a future world?

Did any of your B.Tech students fail in that year? **None of them failed the projects.**

What makes somebody a failure at a fourth year level? **Whether personal reasons made them fail. I think purpose, resilience and drive developed through projects most accurately simulates WOW.** Doing projects develops your resilience because it simulates WoW. Project-based learning is always useful. There will always be a lazy person, a deadline, a bossy person etc. Students learnt a lot in R 5K projects (I was not keen on R5k project at first – but they learnt things that they would not learn anywhere else as students). Sometimes they had to *fire* a manufacturer – this was *huge* for students. They had to open companies. **R5k gave a security net for trying out the complex real-world experience.** Some people had to have non-disclosure stuff. Real world project-based learning is NB. But it has to be stepped, scaffolded and supported otherwise it's not an education – what are teachers providing. If they had not been doing it in the project, they would have do it in real world. It gave them a leg in each world .Allow them to slip a little but not too much. Projects create excitement. , students get more invested in real-world projects with external 'briefers'. Any project e.g. WDC that brings students closer to real world is good but maybe this is true of projects generally not just WDC – which is useful for future.

Students naturally gravitate (probably also towards what is internationally inspiring but done locally. I heard the Neil Gaymann? address at graduation of *World College of Art*: say that as a creative it's a balance of being nice, cheap or incredibly good. You need to be two of these things to be successful. Design is not just about creation it's also about communication. The world of communication is important. There needs to be massive shift in getting students to talk about their projects (getting them to engage) to build up confidence (not a false sense of confidence). We do this project with 3rd years: they must present without any paper (or I fail them). Presentation is about communicating with the people and by middle of B.Tech they are confident and good presenters – it's all about communication – you are pitching potentially to people who know nothing about design. You need to sell yourself –they must trust you etc. So the presentation is crucial. You need to know “I can work with this person”. In Industrial Design Dept. we treat students like adults “in training” from 1st Yr. How to reintroduce social skills that on-line dimensions have sucked out of us. We tell them: “we are not TV” *engage with us.* How you behave in this space. In Industrial Design we really push the point of communication, how and when you speak to people is important, keep appointments etc.

A separate authorisation document has been provided; should you wish to know the outcome of this study please indicate this in that document.

THANK YOU FOR YOUR VALUED TIME AND INPUT.

Office use only	Interviewer's name: Michelle Barnes		Signature		
Date	02/03/2017	Start time	11H05	End time	11H45
Scrutinised by			Signature		
QUESTIONNAIRE SERIAL NUMBER				005	

Interview 006

 02 Mar 2017

SEMI-STRUCTURED INTERVIEW QUESTIONS

World Design Capital 2014 opportunities for transforming Business Studies curricula

Hello. My name is Michelle Barnes; I am a master's student in the Faculty of Informatics and Design (FID), Cape Peninsula University of Technology (CPUT). I am presently conducting research exploring aspects to transform the Business Studies (Professional Practice) curriculum for design students and using the World Design Capital 2014 experience in an effort to establish whether such an experience promotes graduate career resilience/economic empowerment in the 21st Century. I would be grateful if you would answer the following questions for me. Your responses will be kept confidential. If you would like me to contact you for further information, please indicate this at the end of this questionnaire in section 5.

INTERVIEW SERIAL NUMBER:									
Interviewee's name:	[REDACTED] (joint interview with [REDACTED] see separate questionnaire)								
Date:	2 March 2017 [REDACTED]			Female	<input checked="" type="checkbox"/>	Male	2		
Organisation's name:	CPUT			Position held:	Lecturer				
Type of position held:	Lecturer ¹	Industry member	Design business share-holder	Other (explain)	Student':				
	<input checked="" type="checkbox"/>				Year of study ³				
Subject(s) lectured ¹ or taken:	Drawing for design 1 Design Studies 1 Technology 1								
Phone (Landline):	021 460 3820			Mobile:	[REDACTED]				
Email:	[REDACTED]								
Specialisation ²	See above under subjects lectured								

SPECIALISATION² CODES

Specialisation	Code	Specialisation	Code	Specialisation	Code
Industrial Design	A	Graphic Design	B	Town & Regional Planning	C
Industry	D	Other	E	Architectural Technology	F

YEAR OF STUDY³ CODES

Year 1	Year 2	Year 3	B.Tech	Master's	Doctoral	Post-doctoral
1	2	3	4	5	In progress 6	7

SECTION 1: Introductory and background

1. Why was WDC created? **To promote design. A lot of admirable projects that raised level of awareness in the consciousness. Bit I am not sure what the legacy of that is.**

2. In which WDC2014 projects did you/your students participate? (List below).

SECTION 2: WDC 2014 – CPUT involvement:

#WDC 230	Chapel St Clinic: Co-designing healthcare services – CASE STUDY	X
#WDC 245	Driving dreams (Nicky's Drive) – 3D & mechatronics were involved	X
#WDC 248	Design storming toolkit	X
#WDC 250	R 5K	X

#WDC 334	mTriage	
#WDC 346	Informal trader	X
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC)	
#WDC 439	Urban Studio	X
#WDC 465	Design Garage	X
#WDC 490	Cape Town Society for the Blind (CTSB) : Design for the visually impaired	
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014	
#WDC 679	Shaping a shared world exhibition	
Not officially on the list	CPUT Design Indaba Exhibition Stand	X

SECTION 3: WDC 2014 – specific project details

3. Please explain the project(s) in which you were involved.

I was involved in setting up the exhibition for Design Indaba that year. So I was involved in showcasing all student projects. Some I had no knowledge of beforehand. Only two projects are still running that I know of Design Garage and R 5K. But Chapel St clinic

SECTION 4: Interaction of the CPUT Design Dept. with projects and stakeholders

4. What techniques, ways of collaborating and learning from each other were experienced between CPUT and the WDC2014 project stakeholders?

Nicky's Drive. Collaboration was between existing project and it was personality dependent. Issues of collaboration were already ironed out beforehand. It was a project-focused. For outsiders to WDC, most people who knew nothing about design, did not learn anything. Some WDC projects were purely ego driven and really had nowhere to go. For CPUT WDC was a catalyst for getting things done.

5. What difficulties were experienced in the collaboration? **Collaboration in some projects showed university in worst light possible. People had their hands bitten in collaboration with CPUT – not academics but admin processes, procurement etc. . The student- experience created resentment towards admin/university system. Is it not beneficial for student to have such a complex learning experience that builds resilience in WoW(██████) – But I think that situ exists anyway (██████). ██████ – yes.**

There was a lack of vision for what the layman would experience about WDC/design

6. How did the collaboration experience relate into academic theory for teaching & learning and assessment purposes? – describe and explain

None of the B.Tech students failed that year – neither the projects nor later work. There is always a special purpose or drive that makes people do well. Project- based learning simulates the unforeseen calamities and mix of different personalities that exists in the WOW. Students have one foot in each world in doing a project. Legal contracts for example had to be faced but they needed support. We (as lecturers) empower our students to do something. Real-world Projects generally are an attraction to students more so than merely assessments.

7. Who experienced learning from this collaboration, and what was learnt?

I don't think WDC provided any learning that students would not have got from other projects. But students learnt WOW stuff.

We are not TV – we don't go away when you turn around – you need to engage with us. [REDACTED]

SECTION 5: Thank you and additional comments

Is there any further comment you would like to make?

A separate authorisation document has been provided; should you wish to know the outcome of this study please indicate this in that document.

THANK YOU FOR YOUR VALUED TIME AND INPUT.

Office use only	Interviewer's name: Michelle Barnes			Signature	
Date	02/03/2017	Start time	11H05	End time	11H45
Scrutinised by				Signature	
QUESTIONNAIRE SERIAL NUMBER					006

Interview 007

SEMI-STRUCTURED INTERVIEW QUESTIONS

World Design Capital 2014 opportunities for transforming Business Studies curricula

Hello. My name is Michelle Barnes; I am a master's student in the Faculty of Informatics and Design (FID), Cape Peninsula University of Technology (CPUT). I am presently conducting research exploring aspects to transform the Business Studies (Professional Practice) curriculum for design students and using the World Design Capital 2014 experience in an effort to establish whether such an experience promotes graduate career resilience/economic empowerment in the 21st Century. I would be grateful if you would answer the following

questions for me. Your responses will be kept confidential. If you would like me to contact you for further information, please indicate this at the end of this questionnaire in section 5.

INTERVIEW SERIAL NUMBER:										
Interviewee's name:	[REDACTED]									
Date:	8 March 2017 Room 3.xx [REDACTED]			Female	1	Male	X			
Organisation's name:	CPUT			Position held:		Senior Lecturer				
Type of position held:	Lecturer ¹	Industry member	Design business share-holder	Other (explain)		Student ² :				
	X					Year of study ³				
Subject(s) lectured ¹ or taken:	Visual communication & Design									
Phone (Landline):	021 460 3463			Mobile:	[REDACTED]					
Email:	[REDACTED]									
Specialisation ²	See above									

SPECIALISATION² CODES

Specialisation	Code	Specialisation	Code	Specialisation	Code
Industrial Design	A	Graphic Design	B	Town & Regional Planning	C
Industry	D	Other	E	Architectural Technology	F

YEAR OF STUDY³ CODES

Year 1	Year 2	Year 3	B.Tech	Master's	Doctoral	Post-doctoral
1	2	3	4	5	6 Busy	7

SECTION 1: Introductory and background

1. Why was WDC created? Initiative of Icsid (as it was named back then) – to broaden the cause of design and offer it as an opportunity to any city in the world to be submit/apply/ be granted the status and uniquely create own interpretation as how design is acknowledged/perceived in that region. It acknowledges region state-emergence of city-state globally. I think that's really significant. Every city in any country you will have major differences on how design is understood, used, imagined. It is an opportunity for a city to run with this even though there are stringent rules as to how the year roles out there is a lot of room for manoeuvre for a city to I to create unique version of WDC

Mic: City state is interesting... like middle ages or renaissance – city -states

2. In which WDC2014 projects did you/your students participate? (List below).

SECTION 2: WDC 2014 – CPUT involvement:

#WDC 230	Chapel St Clinic: Co-designing healthcare services –	
#WDC 245	Driving dreams (Nicky's Drive) –	
#WDC 248	Design storming toolkit	X

#WDC 250	R 5K	
#WDC 334	mTriage	
#WDC 346	Informal trader	X
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC)	
#WDC 439	Urban Studio	X
#WDC 465	Design Garage	X
#WDC 490	Cape Town Society for the Blind (CTSB) : Design for the visually impaired	
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014	
#WDC 679	Shaping a shared world exhibition	X
Not officially on the list	Coordinated CPUT “Imagine that” office – (website built to showcase these projects). University needed to create visibility & access to the work that we do. We encouraged staff & students to submit projects. Each project given #number Coordinating WDC from CPUT side. From curating and design education perspective directly linked to these projects. WDC was involved in vetting process – each project was given a #, Imagine That was used as a booster Also board member of company established by City of Cape Town created (Cape Town Design NPC) Chairman: Cape Town Design network	X

SECTION 3: WDC 2014 – specific project details

3. Please explain the project(s) in which you were involved. Certainly, it did **Boundary-crossing did occur**. One could argue that it could have happened a lot better At CPUT level afforded opportunity for staff and students opportunity to have work seen., Work was around sustainability, service learning,, social upliftment, connected with established curriculum and also boosted peripheral work that is done in design. It also boosted multidisciplinary and trans-disciplinary work for graphic design students, industrial design students, it showcased to ourselves how multi-disciplinary and potentially trans-disciplinary we can work. Showed our ability to use design for social good and for community upliftment and causes that are beyond mere market-driven commercial activities. .

Did you change curriculum as a result of WDC?

Certainly it has had impact on our re-curriculation process, Impact on process of developing more structure – given clarity, had an impact on graduate attributes having been described in quite broad terms. Its, given clarity to flexible approaches, resilience in design students, need to be adaptive, reflexive and reflective. So given flesh to graduate attributes. Contextualised a lot of the’ soft skills’ we describe in our documentation and to test whether we should further build and endorse those capacities – moving more towards multi-literacies and further from specifically defined literacies which leans towards the trans-disciplinarily of learning. That’s a tricky thing to manage because it means project management, setting up time for students to work together, encouraging staff to work across those boundaries. Unless this is actually managed well, and not over-managed – it’s a hard thing else to get colleagues to be supportive. I think WDC showed that up in very stark contrast that people who were confident enough, imaginative enough, daring enough to step forward and have their projects

recognised and do those projects to high degree of success are those staff who are still doing that. They were exhausted after WDC in terms of reporting and taking advantage of opportunities that WDC gave.

SECTION 4: Interaction of the CPUT Design Dept. with projects and stakeholders

4. What techniques, ways of collaborating and learning from each other were experienced between CPUT and the WDC2014 project stakeholders?

5. What difficulties were experienced in the collaboration?

We ran project management courses in the Roeland St Building, for any project owner for 700 projects We did things jointly with City of Cape Town, Informal Trade was a project we thumb-sucked because of our relationship with Cape Town Partnership which was project of City of CT we had advantage like Informal Traders, hearing how they operate, observing. That project has a second stage that hasn't quite happened yet - . Was essentially a research phase nothing was designed. – A tip of the iceberg but a significant one. It echoed the core principles for design thinking which is the observation of listening phase, of problematising phase. That was a wake-up for a lot of students and staff because we worked with outside experts and partners to sensitively and ethically place ourselves in that space where informal traders operate. Students discovered a whole eco-system of what was happening that you can't see with naked eye. So there were projects that were flushed out that are waiting for a second leg (phase) leg to happen. These things do not happen without support or funding or the right intent. There is a lot that has been generated and a lot that can be taken forwards, and I have touched on some of the linkages with the City of Cape Town. They learnt how ubiquitous design is and how embedded it is and the value of design-thinking. They were incredibly forward-stepping in terms of how they ran about 70 workshops. That was the City really engaging with community-connect with community and co-designing and problematising projects. Social cohesion, voice of the people and diffusing of design, diffusing of design into community in those three months was key to how design is involved. Design is not just the domain of the expert we took it to the people and various communities. In very pragmatic fashion, in a step by step way we included a wider stakeholder group. So City has seen that that works. They have seen that it is costly too. You have got some people still retained - Daniel Sullivan is still there in advisory position has ear of senior people in the city to carry on and see where design fits.. Richard Perez was snapped up by d. School to launch that as were two of our previous staff Rael (Futerman) and Kenilwe ().

I had a rare position at board level and policy-level right through to the nitty-gritty of the granularity of the projects. The City came face to face with ethical dimension of design. We ran other projects like bin-redesign Swamp project. That was a case where City structures and the community structures and the university structures butted up against each other but eventually prototyping of a waste-container did occur for individual shacks.. So a lot of hard learning came about through this process. We used the WDC as a trying-out process – that's what we said right from the beginning, we got excited about idea of WDC.

6. How did the collaboration experience relate into academic theory for teaching & learning and assessment purposes? – describe and explain

Nothing beats the scale of WDC – the budget that was put towards it – the City put forward R 40 million. I know of no other project that has that commitment or reach. What WDC did it is it caught our imagination People saw it as a major opportunity to do all sorts of things, linked to design. UCT and Stellenbosch and even private unis stepped forward. A range of companies and civil society, it didn't grab the imagination of the advertising industry. Didn't necessarily grab the imagination of very commercially-driven design operations. I was involved in the Cape Town Design Network and the Design Dialogues was used as a means of broadcasting WDC concept and the promise of what it could be to the Design community very early on.. That was a bit of a disappointment. People who are in the day-to-day business of using design to make profit and grow their businesses were possibly a little disconcerted by idea of

diffuse design where everybody plays a role. Social upliftment and social design is not everybody's cup-of-tea. So there definitely was (not a schism) but a gap I think. So a lot of the projects done were community-orientated and to do with social justice or social upliftment. Lots of NGOs took part. City gives x amount pa towards upgrading streets and road etc., mayor decided that money would be put towards the wards. It was another investment that City did – moved away from City being decision-maker and originator to being a more inclusive process.

The lecturers and the students and the City experienced learning. As a member of CT Design Network we conceptualised Design Open Festival as a more inclusive alternative to Design Indaba which is very exclusive, expensive, very high-powered, very good for the design industry but Open Design Festival we wanted to make sure the public knew what WDC was about. We held it in the City Hall, it was free to attend. There were talks and exhibitions and a strong educational focus. We had lots of schools kids coming through. That was our attempt as a network of designers and the City of Cape Town to include the public. The City helped us to fund that – they gave us R 1M to help fund that – this happened 3 years in the row 13 14 15. In 2016 we did not get City funding raised private funding. Public understanding was a crucial role of the Open Design Festival. The dissemination and showcasing of design. UCT mounted fabulous exhibition – beautifully curated – telling what design means to society – their focus was on urban spaces. Any opportunity-based thing people step towards it. A lot of CPUT design staff chose to ignore it (WDC) perhaps as too over-whelming. Some staff were caught up day to day delivery of the design programme and did not participate but those who did gained a lot ... It was deadline driven. We had deadlines As a board member, – very much structuring that interface, with regular forums to happen and incredibly useful in helping project owners to be better, the coaching, scaffolding and support where overwhelming. If you didn't get your project in on time, you missed the bus We couldn't have a never-never ending, there were deadlines. It was the most intense year of my life.

There was a full-year run-up to the WDC and then a year of WDC and a close-out period. People were contracted very specifically.. That was difficult we had never done anything like that before. We had to choose a CEO. We chose Elaine Reesberg because we saw her as having a very good and frank disposition towards design, who ran a really good team and being a good spokesperson. There was unhappiness in terms of the Community Connect projects. We made the thing as we moved forward. We had enough of a team to do an amazing job in terms of the design community connect. We made the thing as we moved forward.

We had events management and content management. I was up to my eyebrows in WDC – from policy to project management and I did learn a lot. I also had extraordinary insight into politics of the City and taking on responsibility of spending of public money. The accountability and the counting of every penny was important. Accountability/ethics has always been in the curriculum but this fleshes out and gives a three-dimensionality to rather flat terms in the study guide. Learning first-hand what it means to be in a contractual position. In terms of how design is now being done in less than commercial, market-driven spaces. This idea of the *colonising metaphor of design – Who is intervening and on whose behalf? Who actually is the beneficiary?* A lot of design-thinking toolkits use the term beneficiary – it is fraught with difficulties - a problematic term. It has the embedded notion that an experienced *Somebody* is bringing something into the environment and the perception is that those people are incapable – so that the ethical angle is all about power and reassessing power-dynamics...and re-developing empathy.

(Mic's speech about Barnett's 4 quadrant learning model)- were are in uncertain times – what sort of human being should you be to be resilient?

We have spoken of the 'relational good's that Ezio Manzini's lifted up in his research these are characteristics of resilience – these are the pragmatics and the "how to s" – how to work with others, we talk a lot about agency, developing agency, it's less of an agency in terms of an individual it's more about co-created or group agency – agency of even non-human co-creation technical and environmental agency in multiple environmental concerns. We now see young learners tapping into potential for co-creating in

multiple environments in social media. They have this amazing leg-up to enable them to meet that joint agency. They have far greater systems-orientated approach. They are not scared of the systemic They are very shy and put off by the notion of discreet silos of knowledge. Previously old subject guides had discreet silos of knowledge. Learners of today swim more easily in the sea they can see holistically. There is a mix of hope where we are going but is evidenced based of what I see how people are performing. There is a dichotomy in technology: Technology is not a panacea and not a black & white situation, dichotomy is the danger people who are shy take refuge behind technology, or lazy can hide behind technology. This is an important thing to consider for the Pedagogy of Balance that facilitates learning where there is a balance; we must set up learning environments that are opportunities to interact f2f with people and do things in difficult scenarios. That is really the focus of my PhD. The pedagogy of discomfort – there is huge learning benefit there – it’s not all the time, it’s not the new fresh flavour. Paolo Frere wrote about it A lot of people have subsequently taken it into their research. In the field design, we often deal uncomfortable, tricky and wicked problems. If we are not introducing our students to this concept of resilience through experiential problem-s based approach they will operating with a set of skills that are last-century.

7. Who experienced learning from this collaboration, and what was learnt?

SECTION 5: Thank you and additional comments

Is there any further comment you would like to make?

A separate authorisation document has been provided; should you wish to know the outcome of this study please indicate this in that document.

THANK YOU FOR YOUR VALUED TIME AND INPUT.

Office use only	Interviewer’s name: Michelle Barnes			Signature	
Date	08/03/2017	Start time	11h00	End time	11h50
Scrutinised by				Signature	
QUESTIONNAIRE SERIAL NUMBER					007

Interview 008

14 Mar 2017

SEMI-STRUCTURED INTERVIEW QUESTIONS

World Design Capital 2014 opportunities for transforming Business Studies curricula

Hello. My name is Michelle Barnes; I am a master’s student in the Faculty of Informatics and Design (FID), Cape Peninsula University of Technology (CPUT). I am presently conducting research exploring aspects to transform the Business Studies (Professional Practice) curriculum for design students and using the World

Design Capital 2014 experience in an effort to establish whether such an experience promotes graduate career resilience/economic empowerment in the 21st Century. I would be grateful if you would answer the following questions for me. Your responses will be kept confidential. If you would like me to contact you for further information, please indicate this at the end of this questionnaire in section 5.

INTERVIEW SERIAL NUMBER:				0	0	8	
Interviewee's name:	[REDACTED]						
Date:	14 March 2017			Female	1	Male	X
Organisation's name:	CPUT			Position held:	Lecturer		
Type of position held:	Lecturer ¹ X	Industry member	Design business share-holder	Other (explain)	Student':		
					Year of study ³		
Subject(s) lectured ¹ or taken:	Professional Practice, Design						
Phone (Landline):	021 460 3444		Mobile:	[REDACTED]			
Email:	[REDACTED]						
Specialisation ²							

SPECIALISATION² CODES

Specialisation	Code	Specialisation	Code	Specialisation	Code
Industrial Design	A	Graphic Design	B	Town & Regional Planning	C
Industry	D	Other	E	Architectural Technology	F

YEAR OF STUDY³ CODES

Year 1	Year 2	Year 3	B.Tech	Master's	Doctoral	Post-doctoral
1	2	3	4	5	6	7

SECTION 1: Introductory and background

1. Why was WDC created?

Started by Icsid and wanted to promote Industrial Design specifically and then Design in general. Started in Torino – we were the fourth after Helsinki and Seoul. Also a marketing campaign for Icsid. It was offered to the Mayor who decided to create a department that could handle it. So ...??Elaine Reesburg and she hired [REDACTED] (my now wife) as a project leader. And another project leader because it just mushroomed –It got too complicated – they didn't realise that doing over 400 odd projects wasn't a good idea until it was too late The next (country) city (Taipei) learnt our lesson – did 12 projects. After getting 4000 projects they curated them down to 12. And those have been given a lot of coverage and a lot of support. a lot of our projects just fizzled out. I have spoken to many other project owners and they said some got far, but not with help of WDC – they were just too overwhelmed. They promoted the name of WDC more than helping the projects of WDC. I ran 4 projects and I didn't know about any of their project management courses – and neither did my wife.

2. In which WDC2014 projects did you/your students participate? (List below).

SECTION 2: WDC 2014 – CPUT involvement:

#WDC 230	Chapel St Clinic: Co-designing healthcare services	
#WDC 245	Driving dreams (Nicky's Drive)	X

#WDC 248	Design storming toolkit	
#WDC 250	R 5K	X*
#WDC 334	mTriage	
#WDC 346	Informal trader	X
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC)	X
#WDC 439	Urban Studio	X*
#WDC 465	Design Garage	X*
#WDC 490	Cape Town Society for the Blind (CTSB) : Design for the visually impaired	
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014	
#WDC 679	Shaping a shared world exhibition	X
*	Indicates I was in charge of project	
	The two projects still running are R5k and Design Garage – and there was Nothing in WDC about them because WDC only worked for location-based projects. R5k did not have a location and so it got no coverage. WDC did not have the capacity to help non-located projects. An oversight because there were too many projects. A delegation from Taipei (2016) learnt lessons from us.	

SECTION 3: WDC 2014 – specific project details

3. Please explain the project(s) in which you were involved.

See pilot interview 001

SECTION 4: Interaction of the CPUT Design Dept. with projects and stakeholders

4. What techniques, ways of collaborating and learning from each other were experienced between CPUT and the WDC2014 project stakeholders?

Because of this – 3 yrs. before this, WDC Thys (from Vega School) an I started Urban Design Studio. – we said let’s start a project that will end in WDC, so we designed that and our students used this platform for them to exceed our expectations and they jumped at it, they loved it. Other than that we used the logos and impetus of it (WDC) and name of WDC to get recognition rather than doing the courses and so did the students. We used the momentum of WDC more than we used the project mgmt. courses.

I did not work with the City at all. I was involved with individual projects.

Students went to shows & went to exhibitions and they saw what momentum and name an icon behind you, you are taken more seriously. They grabbed onto the train of WDC to drag them forward. And that what got the Design Garage, without WDC it still would not have happened. We used WDC as a “reverse hostage”- we have to succeed or you (WDC) will look terrible! Therefore make it work!

Curriculum:

Because we had to define our projects in so much detail to WDC to get onto it, I think I understood my project (R5k) more because of that process, and there is probably a lot of *hidden curriculum* that I am including – but I don’t know what that is.

5. What difficulties were experienced in the collaboration?
6. How did the collaboration experience relate into academic theory for teaching & learning and assessment purposes? – describe and explain

Between Thys and myself and Vega and CPUT (our Dean is very keen on our relationship because of his relationship) –did make it much easier. We were given free range – but schools like Vega aren't and this gave (Thys) him power to do this. We would have worked with Vega anyway and it would have worked fine. WDC didn't help or the City with XXXX, but they did help with Informal Trading (in the beginning) (It was a 3rd year project and I moved out of it when I started teaching 4th year. Rael ended with Informal Trader. Shell Eco marathon I was involved in the beginning (I met with the guys in Delft, Holland) – but then I didn't end with them either – (there was just too much to do) – City didn't help with those projects. WDC Co also only helped located unless you pulled them in. Only half way through the year did I figure out there was a website that had any details. Which cost them R1m to develop (quite impressive) and I didn't know there was a website until half way through the year where I could update my information – that was a shortfall on their side – maybe I wasn't reading all the mails? There were only 400 projects – they could have got us into a room in the beginning and said: these are the opportunities and this is what you need to drive the process – I didn't know I had to drive the process. I just figured because I was a project – they knew about me. We talked about Design Garage Shaping a shared World was a collaboration with Alto (university, Finland). (Bruce and Alice Scott were involved) also. That was good because it brought Alto to us and I doubt that would have happened without the WDC.

How did you assess? Did you do anything differently?

Sadly for Urban Studio, in the WDC year after 3 years of running, Thys got very ill and so he couldn't run it so WDC urban Studio didn't happen at all. Design Garage shop, exhibition space, did the coffee shop did not include any assessments – it was purely experience from a project point of view. The Exhibition wasn't for marks. There was mutiny in my class and most classes in WDC year because we had to run normal curriculum and then add on all these extra things. Our students were burnt out, utterly, utterly burnt out. As were we. We should have as a department decided to teach half as much or do half the projects. WDC just offered so many opportunities to go to shows, exhibitions, to join, to go to places and so many chances of learning – and everyone was keen but it was on top of, on top of on top of and we were burnt out. This was a great lesson.

7. Who experienced learning from this collaboration, and what was learnt?

Do you think the City and WDC Co. learnt anything? I am not sure the City learnt anything. I don't know how much they were involved in it, but I know that... (and this is insider information), that even the people within it (the WDC Co) did not know what was happening because there were so many things happening, so many people calling them a day, so many projects running and so many projects had their own exhibitors, and that and that...and then they had nights when they were promoting it (Design Dialogues). (Elaine Reesburg WDC Co chairman) was amazing – incredible – but nobody can hold this amount of activity together – I don't know what they could have done really – I think they would have learnt that there is a lot of design, a lot of happenings, in CT. But they haven't done anything about it since.- the City. The 400 projects were only the chosen ones, there were lots more – (about 1200). I don't know if that's been taken forward or recognised or not. City has not quite moved up from *design as styling* to the idea that any project could use a designer – CCDI study done in 2012 – by Gillian Benjamin. It's just been re-done and I was the guy who did it! (we finished a week ago) (Design XXX sends call out and for this research and a company called Creative Consultant Development Works won the contract and they hired me as the *Design Thinking* expert and I have been busy with it for the last two months. But we are still at the same level – as “design as styling”, and we have not climbed up the design ladder into the next wrung – we are still between the two – many years later – from 2012 to 2016. I will get the document soon – I don't know what they are otherwise going to do with it (the updated 2014 Study).

Do you think any learning happened?

Well, we've got the R5k project which is linked to the Design Garage which is linked to the Design Park, which are the links we made. So Shaun Pather who used to be in charge of Design Park. He said in 2013/14 *Design Garage was Step 0.1 of the Design Park*, and now Johannes (the Dean) is saying the same thing. The plan is that there are other steps are coming – I have the document for Design Park – so there's a link from R5k to Design Garage which is part of the big Design Park which is the macrocosm of the R5k project. Design Park is supposed to be a collaboration and realisation tool for design and that's the intention for the R5k project as well.

100% of my Industrial Design students have got jobs over the last 5 years. My masters said it was most likely that this was because of the R 5k project. ...I have been teaching 11 years now and I am just starting to figure out that it whether you do well in Industrial Design, depends on what kind of person you are. If you an entrepreneur and “work for yourself” type person, Industrial Design is amazing. But if you just want a paycheque, and to earn a known amount, this is not the place. It is tough for people who need a boss – (plodders) – yes exactly – like accountants etc., people who want a known, defined world. Industrial Design is really tough and its fine when I was in my 20s and 30s, just to have that random world. But now (in my 40s), I would like to calm down – and maybe that’s why I am teaching – to have a regular income – and not worry about being fired, and not worry about not getting projects. It’s difficult, but it’s exciting – that’s amazing. It’s an entrepreneur’s game (not necessarily a young person’s game). Even if you work for somebody else, you have to have that mind-set of an entrepreneur. You have got to be constantly willing to be flexible, constantly willing to be hurt and to be willing to be ‘bent’..

My masters looked at a lot at soft skills – we need them more than the hard skills – the EQ skills. Should we be teaching them at school? The reason why R 5k works is because the self-growth happens throughout the year, and the EQ happens and students figure themselves out – and that’s why they are employable. They are not employable because they can sketch - they can all sketch or cut wood– it’s because they become better people by realising how difficult it is and by learning the hard way.

You should really interview XXXXX (my wife) She was project leader of WDC at the time. – She is now CEO of Health Foundation – an NGO that finds funds for health activities.

In fact the R 5K project has been such a success it has been adopted by two German universities and here locally by...

Some colleagues never participated – you should talk to Darren – he was very negative about WDC.

SECTION 5: Thank you and add0itional comments

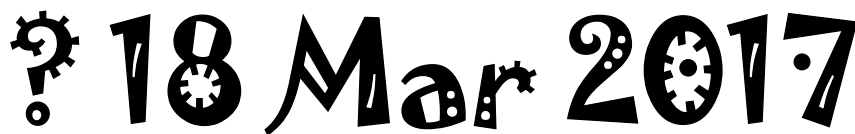
Is there any further comment you would like to make?

A separate authorisation document has been provided; should you wish to know the outcome of this study please indicate this in that document.

THANK YOU FOR YOUR VALUED TIME AND INPUT.

Office use only	Interviewer’s name: Michelle Barnes			Signature	
Date	1403/2017	Start time	14H30	End time	15H03
Scrutinised by				Signature	
QUESTIONNAIRE SERIAL NUMBER	Recording	008			008

Interview 009

 18 Mar 2017

SEMI-STRUCTURED INTERVIEW QUESTIONS

World Design Capital 2014 opportunities for transforming Business Studies curricula

Hello. My name is Michelle Barnes; I am a master’s student in the Faculty of Informatics and Design (FID), Cape Peninsula University of Technology (CPUT). I am presently conducting research exploring aspects to transform the Business Studies (Professional Practice) curriculum for design students and using the World Design Capital 2014 experience in an effort to establish whether such an experience promotes graduate career resilience/economic empowerment in the 21st Century. I would be grateful if you would answer the following

questions for me. Your responses will be kept confidential. If you would like me to contact you for further information, please indicate this at the end of this questionnaire in section 5.

INTERVIEW SERIAL NUMBER:									
Interviewee's name:	[REDACTED]								
Date:	17 March 2017			Female	1	Male	X		
Organisation's name:	CPUT			Position held:	Lecturer				
Type of position held:	Lecturer ¹	Industry member	Design business share-holder	Other (explain)	Student ¹ :				
	X				Year of study ³				
Subject(s) lectured ¹ or taken:	Communication Design I Design Techniques I								
Phone (Landline):	021 460 3464			Mobile:	[REDACTED]				
Email:	[REDACTED]								
Specialisation ²									

SPECIALISATION² CODES

Specialisation	Code	Specialisation	Code	Specialisation	Code
Industrial Design	A	Graphic Design	B	Town & Regional Planning	C
Industry	D	Other	E	Architectural Technology	F

YEAR OF STUDY³ CODES

Year 1	Year 2	Year 3	B.Tech	Master's	Doctoral	Post-doctoral
1	2	3	4 Busy	5	6	7

SECTION 1: Introductory and background

1. Why was WDC created?

Cities are chosen every two years/ elected to be WDC and a lot of Design focus happens around that. I think the main focus - Open Design here in CT. That touch point everyone had to understand what WDC2014 was all about. That is the one I connected with the most.

I was a participant but "the Urban Studio" project was an interesting project - started four years before so that when 4th years got the 2014, It was an Urban Studio baton handed over, Students from various design disciplines and institutions to take part in the community or based outdoors. At about 2010/11 - there was a lot of focus - it wasn't a massive community involved and then we got the WDC2014. One of the major things on the cards was an area of Ct known as the Design District. It was a space that was the East City - down the road - CPUT were on the edge of that space we were drawn in. It seemed to be an amazing project. Hence the Urban Studio was about looking at that space and what that space could become. How would one address this land to make something for WDC? There were tonnes of meetings but I felt the arrows were always pointing away from each other. It was a lot of students - started in 1st year. Graphic CT & Bv were involved with Vega school and Industrial Design. Vikki & Darren's first year students were involved. I am not sure what they did. Then they went into 2nd year and the baton was going to be passed. People couldn't see the point. Both for CPUT and Vega. At that stage I was coordinating 2nd Year and Johan in Industrial Design downstairs and Thys de Beer of Vega. So we then took it on to make sense of it. There were a lot of students - about 200. The idea was to keep students away from the university. The idea was to get students to engage with the real world. I gained an administrative experience - it was one week a term - the logistics of getting anyone involved. Students weren't really on board. I gained administratively. It almost didn't become part of the syllabus - it was not an elective. You had to do it. Some things were produced. We had from the Veg aside...well we had 2nd year students and honours students from Vega who took on a leadership role, So these guys were made head of sections and had people underneath them and we made sure that they had Cape Town & Bellville campuses Graphic and Industrial Design. But there was no formal assessment. It was very much a university project. We would brief them on what they should be doing and they had a week to do it. It was an academic student project. They had to meet. In the beginning it was an assessment

of the area. There were regular presentations. They would come back with designs. Homeless people became a big area. The area hasn't changed much – we are talking 7 years later – there are specific reasons for that. This was a very interesting thing that happened. I organised a group of students coming from Cologne University (Koln). They were working on a worldwide gentrification project. In Berlin. There were major riots. They had worked on that project. Now their idea was to move around the world and look at other examples of gentrification. The idea was they would gain and lose students along the way. They have projects rather than first, second and third year. Very different from us. It's about what you can do towards the project. They came over here – they ran the week for us – I organised it that way. They were going to look at East City through lens of gentrification – it maybe 2013 – no-one had even considered gentrification at that point so it was a really interesting project. They ran workshops and there was a great handshake between them and us and Vega.

I gained maybe because of the Urban Studio Project I actually went to Koln. It was probably administrative (that I gained) – more about “how did we make this work” – it was really project management skills – I was going to a conference and tacked this on to my trip. With our Urban Studio Project I became more connected with the people who were doing the Design Park. There were lots of little groups doing all kinds of things. UCT did a massive gentrification project almost at same time. Remember now we are in year three (2013) and nothing is happening! The only thing that ever happened is that Charlie's Bakery moved in and that was the only thing in 3 years! So we were trying to find out why there was no developing. I connected with Michael Wolff (of Formula D – action design). They moved to the area because the Design District would exist and there would be galleries etc. Michael Wolff moved out later. I got the feeling that the area was still run down. Reasons: a lot of the buildings are privately owned and have “low-end” tenants. What I heard through the grapevine was that the owners weren't interested in selling buildings or chasing out their tenants. They were comfortable. Also all the spare land is owned by the municipality. Then the third thing happened: the District Six Organisation became interested. There had been no Inclusive Design. One student from Koln spoke about what they had done here and various people spoke about WDC and Design Park. No-one had ever spoken to the people on the ground. Now a bunch of designers were coming in and imposing – from that moment the file closed. There was no consultation in this historical space. In a way, we exposed the gentrification through the Koln students. I think Andrew Putter was going to build a sculpture park – he came and spoke. And that's when to me the whole thing died. It was the third year. Then it carried on in 2014 WDC. Now students had travelled to 4th year from first year. Some posters and presentations were done. So B.Tech Graphic and Industrial Design (Bruce, Andrea & Johan). Not sure how Vega was involved in 2014. Thys fell ill and no-one else from Vega was involved. So more academic rather than pop posters were produced. It's quite interesting because more recently things are starting to move in the Harrington St area, Shops & restaurants, On Roeland St and Buitekant St – they were seen as the borders of the East City– things happened there – so now things developed, Formula D moved in, an outdoor group moved in, the old Assembly building was renovated as is the CTTI Building – I think like the Woodstock...there's a coffee shop. A bagel shop and Charlie's is still there. Maybe the ripple effect has happened. Under the watchful eye of the District Six group, I guess, what was envisioned never really happened.

2. In which WDC2014 projects did you/your students participate? (List below).

SECTION 2: WDC 2014 – CPUT involvement:		
#WDC 230	Chapel St Clinic: Co-designing healthcare services	
#WDC 245	Driving dreams (Nicky's Drive)	
#WDC 248	Design storming toolkit	
#WDC 250	R 5K	
#WDC 334	mTriage	
#WDC 346	Informal trader	
#WDC 394	Dept. of Town & Regional Planning Informal settlement upgrade of Flamingo Crescent	
#WDC 425 & 491	Shell Eco Marathon and the Product Lifecycle Management Competency Centre (PLMCC)	
#WDC 439	Urban Studio	X
#WDC 465	Design Garage	

#WDC 490	Cape Town Society for the Blind (CTSB) : Design for the visually impaired	
#WDC 603	SEED – a walk on the wild side	
#WDC 662	Sustainable housing – multidisciplinary Service-learning project	
#WDC 674	CPUT Formula Student 2014	
#WDC 679	Shaping a shared world exhibition	

SECTION 3: WDC 2014 – specific project details

3. Please explain the project(s) in which you were involved.

The B.Tech students of 2014 would be out working now. The thing that worked was working in different groups- both interdisciplinary and ...

Gaining that cross-cultural experience was useful – taking projects into the urban space was interesting – not all sitting at your desk Googling and coming up with solutions – Even with the early days of going down, they saw the homeless people, the dirt, they got a sense of things, The research-gathering was very real - in their groups – you guys talk to...the homeless, people who park there...the human capital who were using the space. Students got a real-world experience. As designers they learnt: Don't make assumptions based on your preconceived notions and... That is problematic -they learnt humility, themselves. The idea that - if they are designing a logo we say what are you doing here – you must go and look and document, photo, find samples, talk to people... When they did that analysis the presentations were via slides and interviews (with homeless people) . They were real people with a story, that story is powerful. The gentrification lens asked do we move these people out? Or how do we integrate them into the new East City? I think that a lot of the time with the homeless people around Fruit & Veg City, it is a comfortable space. If it gets developed, they are like nomads, they will go somewhere else. I gained a philosophical perspective and my students but it never affected my assessments *per se*. I think the level of engagement in Urban Studio was at a higher level of engagement. With 200-250 students perhaps 30 went along with the project (from 1st to 4th year). it was difficult for us as lecturers. It was more about learning about researching in the real world than giving marks. Because there were so many students, if some fell off, it was probably better for those who stayed with the project. We would have a Monday briefing – Mugendi was hear, Michael Wolff came – we saw them again Friday. We supplied them with what they needed and they were alone for the week. Simple things like working in a team and trying to stay on-point and not be tempted to fall off...the difficult thing is, What would happen if we ran the project now?

There has been a radical difference in the students we have now. Because of our portfolio acceptance now, the portfolios are poorer than previously. The *Fees must Fall* campaign has had an effect. Parents looked to see: can we get value for money here? The Admin building still has smashed windows – if students arrive here with parents – what do they think? In the Student Centre all windows are still smashed. I think The *Fees must Fall* has tarnished CPUT image. The 2nd term will be the tell-tale term. I have been lecturing now almost 20 years now and it is a chalk& cheese situation to what we have now. It is becoming more difficult to work with students - there is a lethargy, there's no drive in the students. Students seem glad to get 52% - “yah we passed”. That describes things. I don't know whether it's the schooling system - I don't like to blame downwards. But overall there is drive and pride lacking. Some students gained a lot in WDC and others gained very little to nothing. I wasn't too concerned that people would walk away. Also from a staffing viewpoint. If projects are going to run through years, there needs to be someone running it. Are papers going to be written out of it?

I knew I had inherited a ‘bit-of-a-dog’ after talking to Vikki and Darren. Johan, Thys and myself tried to get things going. We battled in our meetings. In the end, knowing for WDC, only an extremely small

percentage of students would end up in WDC. (I think there were 5 groups ...lets say there were 150 dealing with it in 3rd year there was say 20 in B.Tech. The idea was that by the time this group got to 4th year - it needed *one* person to stay with the project, say someone doing a D or M who was collecting data for research. That was my biggest involvement leading up to WDC. What we also worked with Interaction-Design (Michael Wolff) group. The Design Dialogues were not really WDC related although a core of CPUT people worked on WDC stuff and the rest of people weren't involved. Nothing happened here in CPUT space that was WDC related. I know the Alto University came here but it felt isolated.

I think a WDC thing is worth being involved with – anything that allows us and students to be exposed to Design, it is important for Industry to know what's going on at CPUT – I don't think there is enough of that going on. I think CPUT Applied Design Dept. needs to be seen as a brand to the Design Community. We are BIG, we need to be seen that way. Exhibitions are a good start.

SECTION 4: Interaction of the CPUT Design Dept. with projects and stakeholders

4. What techniques, ways of collaborating and learning from each other were experienced between CPUT and the WDC2014 project stakeholders?
5. What difficulties were experienced in the collaboration?
6. How did the collaboration experience relate into academic theory for teaching & learning and assessment purposes? – describe and explain
7. Who experienced learning from this collaboration, and what was learnt?

SECTION 5: Thank you and additional comments

Is there any further comment you would like to make?

A separate authorisation document has been provided; should you wish to know the outcome of this study please indicate this in that document.

THANK YOU FOR YOUR VALUED TIME AND INPUT.

Office use only	Interviewer's name: Michelle Barnes			Signature	
Date	1703/2017	Start time	10H30	End time	11H20
Scrutinised by				Signature	
QUESTIONNAIRE SERIAL NUMBER	Recording	009			009

APPENDIX C

WDC 2014 PROJECTS IN WHICH CPUT PARTICIPATED:

Recognised WDC 2014 projects in which CPUT is participating:

WDC NUMBER	Initial published project information	Contact person/Further information
#WDC2 30	<p align="center">Chapel Street Clinic: Co designing healthcare services</p>	Rael Futerman
	<p><i>This collaborative project between UCT Lung institute, CPUT's Design Department and staff of Chapel Street Clinic aims to improve healthcare services at government clinics throughout the Western Cape. The outputs include co designed spaces and a toolkit for further clinic collaborations.</i></p> <p>Connecting with communities is a central focus of the UCT Lung Institute's vision and mission, a focus also shared by the CPUT DESIS Lab. These connections take on various forms with a recent decision to expand the Institute's footprint in an attempt to give a little something back and in so doing attempting to impact whole communities, if even in a small way.</p> <p>Chapel Street Clinic in Woodstock, a day clinic with which the Institute has enjoyed a long and productive relationship, was recently earmarked as the first site for a redesign and refurbishment project, in an attempt to bring one of the oldest clinics in the City into the 21st century while remaining sensitive to its history, functional requirements and place within Woodstock.</p> <p>An all-inclusive community-centric approach was employed which saw the Institute seeking financial involvement from the local business community. This involvement came in the form of the Lewis Group, which has been headquartered and involved in the Woodstock area for 60 years. Further collaborative relationships were pursued and saw various individuals, corporate entities and academic institutions becoming involved in numerous capacities. One such collaboration has seen CPUT's Industrial Design department throwing its full weight behind solving some of the clinic's challenges as far as workflow and user--friendliness are concerned in an attempt to find real solutions to real problems. Key to this collaboration has been seeking solutions that are implementable in healthcare clinics throughout the City as the Institute rolls out an extensive plan to redesign and refurbish clinics throughout the Metropolis.</p> <p>With the structural work completed, the clinic continues to transform. Bringing a sense of Cape Town's unique spirit and beauty is a key aim of this transformative process. From graphic & industrial designers to budding child artists, to graffiti artists, to vinyl maestros, they're all lending their expertise in transforming Chapel Clinic into a space that represents something of what serving the healthcare needs of communities could really be about. We are of the view that such collaborative processes represent a</p> <p>Sustainable and achievable solution and seek World Design Capital 2014 recognition as a means of elevating the profile of this worthy endeavour and showcase how tertiary institutions, designers and communities can co-create places of value. We are open to collaborating with other projects both for</p> <p>WDC 2014 and beyond as a way of furthering our own knowledge and aiding others in reaching new heights.</p>	Dept. of Industrial Design: FID: CPUT

	<p>How does it use design to improve lives?</p> <p>This project embraces a poly-disciplinary approach, necessary in working to solve complex design problems. Initial research used service design and participatory design methodologies to collectively identify issues around the delivery of healthcare in a specific context, i.e. Chapel Street Clinic.</p> <p><i>Co-design workshops were held with staff members to make explicit, processes and procedures inherent in the current delivery of healthcare services. Key areas of concern were identified, with industrial designers picking up the next iteration of involvement. The designers are currently using the knowledge and information these participatory sessions made known. The next design iteration (July to November 2013) involves industrial designers working with the staff to conceptualise a multi--use child waiting area; improved storage for pharmaceutical requirements and to reduce cross contamination of samples; as well as an improved baby--weighing station, amongst other focus areas.</i></p>	
#WDC 245	Driving Dreams	Prof. Mugendi M'Rithaa
	<p><i>The Project is a Driving Simulator for Differently-abled drivers who don't have the use of arms or hands.</i></p> <p>Nicky Abdinor has been born with PFFD and Phocomelia and in 2001, obtained her driver's license at the traffic department in Stellenbosch. Her car is a donated vehicle from the UK. Although the Honda Civic was fitted with adaptations to drive, other adaptations were required before Nicky could drive. Nicky has her own practice as a Clinical Physiologist with a Master's degree and thus personal transportation played an important part in her studies and the development of her career because she had to travel between patients and the hospital (Nicky Abdinor, 2012).</p> <p>The challenge for Nicky however is that she needs to replace her car and thus the adaptations need to be removed. A problem with removing the adaptations is that they were custom made to her 1995 Honda Civic and thus would not fit a different make and model car. There is also the technology viability factor to consider since her new car has a different steering system. In 2007 Nicky approached Prof Mugendi M'Rithaa who involved various other departments of Cape Peninsula University of Technology.</p> <p>Thus the project is approached as a collaborative project, the departments involved are Prof Mugendi M'Rithaa (Industrial Design), Prof Oscar Philander (AMTL TIA Technology Station) and Prof Simeon Davies (Sports Department). With the help of Nicky Abdinor student had the opportunity to within their respective disciplines get involved in a universal design project with the focus of enabling a user or a group of users for the better.</p> <p>The student involved are: Gerhard Coetzee, (Industrial Design, Masters, Project leader) Cyprian Onochy, (Mechanical Engineer. Btech Student) Mzikayise Mafilika (Mechanical Engineer. Btech Student) Stephen Hendricks (Mechanical Engineer. Btech Student) Leila Matavel (Mechatronics Diploma Student) Romuald Kouami Tchamba (Mechatronics Diploma Student) Luc Coetzer, (Mechatronics Diploma Student)</p>	Dept. of Industrial Design: CPUT

	<p>How does it use design to improve lives?</p> <p>The Impact the Project has is double-fold, since it's the first of its kind in Africa the team are doing ground-breaking research. Nicky the user of the simulator at this stage are involved in the technology and product development as an irreplaceable partner due to believe that without a user to give input the simulator can't be designed to function properly. Nicky represent differently abled drivers thus the results and findings of the simulator will have an impact on the disabled driver community as well as the exposure that students get designing the simulator.</p>	
#WDC2 50	R5K	Johan van Niekerk
	<p><i>The R5K project is a CPUT 4th year Industrial Design project that aims to give our designers a safe space to design, produce, market and sell local products that will introduce them to the design market in Cape Town.</i></p> <p>The problem that we have in education is that graduates need experience and a portfolio to get employment. The R5K project gives them the experience of a viable business as well as an entry into a market by means of a product that they earn an income from.</p> <p>The task of the R5K project is to earn at least R5000 by selling Industrially Designed products to a South African market. We are in our 4th year of this project, and it has proven an invaluable tool in the transition from education to industry. In some cases groups have eared R140 000 and most product continue to sell after graduation. Names are made, and the companies started at CPUT gain attention and acclaim. We would like our R5K project to help our students even more by giving them more coverage.</p> <p>How does it use design to improve lives?</p> <p>Our students use the R5K to pave a path into self-employment (or as a portfolio piece for employment.) It gives the opportunity to start and maintain a live business and make a profit far beyond the constraints of our brief.</p>	Dept. of Industrial Design: CPUT
#WDC3 34	mTriage	Prof. Retha de la Harpe
	<p><i>The Triage is a robust medical innovation that measures basic vital signs of patients. It is particularly useful in the low resource contexts and war zones to prioritise patients in emergency situations.</i></p> <p>The mTriage system is a multi-parameter mobile-assisted device to improve efficiency and effectiveness of triage in emergency departments of the developing world. The project uses the South African Triage Scale (SATS) as the basis that was also adopted by Médecins Sans Frontières as suitable for low resource settings. SATS is a composite scoring system that utilizes the clinical parameters of heart rate, blood pressure, respiratory rate, temperature, neurological score and presenting symptom</p>	FID: Research Dept.

	<p>to classify patients into different acuity categories. Triage is the process of rapidly assessing and sorting patients according to severity of illness. This device will combine the detection of the four clinical parameters and connect with a mobile computing device. A score indicating illness severity will be calculated and displayed automatically after an application prompts the user with additional questions. This should reduce triage time, improve accuracy and reduce the level of training required for triage.</p> <p>The nature of the contexts in which the mTriage system will be used requires a careful design that takes into consideration the complexities associated with these contexts. A participatory design approach was used involving all the different user groups who actively co-designed the proposed prototype. The mTriage system has the potential to transform lives, especially those who most often suffer from situations where medical care could not be provided when needed at the point of care. The contribution to the WDC is a project that combines the expertise of highly trained and sophisticated users such as the emergency doctors, highly technical persons such as the developers and engineers with designers and nurses with basic training as end-users in difficult emergency settings as part of multi-disciplinary teams during the co-design process.</p> <p>How does it use design to improve lives?</p> <p>By means of situated innovation, the project leverages local perspectives of participating users that represents a multi-disciplinary team of emergency medical doctors, bio-mechatronics engineer, product designer and software developers. Each user contributes their own design experience relevant to their field to the co-design sessions therefore adding different dimensions of design and expectations to the design of the final product. The project is driven by the emergency medical doctors who conceptualised the idea of a mobile triage system based on the South African Triage Scale that was also adopted by the Médecins Sans Frontières suitable for war zones and disaster areas.</p>	
#WDC4 25	Shell Eco Marathon	Michael Petersen
	<p><i>To revolutionise the automotive industry with a hydrogen-electric vehicle made completely of recyclable, low environmental impact materials that uses a range of energy regenerative technologies for a highly efficient, zero emission daily commute.</i></p> <p>Through combining the expertise of mechanical engineering, electrical engineering and industrial design, with the use of advanced computer aided design, simulation and Product Lifecycle Management. The Shell Eco-Marathon Urban Concept Vehicle is the perfect way to combine the need for eco-friendly transportation, innovative engineering and design into a project which has the ability to change the lives of many South Africans and the future of the planet.</p> <p>How does it use design to improve lives?</p> <p>This project will help reduce the need for fossil fuels and the use of non-biodegradable materials in the automotive industry, reducing the strain on the planets resources and environment. The easy construction of the vehicle will provide jobs for many South Africans and the vehicle will provide affordable, eco-friendly transportation for the country and eventually the world</p>	Faculty of Engineering: CPUT

#WDC4 39	Urban Studio	Johan van Niekerk
	<p><i>The Urban Studio Project is a strategic, creative and exploratory collaboration between academia and industry and aims to engage all stakeholders in 'fringe areas' in the CT to identify areas where design thinking could be implemented to enable positive change.</i></p> <p>Multidisciplinary teams consisting of B.Tech Industrial Design (Graphic and Industrial Design) students from CPUT and BA in Brand Building and Management as well as BA Honours in Brand Leadership students from Vega Cape Town and Köln International School of Design (KISD) & Formula D participated in this real-life challenge to question current status from various perspectives, frame problems and conceptualise solutions. This project aims to become a Cape Town 2014 Design Capital Signature Event and has been focusing on 'The Fringe' which forms part of the East City Precinct in Cape Town.</p> <p>The project has been running since 2011 when Prof Johannes Cronje (CPUT) and Dr Franci Cronje (Vega) in 2011 initiated it. The aim was to evolve a location-based, socially-focused project from 2nd to 4th year following a group of students as they advance their studies culminating in an initiative that would be presented as a collaborative project for the 2014 World Design Capital;</p> <p>Our Project goals are to engage a social challenge in or around the City of Cape Town and to design a meaningful and original solution to the challenge: Use Design Thinking as a concept which underpins the project and engage with theories and principles which pertain to Design Thinking;</p> <p>Conceptualise possible creative-strategic solutions with a particular focus to problematic situations faced in the 'fringe areas' in and around the City of Cape Town, on the area and residents of The Fringe and District 6 (Specific focus for the current project);</p> <p>Develop appropriate creative-strategic solutions to best communicate the concept;</p> <p>To enable multi-disciplinary collaboration and enhance diversity in thinking: Engage with all stakeholders in this area to identify niche areas where design and design thinking could be implemented to enable positive changes for all stakeholders.</p>	Dept. of Industrial Design FID: CPUT
#WDC2 48	Design Storming Toolkit	Bruce Snaddon/Rael?
	<p><i>The Design Storming Toolkit will provide a carefully researched and written guide for anyone practicing design for participation. The toolkit will be drawn from experience gained in similar co-design workshops and written up by a multi-disciplinary team at CPUT.</i></p> <p>The WDC 2014 bid was built around the ultimate goal of achieving a "sustainable, innovative, inclusive and more liveable African City rooted in the strengths of our people and communities" (WDC Bid Book). The Design Storming Toolkit aims to contribute toward achieving this goal in the way it provides a user-friendly guide for Cape Town's civil society (designers and non-designers alike) to practice design for participation. A key premise of design for participation is that unless it facilitates</p>	

	<p>emancipator development from within the community, there is little that is sustainable about the approach - a toolkit that allows mutual learning amongst all participants to create a common meaning is needed as we venture forwards on our WDC journey. The Toolkit will be offered open source to the people of Cape Town to use and will be built using methods of appreciative inquiry, by participants for participants. Lessons learnt from other co-design experiences will be incorporated and careful thought will be given to the management of expectations that grow out of offering design as a means of improving people's lives. "Co-design methods should be designed with participants based in their existing methods of problem-solving, co-creation etc. If we are to see true self-mobilisation of communities and true active citizenship, designers need to see participation as an end. This I call design for participation and relates better to the empowerment of people by looking at the design of tools vulnerable communities can use to actively drive change from within" (Rael Futerman)</p> <p>How does it use design to improve lives?</p> <p>The Design Storming (DS) toolkit aims to facilitate engagement and knowledge building by all participants, including facilitators/designers, during the front-end or pre-design/planning phase, resulting in more reliable information in guiding the collaboration. A process that is rooted on open and meaningful communication is essential to learning. Mutual learning can effect positive change and empower community members to become active citizens. The DS toolkit will be developed through action research, offering designers and planners working in the field of social innovation a new set of social science tools, informed by our complex context</p>	
#WDC4 65	Design Garage	Johan van Niekerk
	<p><i>The Design Garage is a CPUT initiative space where current students, alumni and any other emerging designers that are producing small to medium runs of quality designed goods can retail to the public.</i></p> <p>Design Garage is a space where emerging designers can showcase and sell their work. It is the gateway to the design precinct and is located next to the Ferrari garage. The Design Garage will take on a phased approach and will use the Design Festival as a launch platform from 21st August 2013 to 31st August 2013. This ensures that the Design Garage up and running where various projects will be showcased and design dialogues facilitated in preparation for 2014. The Design Garage is multi-disciplinary and provides an interface for emerging designers to interact with industry and the public in a flexible setting where sales and exhibitions can happen.</p> <p>How does it use design to improve lives?</p> <ul style="list-style-type: none"> - Raise industry and public awareness of the level of design expertise at CPUT - A highly affordable retail outlet for emerging creative that encourages entrepreneurship - Design Hub and Academic space - Design Incubator - Design Gallery - A space that allows for interaction with industry partners - Designer residency 	

#WDC4 91	The Product Lifecycle Management Competency Centre (PLMCC)	Michael Petersen
	<p><i>The PLMCC is a centre that trains students, technicians, technologists, engineers and industrial designers in the art of product design and product lifecycle management (PLM). PLM is the simulation of the entire lifecycle of a product using advanced PLM tools.</i></p> <p>PLM is the process of simulating and managing the entire lifecycle of a product from its conception, through design and manufacture, to service and recycling. PLM integrates people, data, processes and business systems and provides a product information backbone for companies and their extended enterprise.</p> <p>The PLMCC is destined to play an indispensable role in the training of engineers and designers in PLM and the use of modern innovative technologies for product innovation and manufacturing. This will provide the knowledge and skills necessary for participation in the highly competitive aerospace, automotive, space and energy industries. In this way, it will provide the South African industry with a human capital development platform to enable migration to higher levels of design and manufacturing capability, thereby increasing its participation in the knowledge economy. As such, it is vital that the global strategic partnerships, and particularly in Africa, are built. The PLMCC is an important measure towards building such partnerships and realising the ongoing development and rejuvenation of human capital for future positioning and sustainability.</p> <p>The PLMCC is located at the Cape Peninsula University of Technology (CPUT), in its Engineering Faculty. Training of B-tech and M-tech Mechanical Engineering, Industrial Design and Electrical Engineering students is current. The PLMCC is also hosting and supervising numerous projects from different departments within CPUT, e.g. Design of the Formula Student electric racing car, Design of the Shell Eco Marathon urban concept car, solar water heater project and low cost wind turbine project. The PLMCC also has three Master students and one Doctorate that are doing projects specific to the PLMCC.</p> <p>How does it use design to improve lives?</p> <p>Product design is recognised worldwide as a crucial element of economic growth and competitiveness. Design and innovativeness can help to overcome the national challenges of high unemployment, poverty and inequality. This technology platform will enable the reform of engineering curricula and act as an integrating agent for multidisciplinary R&D; geared towards industrial and socio-economic impact. This project also shows how design can be practiced in a more sustainable manner in the way it lessens damaging impact on the environment (fewer badly designed and unwanted products), creates more economic viability and social capital rejuvenation.</p>	
#WDC6 62	Sustainable Housing – Multidisciplinary Service-learning project	Jacqueline Scheepers
	<i>The project designs and constructs a fully functional model-house with alternative and sustainable building materials, using building methods, which are suitable for owner-building and cheaper, with increased energy</i>	

	<p><i>efficiency and quality than conventional building, for local people to experience.</i></p> <p>These are the activities that our project team would like to offer the delegates of the World Design Capital: We would like to request an exhibition space where we can have an interactive exhibit of our project and where staff, students and our partners can engage with the delegates and also display some of the project processes and artefacts. We envisage setting up an exhibit that uses multimedia including the designs and construction processes. Depending on the space provided, we envisage displaying a small-scale model of the house;</p> <p>It is important that our delegates are able to observe and interact with those staff and students who are actively involved in the project. Therefore a tour to our university campus will be arranged for delegates to visit our on campus exhibition space where detailed discussions, demonstrations and presentations can take place; and In order for our delegates to experience and interact with our project in a real-life community context, we envisage arranging a practical building experience to take place on a community site where they can actively participate in some of the construction processes. This process will enable the delegates to see the design come to life in a tangible and practical way.</p> <p>How does it use design to improve lives?</p> <p>The design aims to reduce costs and increase the speed of low-cost housing construction, using sustainable, environmentally friendly processes, products and materials, aiming to make housing accessible to everyone. It combines commercial income generating activities with domestic living. Aesthetically, it improves on traditional RDP housing, adding an attractive element to the community. Spatially, it effectively uses space creatively for the benefit of the users. The energy efficient structure contributes positively to the health, comfort and well-being of the community end-user. Home owners can experience greater ownership, pride and participation as the design encourages interaction between the community and the environment.</p>	
#WDC3 46	Informal Trader	Bruce Snaddon/Erica Elk
	<p><i>This is a multi-stakeholder project involving CPUT, Creative Cape Town, City of Cape Town, Cape Craft and Design Initiative and the informal trader community. The project examines and proposes solutions to the challenges faced by the cities street traders.</i></p> <p>Erica Elk of the CCDI writes, "We should start thinking of and treating informal traders as street traders or citizen traders – to de-stigmatise them and embrace them and the activity as part of the fabric and texture of our lives and communities. Sure there is a need to formalise, regulate, manage, and generate more funds for the focus. But we can do it in our own uniquely South African way and it does not have to involve getting people off the streets." Erica also quotes Mayor de Lille as saying “the informal sector must be viewed as a vital, and dynamic, component of our economic eco-systems...this activity does not happen in some discrete place, separate in space and time from the formal sector... a vibrant city is one filled with the kind of activity generated by informal trading - it adds a distinctive character to the Cape Town brand”</p>	

	<p>These sentiments echo the approach of the project which is human-centred and sensitive to the effects of separate development legacy from the apartheid era. The project would engage with a vigorous research phase considering all angles before a brief is written for the CPUT design students to work to. The prototype outcomes will be ready for showing during the August 2014 Open Design festival.</p> <p><u>How does it use design to improve lives?</u></p> <p>This project aims to 'facilitate engagement and knowledge building by all participants, including facilitators/designers, during the front-end or pre-design/planning phase, resulting in more reliable information' (R. Futerman) in guiding the written brief and subsequent design phase/s. This will ensure that, as the team of CPUT staff and students engage with the user group of street traders plus local government, the process will be guided by ALL stakeholders having their say.</p>	
#WDC6 74	CPUT Formula Student 2014	Prof. Oscar Philander
	<p><i>Formula Student UK is the most prestigious academic motorsport competition of its kind in the world. In 2014 a multidisciplinary team of CPUT students will once again compete in this international competition.</i></p> <p>CPUT's Formula Student project brings together students from different disciplines and backgrounds with the common goal of building a single seat race car for participation in the Formula Student UK competition in 2014.</p> <p>The project enables student's to partake in the design and development of a race car and then subsequently manufacture it at the University. Students learn about the challenges faced when designing and manufacturing a vehicle, the materials and its properties as well as the manufacturing processes involved.</p> <p>Not only does the competition require that the vehicle be technically sound, but the business and finance aspects also need to be addressed by the team. Another key responsibility of the vehicle's design is that of ergonomic considerations, making sure that vehicle is designed around the driver and ensures that he/she can pilot the vehicle with the greatest ease and comfort. All of these factors can only be achieved by a team that works closely together and understands the importance of effective communication in a teamwork orientated competition. Students learn about the importance of good management during the design and manufacturing stages as well as the importance of coordination during race days.</p> <p>Currently the team of CPUT students are busy developing a vehicle with an electric power train. It is the vision of CPUT to remain at the heart of innovation, and be taking on the challenge of creating an alternatively powered vehicle; they are not only embarking on an exciting new chapter of engineering education, but also teaching students to look at technologies that will contribute towards sustainable solutions for the future.</p> <p><u>How does it use design to improve lives?</u></p> <p>The Formula Student vehicle is being designed on the very latest software using the Product Lifecycle Management approach. By using a PLM</p>	

	<p>approach, it is possible to predict the outcome of the product in various real world scenarios. A Digital Mock Up allows the engineers and designers to foresee what issues there might crop up in terms of manufacturing, ergonomics, material strengths and weaknesses, aerodynamics and procurement. This allows the design team to "build the car, before it's being built." Using the PLM approach can have far reaching benefits in the design planning of any product.</p>	
#WDC3 94	<p>Dept. of Town & Regional Planning Informal Settlement Upgrade of Flamingo Crescent</p>	Nigel Tapela/Jake de Villiers
	<p><i>Through professional experience we aim to empower poor communities within Slums via the tool of design whereby we play a facilitating role - making the community the process and not just part of the process as in the past.</i></p> <p>Land as a fundamental resource within our country and its subsequent scarcity has been a topic debated since the late 80s. In looking at Cape Town as a living example, the City of Cape Town's Sustainable Report (2005) and Informal Dwelling Count (2007) portray that in the year 2007 informal settlements totalled 108 899d/u – a figure which many professionals argue has increased by over 20% at the end of 2012. There has been a significant increase in the levels of interest within the South African higher education sectors in the experiential pedagogy of service-learning. The Cape Peninsula University of Technology (CPUT) has integrated community engagement into its academic planning documents as one of the six strategic directions of the university in response to the 1991 Education White Paper on the transformation of higher education.</p> <p>The current debates taking place on the conceptualisation and integration of community engagement as a core function in higher education tries to understand how knowledge generated by such activities is to be understood or transmitted .The Department of Town and Regional Planning at CPUT registered its first service-learning project in January 2013. The project includes community led enumeration and mapping of the Flamingo Crescent Informal Settlement to facilitate basic service delivery through structural re-blocking. A community partnership was established between the Informal Settlement Network (ISN), the Community Organisation Resource Centre (CORC) and the Department of Town and Regional Planning.</p> <p><u>How does it use design to improve lives?</u></p> <p>The first phase of the project involved community-led measurement of Slum shacks. Students taught community members the basics of measuring. A tape measure, spirit level and Trimble Mobile GIS Unit were used for this exercise. Together students, academics and the community members were able to quantify, number and geo-reference each shack and record it electronically (GIS and CAD).</p> <p>Field measurements were used to draw plans. The plans provided the community with a comprehensive 'as built' layout that could be checked and verified by the community.</p>	
#WDC6 03	<p>SEED – A walk on the wild side</p>	Hermie Delpont-Voulgaris/Dept. of Architecture/SEED
	<p>Bridging the Divide: Town to township to learn, experience well designed sustainability solutions, urban renewal, and memory project. Today for tomorrow - Rocklands' seeds education, community enterprise, youth</p>	

	training. The tours are part of the community enterprise plans and will be enriched by this	
#WDC6 79	Shaping a Shared World	Alice Scott
	<p>This joint exhibition is an interpretation of the ten megatrends towards 2020. It is based on and inspired by the 2013 exhibition of Aalto University's annual graduation show Masters of Aalto in Helsinki, Finland, curated by designer Arni Aromaa. This exhibition responds to the question on "How can we create the future we want?" It showcases the innovative works from two Higher Education Institutions – one from the North and the other from the South. From two World Design Capitals: Helsinki and Cape Town.</p> <p>As our world is constantly screaming out its needs and wants, it reveals an endless stream of moral dilemmas, opportunities and tough challenges. How do we make the right call, build the right things or plant the right approach? These are the questions that have shaped our exhibition. The answers from both Aalto University and Cape Peninsula University of Technology graduating students are as wildly diverse as they are on point. Dismantling the false barriers between science, design, art, politics and myriad of other disciplines means arming oneself with formidable resources to transform the world. These students are already shaping the future – and you can see the seeds of revolution right here.</p>	
#WDC4 90	CTSB (VIP): Design with the visually impaired	Luyolo Sishuta/Johan van Niekerk
	<p><i>VIP is a social awareness campaign that aims to bridge the gaps between the sighted and non-sighted through a local NGO, named the Cape Town Society for The Blind.</i></p> <p>Last year, 4 third year graphic design students from CPUT created a social awareness campaign for CTSB. This campaign revolved around the idea of integrating CTSB within the upcoming and recent creative community of Woodstock. The reason for this was because we saw the potential of the weaving and craft department, and it occurred to us that what CTSB was doing, was in itself design. It was design by non-designers.</p> <p>Our campaign was named VIP, which means, Visually Impaired Person and Very Important Person. We wanted to showcase the difference CTSB made in people's lives, and in turn raise awareness for the NGO within their community, this being Woodstock. We discovered that the products created at CTSB had no real identity and branding. Moreover, we felt as though the design was somewhat outdated. Thus, a campaign based on branding, communication and awareness was born.</p> <p>We created a new corporate identity, website, tags... The list goes on and with this came the plan and the roll out for our campaign. A core element of the campaign included a series of workshops in which the blind and partially sighted craft workers would interact and learn from sighted craft students, where skills and techniques could be learnt and shared. With both parties benefiting from the entire experience. This would increase the look and aesthetic of the products being made, allowing them to appeal to the the booming design orientated market in Woodstock.</p> <p><u>How does it use design to improve lives?</u></p> <p>As mentioned above, the NGO empowers the blind and visually impaired by equipping them with skills and training that allow them to become self-sufficient and independent within mainstream society. They have a</p>	

	<p>weaving, craft department and computer-education department where the visually impaired not only learn, but create products that are sold at two stores, one being within the NGO and the other being off-site at the V & A waterfront.</p> <p>This design by non-designers, uses design to give back meaning to people's lives, where the visually impaired have an opportunity become contributing members of society, despite the lack of integration for disabled persons within our society. What really humbled us as a group was seeing this small community of an NGO provide the visually impaired with something that others deem unbelievable. Within the community of Woodstock, the NGO is known of, but people don't really know what the NGO is about and what it is that they do. This social awareness campaign with the platform of the WDC 2014, seeks to tap into the potential of the creative hub, by creating not only awareness, but a sense of community between all shareholders in Woodstock. The potential of this new found community means that everyone has the opportunity to learn and grow with one another.</p>	

APPENDIX D

FIRST FULL PASS OF TABLE OF DATA IN AT ELEMENT CATEGORIES (RAW DATA)

Object: *the true goal of the activity*

The **object** for each interviewee had similarities and differences to the others but a common object theme was that the WDC2014 projects gave exposure to students of possibilities for future design career areas, it stimulated their thinking about ethics and how design could be used in a socially conscious way, leading to future work or job opportunities; it showcased student and lecturer design to outsiders. Civil society and local government experienced design more clearly, they were exposed to what design could do to find better solutions to practical real-world challenges. Thus an overall object perceived was that the WDC2014 projects contextualised design's place in society and provided an interface between those inside and outside the academy. It was perceived as a bridge of learning and an "a-ha moment" of realisation for many involved in WDC2014, as to why design and design graduates should be more and better used, borne out in the following extracts from various interviews (the numbers in brackets after each extract refers to the interview from which it came):

- Civil society was exposed to what design can do to improve circumstances (007) That the above and following data excerpts demonstrate interviewee perceptions of the **object** of the WDC2014 activity system is self-evident.
- WDC gave students opportunity to experience real-world business activity including frustrations with procurement lags, budgetary constraints, dealing with non-designers and the culturally different, presenting in a public forum or meeting; i.e. exposure in both directions (005, 006,007, 009).
- International perspective to local design (003), Using design to solve real-world problems (003) Ability to connect with greater audience - giving greater design job opportunities and students took up socially conscious design careers (participatory, social universal design) (003)
- Contextualised design problems, gave urgency to good citizenship, social orientation and reality generally (002)
- It brought in industry and government stakeholders – missing previously (003)
- It was about showing people how design is used; the process of design it, was not necessarily about finding a solution (005). It was about the collaboration between people and producing the artefact, not about the collaboration of the people (005). It was a vehicle to gain momentum; most of our projects existed beforehand (005). WDC was just another opportunity for CPUT to proxy work experience; it gave them options to design (005)

- For CPUT, WDC was a catalyst for getting things done (006). Students learnt world-of-work stuff, WDC wasn't special, just another project learning opportunity (006)
- We used WDC as a trying-out process; WDC caught our imagination, people saw it as an opportunity to do anything linked to design (007). The lecturers, students and City all experienced learning (007)
- We used it as a project to let students exceed our expectations; students grabbed onto the WDC train to drag them forward (008)
- A lot of design happens around cities chosen for WDC, I think the touch point for me was Open Design (009) It was about learning and researching in the real world (009)
- Industrial Design Dept. validated their 2009 decision to better-equip graduating students to overcome lack of job opportunities and ill-preparedness for workplace – [there were] rules and norms through the R5K project which was showcased via WDC2014; Many have gone well-beyond that amount and have become the entrepreneurial career option of choice. Prior to this there was a low employment rate of 3D graduates (008).
- City and civil society accessed design in a new and different way; exposure of design students to projects previously not possible
- [There was] exposure of students to complex learning environment builds resilience for the workplace (005).
- Sometimes R 5K students had to fire manufacturers – that's huge for students. R 5K gave students a leg in each world – it allowed them to slip but not too much (008)
- Students gravitate towards internationally inspiring ideas done locally. Design is about creation and communication and a shift is required in getting students to talk about their projects; (005)
- Many people couldn't see the point but the idea was to get the approximately 200 students out of the classroom to engage with the real world (009).
- I think resilience and drive are developed through projects that simulate the world of work (WoW) – in any workplace you have deadlines, bossy or lazy people etc.(005)

Community: *who is in this space*

Community in AT terms is the element including all people or groups who are represented or impacted somehow by the activity being undertaken. They are all the stakeholders who have an interest and who are involved in the process of attaining the goal/ object and therefore ultimately the outcome. Here they are represented by the following:

The World Design Organization (WDO), previously known as Icsid, the originator of the WDC concept, Cape Town Partnership, the Bid Committee for Cape Town to become the 2014 WDC choice, Cape Town Design Network, an independent NPO in Cape Town that facilitates connecting designers/design in the City, this grew out of Creative Cape Town from 2008, CPUT Design Faculty members: lecturers, HoDs, Dean, design departments, design programme curricula, design students, CPUT administration, Cape Town Design NPC, City of Cape Town executive members, mayoral team, other local & foreign universities (Vega, UCT, Stellenbosch, Cologne, Alto, Finish Academy), The District Six Planning Council, many NGOs, the 111 city wards. Dutch Consul General., Italian Consul General, the Finnish Academy of Design, the Woodstock Exchange, Design Indaba and the greater community of Cape Town who may have been influenced or affected by WDC2014 projects. Clearly none of the other community members would exist in this context if it were not for the WDO as initiator of WDC2014 Cape Town. The AT concept of community is represented through the data gathered as follows; words in square brackets [] have been added for clarity:

- Industrial Design: B.Tech programme (001). As with the previous element, this and the following data excerpts demonstrate interviewee understanding of who the WDC2014 AS community members are.
- Industrial Design/ design field, many of my students get head-hunted through our industry contacts (001)
- students gaining access to other potential work opportunities through being on WDC projects (002)
- industry links and local government (City of Cape Town) (002)
- People now seeing design requirements from multiple perspectives. Now seeing the complexities of trade and have new requirements for design from the Dept. of Economic Development (002)
- [Icsid, the International Council of Societies of Industrial Design of as you know, recently renamed the WDC organisation]. ...decided to pilot WDC concept and the prototype was Turin in Italy in 2008 and the idea was to showcase how design was used to advance the developmental agenda as well as urban renewal as well as a myriad other challenges that cities in the 21st Century face (003)
- CPUT is the only Icsid member in the Country (003)
- Because of the co-design and 'design storming', the City has the so-called 111 ward projects (003)

- We got a lot of support from the Government of the Netherlands through the Consul General who personally got very involved, as did the Italian Government here in Cape Town so the International perspective (003)
- a greater audience within the government and civil society was able to access design in a way that previously was not accessible (003)
- There were a number of festivals and Open Design activities. We used the Design Indaba of that particular year to escalate those conversations globally (003)
- A number of them, [CPUT design graduates] have moved to Woodstock, to the Woodstock Exchange where they have set up companies and these are a direct result of their participation in the Design (003).
- I was involved in writing – was a Finish Academy project already running (005).
- The Chapel St project has become a blueprint/case study for looking at flow-management for small clinics (005) - now City does think that design could be useful in future clinic designs (005)
- The nice thing is: yes it promoted design to bigger audience, there was knowledge-sharing but if you wanted to go and see something, there was not much to see. There was a lack of vision as to what outsiders would see or want to see in WDC (005).
- Every city in any country you will have major differences on how design is understood, used, imagined (007)
- We did things jointly with City of Cape Town, Informal Trader was a project we thumb-sucked because of our relationship with Cape Town Partnership which was project of City of CT (007)
- They, [City of Cape Town] learnt how ubiquitous design is and how embedded it is and the value of design-thinking. They were incredibly forward-stepping in terms of how they ran about 70 workshops (007)
- In very pragmatic fashion, in a step by step way we included a wider stakeholder group(007)
- UCT and Stellenbosch [University] and even private universities stepped forward. A range of companies and civil society, it didn't grab the imagination of the advertising industry. Didn't necessarily grab the imagination of very commercially-driven design operations (007)
- Cape Town Design Network and the Design Dialogues was used as a means of broadcasting WDC concept and the promise of what it could be to the Design community very early on.. That was a bit of a disappointment (007)
- Lots of NGOs took part; City gives x amount p.a. towards upgrading streets and road etc., mayor decided that money would be put towards the wards (007).
- Thys ... (from Vega School) an I started Urban Design Studio (008)

- I organised a group of students coming from Cologne University (Koln). They were working on a worldwide gentrification project (009)
- The District Six organisation became interested. There had been no Inclusive Design. One student from Koln spoke about what they had done here and various people spoke about WDC and Design Park. No-one had ever spoken to the people on the ground (009)

Division of labour: *who does what around here and with what authority*

The AT term **Division of labour** encompasses how tasks are divided up to reach the AT object; these divisions could be horizontal or vertical in a hierarchical sense of power, authority or status, in the WDC2014 AS they include: City of Cape town budget disbursement process and management, lecturer participants with their students, university procurement administrators, project originators (internal and external to the university) and the WDO (Icsid). Each had specific roles to fulfill and should have had agency to complete their roles. The AS achieves its goal through the various labour divisions' actions. Poorly understood hierarchy, chain of command, execution or purpose may distort the AS object and ultimately lead to inadequate outcomes, there may also be unforeseen outcomes whether the divisions of labour element acted appropriately or not. The focus here is on lecturers' labour effort to facilitate the learning object and the students' labour efforts to learn through the various WDC2014 projects.

- Energy was galvanised around one issue: WDC (003). This comment and those below indicate interviewee understanding of why and how the division of labour in the WDC2014 AS took shape.
- I was then appointed to the international advisory council of the WDC and I played the role of educator (003)
- We [CPUT design lecturers] submitted a number of projects for the WDC process and they were duly acknowledged and recognised and so validated our pedagogic offerings (003)
- We used the Design Indaba of that particular year to escalate those conversations globally (003)
- students benefitted quite a bit because of the ability to connect with a greater audience (003)
- We adopted a problem-based learning model with actual working constraints. Students have to work around that as a mode of engagement, as opposed to a solutions-based mode of engagement (003)
- The R5K project was a big one. Then our students also got involved in a number of projects like Harrington Street where the Design Precinct was.....so that was very useful for the student

- Facilitating my students writing the projects. I wasn't involved in writing projects – more facilitating (005)
- We included Surface and ID students for workshop and exhibition. I.E. using design methods and narrative to facilitate change within communities (005)
- Funding was probably easier to find because of WDC status (005)
- CPUT projects strength was that the projects existed before WDC. CPUT's benefit was exposure to projects already in pipeline and to get them done – like Design Garage or R 5k! (005)
- I worked with a student on Nicky's Drive and the Universal Design Tool. It showed up university in worst light bureaucratically – internal processes and procurement issues were very poor. Procurement issues, red tape student given responsibility but no clout to see things through (005)
- Doing projects develops your resilience because it simulates the world of work. Project-based learning is always useful (005). Students learnt a lot in R 5K projects (I was not keen on R5k project at first – but they learnt things that they would not learn anywhere else as students). Sometimes they had to *fire* a manufacturer – this was *huge* for students. They had to open companies (005). Real world project-based learning is important. But it has to be stepped, scaffolded and supported otherwise it's not an education – what are teachers providing (005).
- There needs to be massive shift in getting students to talk about their projects (getting them to engage) to build up confidence, (not a false sense of confidence). We do this project with 3rd years: they must present without any paper (or I fail them). Presentation is about communicating with the people (005)
- In Industrial Design Dept. we treat students like adults “in training” from 1st Yr. How to reintroduce social skills that on-line dimensions have sucked out of us (005).
- Collaboration in some projects showed university in worst light possible. People had their hands bitten in collaboration with CPUT – not academics but admin processes, procurement etc. The student experience created resentment towards admin/university system. *Is it not beneficial for students to have such a complex learning experience that builds resilience in world of work* (006)

- None of the B.Tech students failed that year. Project- based learning simulates the unforeseen calamities and mix of different personalities that exists in the workplace. Students have one foot in each world in doing a project. Legal contracts for example had to be faced but they needed support. We (as lecturers) empower our students to do something. Real-world Projects generally are an attraction to students more so than merely assessments (006)
- It has had impact on our re-curriculation process, Impact on process of developing more structure, had an impact on graduate attributes. Its, given clarity to flexible approaches, resilience in design students, need to be adaptive, reflexive and reflective. Contextualised a lot of the ' soft skills' we describe in our documentation and, [...] moving more towards multi-literacies and further from specifically defined literacies, leading towards the trans-disciplinarily of learning. That's a tricky thing to manage because it means project management, setting up time for students to work together, encouraging staff to work across those boundaries. Unless this is actually managed well, and not over-managed – it's a hard thing else to get colleagues to be supportive. I think WDC showed that up in very stark contrast that people who were confident enough, imaginative enough, daring enough to step forward and have their projects recognised and do those projects to high degree of success are those staff who are still doing that (007).
- We ran project management courses in the Roeland St Building, for any project owner for 700 projects (007)
- It echoed the core principles for design thinking, which is the observation of the listening phase, of the problematising phase. That was a wake-up for a lot of students and staff because we worked with outside experts and partners, to sensitively and ethically place ourselves in that space where informal traders operate. Students discovered a whole eco-system of what was happening that you can't see with naked eye (007)
- City of Cape Town learnt how ubiquitous design is and how embedded it is and the value of design-thinking (007)
- The City came face to face with ethical dimension of design. We ran other projects like bin-redesign SWaMP Project. That was a case where City structures and the community structures and the university structures butted up against each other (007)
- We conceptualised Open Design Festival as a more inclusive alternative to Design Indaba. With Open Design Festival we wanted to make sure the public knew what WDC was about.

We held it in the City Hall, it was free to attend. There were talks and exhibitions and a strong educational focus. We had lots of schools kids coming through. That was our attempt as a network of designers and the City of Cape Town to include the public. The City helped us to fund that (007).

- How to work with others, we talk a lot about developing agency it's more about co-created or group agency – agency of even non-human co-creation technical and environmental agency in multiple environmental concerns. (007)
- I ran 4 projects and I didn't know about any of their project management courses (008)
- Thys (from Vega School) and I started Urban Design Studio. – we said let's start a project that will end in WDC, so we designed that and our students used this platform for them to exceed our expectations and they jumped at it, they loved it (008)
- Students went to shows & went to exhibitions and they saw what momentum and name an icon behind you, you are taken more seriously (008)
- Because we had to define our projects in so much detail to WDC to get onto it, I think I understood my project (R5k) more because of that process, and there is probably a lot of *hidden curriculum* that I am including – but I don't know what that I (008)
- The Exhibition wasn't for marks. There was mutiny in my class and most classes in WDC year because we had to run normal curriculum and then add on all these extra things. Our students were burnt out, utterly, utterly burnt out. As were we. We should have as a department decided to teach half as much or do half the projects. This was a great lesson (008)
- It was a space that was the East City – down the road [from CPUT]. CPUT was on the edge of that space, we were drawn in. It seemed to be an amazing project. Hence the Urban Studio was about looking at that space and what that space could become. How would one address this land to make something for WDC? There were tonnes of meetings but I felt the arrows were always pointing away from each other. It was a lot of students – about 200 (009). The idea was to keep students away from the university, to engage with the real world. I gained an administrative experience – it was one week a term (009)
- But there was no formal assessment. We would brief them on what they should be doing and they had a week to do it. It was an academic student project. They had to meet. In the

beginning it was an assessment of the area. There were regular presentations. They would come back with designs. Homeless people became a big area. The area hasn't changed much (009)

- University of Koln ran workshops and there was a great handshake between them and us and Vega. I gained maybe because of the Urban Studio Project I actually went to Koln. It was probably administrative (that I gained) – more about “how did we make this work” – it was really project management skills. With our Urban Studio Project I became more connected with the people who were doing the Design Park (009)

Rules: *how we do things around here*

Rules and norms are historically accepted ways of doing things in an AS, this includes formal and informal rules, overt and tacit rules or policies and unwritten rules. The primary reason for the existence of the WDC2014 projects AS was because of the WDC Organisation's strategy to facilitate showcasing of design (particularly industrial design) to governments everywhere. They believe design has an integral role to play in improving the artificial world which is the domain of design and looked for a mechanism to demonstrate this around the globe, ultimately this is the backdrop for all other rules in the AS. In choosing Cape Town as the winning bid city, the local rules and norms of the City also came into play. As each layer of community was included, rules and norms from those communities also impacted on the AS. It was inevitable that so many differing sources of rules, standards and norms would require good communication which was not always the case. Interview extracts demonstrate this:

- In about 2006 WDC Organisation observed the changing role of cities and how they worked: National and international paradigms were receding and regional and local metropolises were rising as hubs of economic prominence (003). This is a primary observation of the WDC Organisation and thus a rule and *raison d'être of the WDC2014 AS*.
- All regions nationally understand design differently (007). This comment indicates that there are different rules applicable as to how design is perceived and interpreted in different regions and also reminds that combining rules from differing activity systems inevitably leads to tensions
- Young learners are now tapping into social media to co-create; joint agency and multiple environments with systems-orientation is gaining momentum rather than silo-thinking; previous subject guides had silos of discreet knowledge (007). This indicates a formation of a newer rule in a changing world; social media and systems thinking amongst some HEI community members (particularly students), are overtaking older ideas of silo-type thinking

that was previously entrenched in many learning programmes. This situation implies a change in formal rules in learning programmes is anticipated.

- Neither CPUT nor WDC projects changed the way they operated as a result of WDC2014 interaction – people who knew nothing about design, learnt nothing – projects that worked would have worked anywhere (006). The implication in this remark is that the interviewee believes that both activity systems maintained their pre-defined unwritten rules and experienced no introspective learning, adjustment or change of rules, despite the WDC2014 projects opportunity to do so. This is not entirely correct however, we know the City did acknowledge the usefulness of design and still retains a design adviser within its structure.
- It showed up university in worst light bureaucratically – internal processes and procurement issues were very poor. Academia was shown in worst light possible. Procurement issues, red tape student given responsibility but no clout to see things through. Students were resentful towards the system thereafter (005, 006). University procurement process rules slowed some WDC2014 projects to such a degree that the object and outcome was endangered, embarrassing and frustrating both students and lecturers as they had no agency to overcome the poor service delivery of their own organisation.

Subject: *for whose benefit is what's done*

In the temporarily-formed WDC2014 projects AS, the subject (who may be thought of as the agent for whose benefit the activity is undertaken), includes students, lecturers and the workplace project participants. The subject acts upon the object to transform it into an outcome. They are to achieve some learning through the formation of an agreed upon object (Kuutti, 1995). To understand the activity of a specific AS, one needs to recognise the relationship between the various AT elements. In order for the object to have meaning to the subject, it needs to be accessed or mediated through someone or some people which are all in the division of labour element in the AS. Below are extracts indicating who the various subjects were, bearing in mind that interviews were all university lecturers:

- I coordinated CPUT projects; I curated design exhibitions (006). This interviewee is indicating a role they filled as an agent/subject and a mediator for other AT subjects (students and the workplace) and also within the division of labour. This shows the necessary and essential relationship between what Kuutti calls the *subject-community*, the *object-community* and the mediatorial process required within the AS. Following extracts demonstrate what various lecturers did within the AS.
- I was released from regular teaching duties unlike other lecturers (007)

- I was a board member on Cape Town Design NPC (City of Cape Town's company created for WDC2014); I was chairman of Cape Town Design Network (007)
- Project managed/ facilitated departments working together across disciplines (008)
- Participant staff were exhausted by year-end due to projects mostly being extra-curricular but [they] recognised WDC as a unique opportunity to further academy interaction with the workplace for own and student career advancement (008)
- CPUT and the City collaborated on various projects consequently the City now believes design can be useful (007)
- Lecturers empower students (006)

Tools: *what is being used to accomplish the activity*

Mediational artefacts may be anything that acts as a transforming agent between the subject and the object in an AS. Tools may could be be both thinking (knowledge-based) tools like lectures or physical tools or apparatus which aid the subject in creating the object. Examples from the interviews below demonstrate the interconnectedness of each aspect of the AS but especially the role of mediating tools and artefacts to promote the object:

- WDC initiative afforded staff & students the opportunity to get work seen; working with outside experts opened up student vision; WDC2014 was a tool that exposed all of us to a world event (003, 005,007, 008)
- Project-management courses held for all WDC2014 projects (over 700 of them); reporting, report-writing; certain projects used to emphasise design thinking: listening & problematising; critical thinking is important to design (007, 008)
- The Professional Practice subject was the missing-link in preparing students for the workplace on graduation. Business skills and mentors from industry [are useful] (003, 008)
- I facilitated my students in writing projects, I was not directly involved. Students did workshops and exhibitions showcasing design methods to facilitate changes in communities: e.g. Chapel St Clinic project became a blueprint for flow-management in small clinics for the City (005)
- 100% of my 3D design students got jobs in the last 5 years, my master's research showed it was probably attributable to the R5K Project (008)

- Working interdisciplinarily and cross-culturally (CPUT, Vega, and Cologne University) has been useful in the Urban Studio Project – going out into the streets and not Googling from your desk for solutions. Research-gathering was very real. As designers, students learnt not to make assumptions about situations and people from preconceived notions; they learnt humility; especially when interviewing homeless people. I gained a philosophical perspective (009).
- Applied Design needs to be seen as a brand to the Design Community – exhibitions are a good start (004)

Outcome(s): *What actually is being achieved by the AS*

“Transforming the object into an outcome motivates the existence of an activity” (Kuutti, 1995). Based on what the WDC2014 projects AS is perceived as being from the various AT elements in the interview extracts above, we can infer that the whole activity system is geared towards a learning outcome. That learning differs for each AS member depending on their relationship with historical rules, other subjects, mediating tools and so on. Learning has occurred not merely because something was done, but because it was reflected upon (Jonassen, 2000). This reflection constructs meaning and thus an outcome occurs. Where any of the various AT elements were distorted in the AS, an unexpected outcome occurs. From the data extracts below we examine the perceived outcomes of lecturers in the AS:

- boosted multi-disciplinary and trans-disciplinary working in Graphic/ Industrial Design and showed CPUT ability to design for social good & community upliftment not merely for market-driven commercial activities; it broadened outlook on use of design as socially cohesive (007)
- Impacted our re-curriculation process to develop better structure; concretising and contextualised graduate attributes and required economic resilience: the need for flexible approaches, reflective and reflexive adaptation. Move towards multi-literacies and trans-disciplinarity - recognising need for management skills (007)
- The City acknowledged how ubiquitous design is and how diffuse it can be. City stepped forward in hosting about 70 workshops to connect design and community and have retained an advisory design staff. Ethics of design was a new perspective for the City especially where the design prototyping and community inclusion approach appeared to retard real-world project delivery. The City moved away from imposing decision-maker to more inclusivity of communities they serve (008)
- I learnt about policy and project management and accountability for spending public money and contractual obligations; design is not merely the domain of the expert; any member of

any community has a valid standpoint and a contribution to make – gradually we included a broader stakeholder group [in projects] (007)

- CPUT experienced ‘hard learning’ in relationship with the City regarding project approach, funding and delivery deadlines – outside of the academy project deliverables are tightly time(deadline) driven as costs and budgeting deficits bear imminent consequences (007)
- I gained administrative experience from coordinating Urban Studio – over 200 students from CPUT and Vega. (It was a case of “how did we make things work” – it was really project management experience I gained); also that I was able to share at a conference at Cologne University during WDC. Urban Studio was more about learning about researching in the real world than about giving marks (009)
- The Industrial Design Dept. Professional Practice integrated R5K project has really been a great success but we still need to train students in accounting, tax-compliance knowledge and IP [intellectual property rights] (003)
- I don’t think WDC promoted resilient learning; design needs to be seen as a way of working – learning for the future. All our 3D students passed that year – both the WDC projects and their other assessments (005, 006)

COMPLETE DATA TABLE ANALYSIS PER AT ELEMENT:

AT element	Consolidated raw answers from interviews on each AT element
Rules and norms	<p>In about 2006 WDC organisation observed the changing role of cities and how they worked: National and international paradigms were receding and regional and local metropolises were rising as hubs of economic prominence</p> <p>All regions nationally understand design differently</p> <p>There were stringent WDC rules for 2014 but room for each unique WDC version</p> <p>Each project was given a number</p> <p>WDC vetted all projects: all WDC projects had sustainability, service learning and social upliftment themes.</p> <p>WDC themes connected with curriculum and peripheral design work</p> <p>Scale of WDC budget (R 40M) was beyond any previous CPUT Design Dept. experience:</p> <p>Cape Town Design NPO had a CEO with management skills, she was a good spokesperson and had a frank approach to design but some community projects were difficult to manage. Events management and content management of projects was essential</p> <p>Young learners are now tapping into social media to co-create; joint agency and multiple environments with systems-orientation is gaining momentum rather than silo-thinking</p> <p>Previous subject guides had silos of discreet knowledge</p> <p>Design activism in keeping with WDC Organisation and CPUT mission were important</p> <p>“I would not advise young children on a career in industrial design”. Design confuses people - it’s not a traditional career like fireman. Design knowledge structure does not exist; no vertical structure - as do traditional careers like doctors or engineers. Design is a way of connecting things – that’s important for designers – it’s a mind-skill and clients differ, some require a macro picture, others a micro...Mind flow is important while you are scribbling...and mind-jumping; sell your ability to client. It is the design lecturer’s job to develop a human being to their maximum”</p> <p>Selection criteria for students entering design could be improved; tracking their initial evaluation over two years shows many are not passing by then. “Habits learnt by children in the family circumstance like perseverance and delayed gratification, kindness even to rude people, that making mistakes leads to improvement...” [are important]</p>

	<p>We need to develop mature human beings – many remain children – they need traits of being human in an uncertain world – with climate-change, are we preparing people for that?</p> <p>“Neither CPUT or WDC projects changed the way they operated as a result of WDC2014 interaction – people who knew nothing about design, learnt nothing – projects that worked would have worked anywhere.</p> <p>There is a radical difference between the students we had then (2011 – 2014) and the students we have now (2017). We accept on a portfolio basis – portfolios are poorer now than before. <i>Fees must Fall campaign</i> had an effect; it tarnished CPUT’s image, it’s become difficult to work with students due to a lethargy and lack of drive amongst students -“52% will do” [is the current student attitude]. Drive and pride are lacking. Projects run over a number of years need to have the same lecturer in charge.</p>
Community	<p>WDC Company (Icsid), Cape Town WDC Bid Committee, Cape Town Design Network, CPUT Design Faculty members: lecturers, HoDs, Dean, design departments, students, CPUT administration, Cape Town Design NPC, City of Cape Town executive members, mayoral team, Other local & foreign universities (Vega, UCT, Stellenbosch, Cologne, Alto, Finish Academy), many NGOs, the 111 city wards. Dutch Consul General., Italian Consul General</p> <p>The local, commercially profit-driven design industry were not interested in participating possibly as the notion of participatory design by non-design community members infringed on their commercial domain; likewise the advertising industry ignored WDC2014.</p>
Division of labour	<p>Lecturer participants with their students</p> <p>Lecturer non-participants, student non-participants</p> <p>“Confident, imaginative, daring staff proffered their projects for potential inclusion in WDC , in stark contrast to others who did nothing”</p> <p>CPUT Design staff leaders who recognised opportunity WDC2014 afforded the students and the university to showcase themselves/talents</p>
Subject	<p>I coordinated CPUT projects</p> <p>I curated design exhibitions</p> <p>I was released from regular teaching duties unlike other lecturers</p> <p>I was a board member on Cape Town Design NPC (City of Cape Town’s company created for WDC2014)</p> <p>I was chairman of Cape Town Design Network</p> <p>Project managed/ facilitated departments working together across disciplines</p> <p>“Participant staff were exhausted by year-end due to projects mostly being extra-curricular but [they] recognised WDC as a unique opportunity to further</p>

	<p>academy interaction with the workplace for own and student career advancement”</p> <p>I was on the Cape Town Bid Committee, WDC Org board and a Design Dept. lecturer</p> <p>CPUT and the City collaborated on various projects consequently the City now believes design can be useful</p> <p>Lecturers empower students</p> <p>We were overwhelmed - there were too many projects. I ran 4 and I had no idea there were project management courses to assist, until about mid-year. Projects without a geographical location did not get much coverage from WDC – like our very successful R 5K project</p>
Tools	<p><i>Imagine that</i> website, WIL student assistant (PR B.Tech student, Alice Scott),</p> <p>WDC initiative afforded staff & students opportunity to get work seen</p> <p>Multi-disciplinary and trans-disciplinary working in Graphic & Industrial Design</p> <p>Coordinating/timetabling cross-disciplinary time for student participation</p> <p>Project-management courses held for all WDC2014 projects (over 700 of them)</p> <p>Reporting, report-writing</p> <p>Certain projects used to emphasise design thinking: listening & problematising</p> <p>Working with outside experts opened up student vision</p> <p>“Technology has a dichotomy; you can hide behind it or use it to interact with people in difficult scenarios. The Freirian notion of the <i>Pedagogy of discomfort</i> is useful in design as we often deal with uncomfortable and wicked problems. We must introduce students to the notion of resilience through experiential problem-based approaches to avoid them operating in a skill-set that is last-century”</p> <p>WDC2014 was a tool that exposed all of us to a world event.</p> <p><i>Design Indaba</i> of 2014 was used to escalate ability of students to connect globally through WDC project opportunities</p> <p>The Professional Practice subject was the missing-link in preparing students for the workplace on graduation. Business skills and mentors from industry [are useful]</p> <p>Critical thinking is important to design</p> <p>We (but not Industrial Design Dept.) have an irrelevant curriculum; 3D [Industrial Design Dept.] students are different from others; we have lots of presentations so they can learn to ‘sell’ their idea to the client (and sell their ability to carry it out)</p>

	<p>On-line activity is sucking social conventions from us; in 3D we push communication: how to speak to people, to keep appointments – this is “good designer-in-training” technique</p> <p>I facilitated my students in writing projects, I was not directly involved. Students did workshops and exhibitions showcasing design methods to facilitate changes in communities: e.g. Chapel St Clinic project became a blueprint for flow-management in small clinics for the City</p> <p>Some projects had a long period before WDC which enabled them to iron out collaboration issues; e.g. Dreamworld started about 18 months earlier.</p> <p>Success was between the people involved and achieving the goal/artefact, not especially collaboration between parties (HEI, City), but WDC funding helped</p> <p>Focus on the goal rather than on the relationship made projects work</p> <p>A lot of WDC projects were ego-driven and no longer exist (but this is not the case with CPUT projects – all ours worked because they existed beforehand)</p> <p>The Urban Studio project between CPUT and Vega design school was started three years before in order to culminate in 2014. Some students jumped at it, others were indifferent</p> <p>100% of my 3D design students got jobs in the last 5 years, my master’s research showed it was probably attributable to the R5K Project,</p> <p>Working interdisciplinarily and cross-culturally (CPUT, Vega, and Cologne University) has been useful in the Urban Studio Project – going out into the streets and not Googling from your desk for solutions. Research-gathering was very real. As designers, students learnt not to make assumptions about situations and people from preconceived notions; they learnt humility; especially when interviewing homeless people. I gained a philosophical perspective.</p> <p>Urban Studio: students were briefed on Mondays and we saw them again on Fridays – simple things like working in a team and staying on-point became important</p>
Object	<p>CPUT needed visibility and access to what we do [Design education]</p> <p>Showcase CPUT student design talent;</p> <p>Industrial Design Dept. validated their 2009 decision to better-equip graduating students to overcome lack of job opportunities and ill-preparedness for workplace – [there were] rules and norms through the R5K project which was showcased via WDC2014; the R5K project is at 4th year (B.Tech level integrated Professional Practice all other subjects by making students set up companies and earn at least R 5 000. Many have gone well-beyond that amount - this and have become the entrepreneurial career option of choice. Prior to this there was a low employment rate of 3D graduates.</p> <p>Give design students a platform to connect with other parts of the world</p>

	<p>Opportunity for participation in world event; showcase design as a broad career path; an ethical & worthwhile career</p> <p>Industrial Design Dept. entered several projects which were accepted – validating our pedagogic offering</p> <p>City and civil society accessed design in a new and different way</p> <p>Exposure of design students to projects previously not possible</p> <p>All CPUT (Industrial Design) WDC projects were in existence before WDC2014 came along</p> <p>I did not participate for personal reasons (lecturer)</p> <p>Collaboration - I worked with a student on the Nicky's Drive (Driving Dreams) project showed the University in the worst light possible; procurement issues and internal processes just did not work – students were given responsibilities with no authority and became resentful towards university systems. Nevertheless the exposure of students to complex learning environment builds resilience for the workplace.</p> <p>Sometimes R 5K students had to fire manufacturers – that's huge for students. R 5K gave students a leg in each world – it allowed them to slip but not too much</p> <p>Students gravitate towards internationally inspiring ideas done locally. Design is about creation and communication and a shift is required in getting students to talk about their projects; I have an assessment where I insist 3rd year [industrial design] diploma students present without any notes – they must learn to be confident and good presenters Our students are “adults-in-training” from first year; they must engage with us as people</p> <p>Project-based learning stimulates understanding of unforeseen calamities and that a mix of different personalities exist</p> <p>WDC2014 got too complicated – too many projects – over 400 (of about 1 200); many of our (CPUT) projects could not get WDC support because of this. Taipei who was the next host city, learnt from this and only had 12 projects.</p> <p>WDC meant I had to define R5K project really clearly to participate; it meant I understood it better</p> <p>“I have taught for eleven years and realise whether you do well in 3D depends on the kind of person you are; if you are an entrepreneurial type, industrial design is amazing, if you are just looking to earn a regular amount, it is not the place [for you]. It's a tough place for people who need a boss – like accountants who have a known, defined world. I found it was fine to be in a spontaneous random world in my 20s and 30s but now I like to calm down – maybe that's why I am lecturing now. Design is difficult but exciting – an entrepreneur's game – not necessarily a young person's game. You need constantly to be flexible, and even hurt. Designers seem to need soft skills more than hard skills. That's why R5K works – self-growth occurs. They are not employable because they can sketch,</p>
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	<p>it's because they become better people by learning how difficult it is and learning by experience”</p> <p>I was involved in Urban Studio with Vega School– I inherited the project – it was to look at the East City. Many people couldn't see the point but the idea was to get the approximately 200 students out of the classroom to engage with the real world.</p>
Outcome(s)	<p>[WDC2014 participation by CPUT FID Design Dept.]:</p> <ul style="list-style-type: none"> - boosted multi-disciplinary and trans-disciplinary working in Graphic/ Industrial Design - showed CPUT ability to design for social good & community upliftment not merely for market-driven commercial activities - broadened outlook on use of design as socially cohesive - Impacted our re-curriculation process to develop better structure; concretising and contextualised graduate attributes and required economic resilience: the need for flexible approaches, reflective and reflexive adaptation. Move towards multi-literacies and trans-disciplinarity - recognising need for management skills -reflexive learning: recognition that over-management would hinder the overall design effort (activity) - students more attuned to real-world problems and how to approach them - the City acknowledged how ubiquitous design is and how diffuse it can be. City stepped forward in hosting about 70 workshops to connect design and community and have retained an advisory design staff. Ethics of design was a new perspective for the City especially where the design prototyping and community inclusion approach appeared to retard real-world project delivery. The City moved away from imposing decision-maker to more inclusivity of communities they serve I learnt about policy and project management and accountability for spending public money and contractual obligations I learnt that design is now being done in less-than commercial spaces I learnt first-hand the Design's colonising metaphor: <i>who is intervening and on whose behalf and who benefit?</i> is embedded in notions of experience with ethical implications. And about re-assessing power dynamics and re-developing empathy There is acknowledgement that all these social projects happen only with funding Design is not merely the domain of the expert; any member of any community has a valid standpoint and a contribution to make – gradually we included a broader stakeholder group [in projects] Certain CPUT staff were snapped up by UCT's D. School after the WDC experience.

	<p>CPUT experienced ‘hard learning’ in relationship with the City regarding project approach, funding and delivery deadlines – outside of the academy project deliverables are tightly time(deadline) driven as costs and budgeting deficits bear imminent consequences</p> <p>Lecturer insights into responsibility for public money</p> <p>We broadened everyone’s perception of what design can do as a social conscience in complex situations with complex challenges</p> <p>Demand for design services increased as a consequence of WDC</p> <p>Some students entered the field of Socially Conscious Design professionally thereafter.</p> <p>The R5k project particularly was vindicated internationally when several other foreign university design schools (Germany/Holland..) adopted the model</p> <p>Leaving the comfort & safety of academia and being confronted by real-world issues was learnt through WDC</p> <p>WDC will not change the kind of graduate we in 3D design [industrial design department] produce immediately</p> <p>Design was promoted to a bigger audience; knowledge-sharing did occur but there was not much physically to see for outsiders</p> <p>It gave students more opportunities and options to design and collaborate</p> <p>Close personal links between ourselves and Vega School made collaboration easier. I was involved in too much; I participated in Informal Trader project but gave it over when I began teaching B.Tech, Through the Shell Eco Marathon I went to Delft, Holland but didn’t finish with them either – I was too busy. The City did not help with those projects</p> <p>Many projects were extra-curricular and not assessed; exhibitions, Urban Studio and Design Garage were not for marks – they were add-ons to the curriculum – our students were burnt-out, so were we. WDC offered many learning opportunities but they were all on top, on top, on top of our curriculum – this was a great lesson</p> <p>I don’t believe the City has learnt much about design – they have only climbed very slightly up the Design Ladder (design as styling) since the CCDI study in 2012/13 (Elk & Bloom, 2012).</p> <p>I gained administrative experience from coordinating Urban Studio – over 200 students from CPUT and Vega. (It was a case of “how did we make things work” – it was really project management experience I gained); also that I was able to share at a conference at Cologne University during WDC. Cape Town campus and Bellville campus students had to be bussed in [and Vega School students]; It was one week per term. Students had to meet in their groups; the homeless [people] became a big project</p>
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	<p>As no-one had asked the local District Six Organisation about how they felt, many potential urban renewal projects have not yet materialised though there is some movement seven years on.</p> <p>Urban Studio was more about learning about researching in the real world than about giving marks.</p> <p>Projects run over a number of years need to have the same lecturer in charge who can collect research data at the same time.</p>
Other	<p>Do we broaden the cause of design – what is its cause?</p> <p>The Industrial Design Dept. Professional Practice integrated R5K project has really been a great success but we still need to train students in accounting, tax-compliance knowledge and IP</p> <p>Business is in survival mode now (2013 – 2018), I don't see design business changing – even the 'green' design is <i>greenwash</i> – it's merely superficial because most consumers are not really in a position to make a choice [due to lack of funds]</p> <p>The current economic model isn't working in an uncertain world</p> <p>I don't think WDC promoted resilient learning; design needs to be seen as a way of working – learning for the future. All our 3D students passed that year – both the WDC projects and their other assessments; I think resilience and drive are developed through projects that simulate the world of work (WoW) – in any workplace you have deadlines, bossy or lazy people etc.</p> <p>Many of the projects came to nothing; the Homeless project in Urban Studio didn't do much. Seven years later the area hasn't changed much.</p> <p>Gentrification was looked at with Cologne (Koln) University design students who were travelling the world with this theme – that worked well as a handshake between us and them and I visited Cologne as a result</p> <p>I worked on various projects as did some other lecturers but nothing happened in the CPUT space that was WDC related</p> <p>Applied Design needs to be seen as a brand to the Design Community – exhibitions are a good start</p>

<p>Tensions within Workplace AS</p>	<p>Local commercial, profit-driven design and advertising industries largely ignored WDC2014</p> <p>No-one had asked the local District Six Organisation about how they felt; many potential urban renewal projects have not materialised seven years on [since 2010]</p> <p>Business is in survival mode now - I don't see design business changing; even 'green design' is <i>greenwash</i> [window dressing] – merely superficial because most consumers are not in a position to make a choice</p> <p>The current economic model isn't working. Business is in a survival mode, I don't see design business changing [to be more environmentally friendly]. We need to develop mature human beings – many remain children – they need traits of being human in an uncertain world – with climate change - are we preparing people for that?</p>	<p>There is a perception that the WDC2014 sustainability and inclusivity themes were not something a profit-driven industry could turn to their economic advantage. A tension is created between the newer paradigm of inclusion and sustainability and the established profit motive; both must adapt for long-term survival</p> <p>Inclusion of local communities in decision-making is not something much considered previously in the workplace but it has real consequences for progress and development in a more socio-environmentally sensitive paradigm as is borne out here</p> <p>There is a contradiction between the notion of genuine sustainability in business (including design business), which consumers seek and that which they are ultimately offered; the economic paradigm has forced lesser-sustainable goods and services on both producer and consumer as neither can afford the costs required to produce and buy genuinely sustainable products demonstrating that the neoliberalist model is not working well for either group in a changing societal and environmentally-aware mind-set</p> <p>A tension exists as many see the excesses of neoliberalist business practices (like job-shedding and casualisation of employment which leads to lower disposable incomes and thus fewer consumers purchasing goods and services), as contributing to the desire for change in the received socio-economic model particularly in relation to ecological and</p>
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<p>Tensions within the HEI AS</p>	<p>Confident, imaginative staff proffered their projects in stark contrast to others who did nothing. Design staff leaders who recognised the opportunity WDC2014 afforded students and the university participated. Projects were mostly extra-curricular; participating staff were exhausted by year-end despite the unique opportunity to further academic interaction with the workplace for their own and student career advancement. We must introduce students to the notion of resilience through experiential problem-based approaches to avoid them operating in a skill-set that is last-century</p> <p>Industrial Design Dept. validated their 2009 decision to better equip graduating students to overcome lack of job opportunities by creating the R 5K Project. We (not Industrial Design Dept.) have an irrelevant curriculum; students must do presentations to learn to sell their ideas and abilities to a client</p> <p>I participated in the Driving Dreams Project which showed the university in the worst possible light; procurement issues and internal processes did just not work</p>	<p>graduates may be less likely to obtain employment and thus further tarnish the design department reputation</p> <p>Some staff recognised the potential of gaining career and other opportunities for students and themselves. Others may already have been too over-burdened with work to participate; this was perceived as them lacking confidence or being ‘unimaginative’ or lacking leadership by some WDC2014 participant lecturers; it may be they recognised the extra-curricular effort would exhaust them beyond recovery but that in so doing they may have hindered the future progress of themselves and their students</p> <p>Industrial Design Dept. perceived themselves as a step ahead of others because their R5K Project initiative had been so successful in all their students finding jobs on graduation – an indication that the Applied Design Dept. (which encompasses Graphic, Fashion, Architecture..) as a whole, did not perceive a university responsibility to promote career resilience of their graduates</p> <p>Administrative shortcomings hindered completion of projects creating tensions between students and the internal university support they required; however exposure to this complexity built an unintended workplace resilience skill</p> <p>If lecturers could have found a way to assess these projects there may have been better and more</p>
<p>Tensions within the HEI AS</p>		

<p>Germ-cell development</p>	<p>confronted by real-world issues was learnt through WDC2014</p> <p>All our projects worked because they existed beforehand. Some projects had a long period before WDC2014 which enabled them to iron out collaboration issues</p> <p>Working with outsiders opened up student vision. WDC initiative afforded staff and students opportunity to get their work seen.</p> <p>Some projects emphasised design thinking: listening and problematising [client requirements]. Design often deals with uncomfortable and wicked problems; we must introduce the notion of resilience through experiential problem-based approach to avoid students using a skill-set that is last-century. Project-based learning stimulates understanding of unforeseen calamities and that a mix of personalities exist</p> <p>Sometimes R5K students had to fire manufacturers – that’s huge for students; R5K gave them a leg in each world – allowed them to slip but not too much. How well you do in3D [in a career in industrial design] depends on the kind of person you are; for the entrepreneur, industrial design is amazing but it’s a tough place for people who need a boss</p> <p>WDC2014 impacted our re-curriculation process to develop better structure, concretising and contextualising graduate attributes and required economic resilience.</p>	<p>Strategic planning and relationship nurturing for future collaboration appears useful to promote desired outcomes</p> <p>Students gained a more inclusive and enlightened learning perspective in dealing with <i>bone fide</i> workplace situations and facilitated public access to their work thus promoting career opportunities</p> <p>Students developed workplace skills useful on graduation like living with the tensions of wicked problems and developing the maturity and ‘soft skills’ like working with people different from the self which promotes their own economic resilience learning</p> <p>The R5 K Project has demonstrated that allowing students to set up a real business with the purpose of making a minimum of R 5 000 promoted economic resilience as all Industrial Design students either made their own businesses or found employment on graduation</p> <p>The real-world experience of WDC2014 projects promoted curriculum designers to recognise the value of certain ways of doing and being which foster better graduate economic resilience than before the WDC2014 experience</p> <p>This comment indicates that participating in projects giving</p>
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<p>Germ-cell development</p>	<p>Students now more attuned to real-world problems and how to approach them</p> <p>The City moved away from imposing decision-making to more inclusivity of the communities they serve.</p> <p>I learnt first-hand the design colonising metaphor: <i>who is intervening and on whose behalf and who benefits?</i> We broadened everyone's perception of what design can do as a social conscience in complex situations with complex challenges. I learnt that design is now being done in less than commercial spaces. Design is not merely the domain of the expert; any member of a community has a valid standpoint and contribution to make. Some students entered the field of Socially Conscious Design professionally after WDC2014</p> <p>WDC2014 gave students more opportunity and options to design and collaborate. Design activism in keeping with WDC organisation and CPUT mission statement were important.</p> <p>Project management facilitated departments working together. Multi-disciplinary and trans-disciplinary working between Industrial and Graphic Design departments occurred. I gained administrative experience from coordinating over 200 students at different levels and from different HEIs.</p>	<p>experiences similar to that of the WDC2014, will be useful for students and graduates of the future</p> <p>Inclusivity is something that design recognises in <i>Inclusive, Participatory design and Service Learning</i>, these can be used in future collaborative workplace community design projects</p> <p>Using the <i>design colonising metaphor</i> in further collaborative efforts could enhance both activity systems' implementation of new developments especially in low-income communities whose input is often overlooked and promote economic resilience in graduates through employment or entrepreneurial opportunities</p> <p>Each design discipline broadened their perspective on the other and realised the benefit of multi- and trans-disciplinary teamwork which is commonly required in the workplace</p> <p>Development of certain skills not previously recognised by design staff were required and developed both in themselves and in their students; these included project management, working inter-disciplinarily, improving research capabilities or opportunities, gaining administrative know-how and recognition that continuity with the same design educator was advisable in projects that ran longer than a year.</p>
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<p>Tensions within interviewee perceptions</p>	<p>I don't believe the City learnt much about design – they have only climbed very slightly on the Design Ladder</p>	<p><i>The following interviewee statements contradict this view:</i></p> <p>The City acknowledged how ubiquitous and diffuse design can be; they stepped up by hosting 70 workshops to connect design and community and have retained an advisory design staff</p> <p>We broadened everyone's perception of what design can do as a social conscience in complex situations with complex challenges</p>
<p>Tensions within interviewee perceptions</p>	<p>I don't think WDC2014 promoted resilient learning; design needs to be seen as a way of working – learning for the future. I think resilience and drive are developed through projects that simulate the world of work</p>	<p>Design was promoted to a bigger audience; knowledge-sharing did occur but there was not much physically to be seen for outsiders</p> <p><i>This interviewee appears to have been looking for something else in WDC2014 participation. They conclude that no resilient learning occurred but that project participation is the way this happens. As WDC2014 was comprised only of projects, their comment lacks logic; further disclosure of their thinking would have been helpful</i></p>

APPENDIX D

Study guides for professional practice curriculum for graphic design...



CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

FACULTY OF INFORMATICS & DESIGN

LEARNER GUIDE

NATIONAL DIPLOMAL: GRAPHIC DESIGN

**SUBJECT: PROFESSIONAL PRACTICE1
(PGP 100S)**

Lecturer: **Mr. Gabriel F Kabuluku**

1 Aim:

Welcome to Professional Practice 2016. Professional Practice is one of the courses covered towards the National Diploma in Graphic Design. Given the volatile economic environment confronting most nations today, and the seemingly deteriorating pool of salaried work, the Professional Practice (Business study) curriculum is designed to give students the knowledge needed to start, own and run own business/practice, as well as prepare them for the work environment. It is also designed to give students the confidence needed to promote business and marketing ideas in the business world. At the end of this program, the student is expected to have acquired: knowledge with understanding and application. To achieve the course's objective the following teaching and assessment approaches are adopted:

1.1 Teaching:

- Lessons taught in class are complemented by visits to the industry/businesses.
- Power point presentations are encouraged through which students gain the confidence and expertise needed when speaking to small and large groups of people.
- Case studies, worksheets and projects are utilised to emphasise key concepts.

1.2 Assessment:

- Formative assessment tasks are utilised to gauge student's understanding. For instance, students are encouraged to complete the "in text" questions that appear regularly at the end of each lesson.
- Projects meant to simulate real life situations are carried out both as formative and summative assessment.
- A variety of other methods of assessment are encouraged. These may include worksheets, assignments, projects, case studies, oral presentations and written tests.

1.3 Critical Cross-Field Outcomes (CCFO)

The aim of CCFO's is to direct educational activities towards the development of learners within a social and economic environment. Critical outcomes are part of the basic approach to this course.

2 Where your lecturer may be contacted

- Cape Town: Room 2.32 B, Design Building
Phone: (021) 460-3450

Bellville: Room 0108

Email: kabulukug@cput.ac.za

3 Participation and absenteeism

Attendance of all classes is compulsory. Any work given in class may be used for assessment. Missed work cannot be made up later and a zero will be recorded that will form part of the calculation of the year mark. It should be noted that missed classes will still require the student to find out what material was missed. It is the student's responsibility to make copies of fellow student's notes, hangouts or assignments if it was impossible to attend a particular session.

4 Assessment and schedules

Course evaluation is continuous, through formative and summative assessments and final mark will be calculated as follows:

	Assessment	Weighting	Dates
Term one	Class test and/ or project	15%	To be announced
Term Two	Class test and/ or project	30%	To be announced
Term Three	Class test and/ or project	25%	To be announced
Term four	Class test and/ or project	30/0%	To be announced
		100%	

Note: Students have the opportunity to look at an answer paper after it has been marked.

5 Directives for Assignments and Projects

- Assignments/projects must be typed on the one side of an A4 paper, in a readable font of 12 points, using 1.5 line spacing and justified aligned, with proper sub-headings, paragraph headings and page numbering. **No “hand written” assignments or projects will be accepted.**
- For assignments and projects, students are advised to strictly adhere to the prescriptions and the suggestion of the Harvard Citation Method Guide available from the faculty librarian.
- The use of only black ink is permissible. No other colour or fonts will be accepted.
- Each assignment of more than one page must be stapled. No binding, paper clips, torn corners or plastic sheets may be used.
- Cover page of the assignments and projects must clearly be identified with: Name of University, Name of Course (e.g. ND: Graphic Design) Assignment/Project No, Assignment/Project Title, Surname, Initials, Student No, Lecturer and due date.

6 Publication of marks

It is customary to receive progress report four (4) times a year, indicating your progress in all your subjects, including Professional Practice. Students are advised to **check their marks** every term and discuss any irregularities with the lecturer/tutorial lecturer in their first class/tutorial of the new term. A student ***cannot leave queries from the first or second term until the last term.***

NOTE:

- If you do not receive a report, please check your mark with your **lecturer/tutorial lecturer** in the first session of the new term.
- Marks for the 4th term will **NOT** be disclosed or discussed until moderation has been finalised, marks ratified and published.

In the case of test/project marks, all efforts will be made to ensure that students receive their assessment marks ten (10) days after taking the test. On publication of such marks, students are allowed five days (5) to query the marks.

7. Expectations of Students:

7.1 Behaviour/Class conduct

Students are expected to be punctual. Be respectful of fellow students and staff. Switch cell phone off. No physical or verbal disruptive behaviour will be tolerated. No unnecessary exiting of class will be allowed. No use of unacceptable language during class.

7.2 Attendance

Attendance of lectures and tutorials is compulsory. An attendance register must be signed and an attendance mark may be registered with each completed assignment (a minimum attendance of 80% is required).

7.3 Participation

A mark may be allocated for your participation during lectures and tutorials.

7.4 Submission of assignments

- With every assignment, instructions regarding due dates are provided.
- All projects must be handed in, during classes except otherwise stated.
- **Late assignments:** any assignments will have a 10% per day deducted from the final mark for being late. The first 10% is deducted at the end of the class as noted in the previous point.
- **Re-submission:** no resubmission will be accommodated.
- **Group projects:** Where group projects, are allowed, a maximum of five students may form a group. Each will obtain the same mark, unless otherwise indicated by the group. The lecturer is not liable for incomplete information on the front page and subsequent non-allocation of marks for students whose information has been omitted on the front page.
- **As precaution, it is advisable to make and retain a hard (photocopy) or soft copy of the project/assignment.**

7.5 Rules and responsibilities

Students must familiarize themselves with all rules, policies and responsibilities as outlined in this course guide.

Absence from any assessment without a very good reason will result in a “0” being awarded. If sufficient grounds for a substitute assessment exist, the necessary documents (e.g. sick certificate) will be required.

7.5.1 Late hand-in procedures:

Option 1: If your work is late with no valid excuse, a minus ten percent (-10%) per day for up to three (3) days, then 0% will apply. This arrangement is maintained regardless of whether there is a scheduled class thereafter or not. The onus rests on the student to initiate contact for the hand in. **Please** note that your project/assignment is late immediately after the specified deadline time.

Option 2: Your work is late, but you have a valid excuse eg a medical certificate. Please note that a medical report is the only accepted valid excuse and the following procedure applies:

- Inform the lecturer via email that you are ill. The medical certificate must be valid at the time of your hand in/test. You need to hand in on the first (1st) day your medical certificate states you should return. You must produce the **original medical certificate** when you hand-in or write a test.

Option 3: Valid Excuse, e.g. Self-Medication, transportation issues, etc. not covered in option 1 2 above, you must e-mail your project to your lecturer **BEFORE** the deadline. Make an arrangement to hand-in the hard copy of the **assignment** before or **on your** return.

N/B:

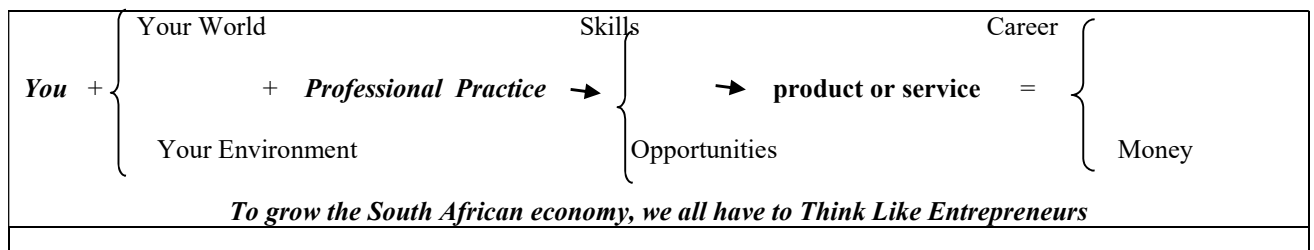
- Any query regarding a mark allocated for an assessment must be raised not later than one day after viewing the script and obviously, not later than five (5) days after publication of the marks as noted earlier.

7.6 Missed Project/Assignment/Test

All missed assessments that are supported by a valid excuse will be re-scheduled for the beginning of the 4th term only, notwithstanding of the term in which they occurred. Hence, if you have two or more missed assessments, you may have to write all of them on the **same day** at the beginning of the fourth term.

N/B: the format of the all missed assessments will be strictly a test and regardless of whether it was an assignment/project that was missed. The scope of such a test will cover everything taught right up to the time of the test.

8 Syllabus and schedule



<i>Week</i>	<i>Learning Concept</i>	<i>Objective</i>
	1.1 Introduction	
1	<ul style="list-style-type: none"> Why study design? Job opportunities for a designer. Employees versus employers The advantages of being self-employed Disadvantages of self-employment 	<ul style="list-style-type: none"> To appraise, motivate as well as develop an interest in the design discipline in general and Professional Practice (entrepreneurship) in particular.
	1.1.1 Best of both worlds	
	<ul style="list-style-type: none"> What options (to being employed or self-employment) do we have? 	<ul style="list-style-type: none"> Expose students to the possibility of working and freelancing.
	1.2 Characteristics of an entrepreneurship	
2	<ul style="list-style-type: none"> Personal qualities of a successful entrepreneur Skills needed for an entrepreneur 	<ul style="list-style-type: none"> Describe who becomes an entrepreneur List the key characteristics of an entrepreneur Explore ways to build your business potential Explain the value of learning about entrepreneurship
	1.3 Who do entrepreneur fail?	
	<ul style="list-style-type: none"> Existing Challenges Knowledge of business environment 	<ul style="list-style-type: none"> Draw attention to the importance of studying professional practice How it may fit into student's career goals?
	2.0 Entrepreneurship & the Economy	
	2.1 Importance of Entrepreneurship in the Economy	
3	<ul style="list-style-type: none"> An economic system Types of economic systems Supply and Demand Competition in a market economy Profit motive Non-profit organisations 	<ul style="list-style-type: none"> Describe an economic system Identify different economic systems Examine supply and demand relationships Explore the role of competition in a market economy Describe the profit motive Learn about non-profit organisations
	2.2 Thinking Globally, Acting Locally	
4	<ul style="list-style-type: none"> The global economy Entrepreneurs and international trade Local economy 	<ul style="list-style-type: none"> Define the global economy Identify factors that affect entrepreneurs in international trade Describe relationships between the global economy and the local economy
	3.0 Types of Businesses & Business Ownership	
5	3.1 Types of Businesses <ul style="list-style-type: none"> Types of businesses Trends in business start-ups 	<ul style="list-style-type: none"> Identify the four main types of business Examine trends in business start-ups in recent decades
	3.2 Types of Business Ownership	
6	<ul style="list-style-type: none"> Liability of business owners Sole proprietorships Partnership Corporations(CC's ,PTY Ltd,LTD) Cooperatives Advantages and disadvantages of each form of ownership 	<ul style="list-style-type: none"> Define liability Examine sole proprietorships Learn about partnerships Examine corporations Understand cooperatives Understand the advantages and disadvantages of each type of ownership

	4.0 Starting a Business	
7	4.1 Business Failure	<ul style="list-style-type: none"> • <i>Examine the causes of business failure</i>
7	4.2 Choosing the Right Business	<ul style="list-style-type: none"> • <i>Examine whether you have chosen the right business</i>
	4.3 Resources needed to start and operate a business	
7	<ul style="list-style-type: none"> • Land (shop/office space etc.) • Labour (employees, paid or unpaid) • Capital (finance). • Entrepreneurship (your skillfulness in combining the other factors of production). 	<ul style="list-style-type: none"> • <i>Explain the basic resources needed to start and operate a business (factors of production)</i> • <i>Identify the role of each factor of production</i> • <i>Identify the importance of each factor of production</i>
	5.0 Ethical Business Behaviour	
	5.1 Ethical Business Behaviour	
8	<ul style="list-style-type: none"> • What Are Ethics? • Establishing an ethical workplace • Writing a code of ethics • Ethical issues for entrepreneurs 	<ul style="list-style-type: none"> • <i>Relate values to ethics</i> • <i>Describe the benefits of practicing business ethics</i> • <i>Explain ways that entrepreneurs can promote ethical behaviour in the workplace</i> • <i>Suggest solutions to ethical problems entrepreneurs may face</i>
	5.1 Socially Responsible Business & Philanthropy	
9	<ul style="list-style-type: none"> • Corporate social responsibility • Responsibility to individuals • Responsibility to the environment • The energy-efficient workplace • Responsibility to the community 	<ul style="list-style-type: none"> • <i>Define corporate social responsibility</i> • <i>Explain an entrepreneurs' responsibilities to individuals</i> • <i>Describe an entrepreneurs' environmental responsibilities</i> • <i>Identify an entrepreneurs' community responsibilities</i>
10	<ul style="list-style-type: none"> • Basic statistical concepts such as Mean and Median • Plotting, interpreting and analysing basic statistical graphs 	<ul style="list-style-type: none"> • <i>Understand how to calculate the arithmetic Mean and median.</i> • <i>Understand how to visually display and analyse statistical information on straight line graphs, pie, bar charts.</i>
	7.0 Taking charge of your finance	
	7.1 Budgeting	
11	<ul style="list-style-type: none"> • Managing money • Basic of financial management • Income statement (Costs , expenses) • Balance Sheets (Assets, Equity + Liability) • Budgeting tools 	<ul style="list-style-type: none"> • <i>Learn how to manage money by preparing a personal spending plan</i> • <i>Identify ways to decrease spending and increase income</i> • <i>Identify budgeting tools that will help you manage your money</i>
	8.0 Opportunity Recognition	
	8.1 What Is a Business Plan?	
12	<ul style="list-style-type: none"> • Purpose of a business plan • Types of business plans • Parts of a Business Plan • Putting your plan together 	<ul style="list-style-type: none"> • <i>Explain the purpose of a business plan</i> • <i>Describe the types of business plans</i> • <i>Identify the components of a business plan</i> • <i>Acquire skills for developing a business plan</i>
	8.2 What Is a Business Opportunity?	

13	<ul style="list-style-type: none"> • Sources of opportunity • Thinking creatively • Turning ideas into opportunities • Evaluating an opportunity 	<ul style="list-style-type: none"> • <i>Identify ways to recognize business opportunities</i> • <i>Explain how to use creative thinking to generate ideas</i> • <i>Compare various types of business opportunities</i> • <i>Describe methods used to evaluate business opportunities</i>



CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

FACULTY OF INFORMATICS & DESIGN

LEARNER GUIDE

NATIONAL DIPLOMAL: GRAPHIC DESIGN

SUBJECT: PROFESSIONAL PRACTICE 2

(PGP 200S)

LECTURER: Mr. Gabriel F KABULUKU

1 Aim:

Welcome to Professional Practice 2016. Professional Practice is one of the courses covered towards the National Diploma in Graphic Design. Congnisant of the volatile economic environment confronting most nations today, and the seemingly deteriorating pool of salaried work, the Professional Practice (Business study) curriculum is designed to give students the knowledge needed to start, own and run own business/practice, as well as prepare them for the work environment. It is also designed to give students the confidence needed to promote business and marketing ideas in the business world. At the end of this program, the student is expected to have acquired: knowledge with understanding and application of concepts such as;marketing mix, market segmentation, target market, competitive advantage, income statement, balance sheet, just to mention but the few. To achieve the course's objective the following teaching and assessment approaches are adopted:

1.1 Teaching:

- Lessons taught in class might be complemented by visits to the industry/businesses.
- Power point presentations are encouraged through which students gain the confidence and expertise needed when speaking to small and large groups of people.
- Case studies, assignment, class activities and other projects are utilised to emphasise key concepts as mentioned above.

1.2 Assessment:

- Formative assessment tasks are utilised to gauge student's understanding. For instance, students are encouraged to complete the "in text" questions that appear regularly at the end of each lesson.
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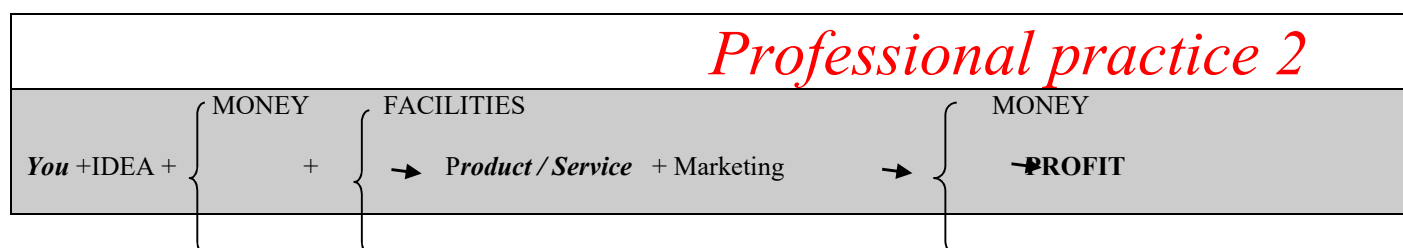
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7.6 Missed project/assignments/Test

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N/B: the format of the all missed assessments will be strictly a test and regardless of whether it was an assignment/project that was missed. The scope of such a test will cover everything taught right up to the time of the test.

8 Syllabus and schedule



CREDIT		PEOPLE	CREDIT
<i>To grow the South African economy we all have to Think Like Entrepreneurs</i>			
<i>Week</i>	<i>Learning Concept</i>	<i>Objective</i>	
1	1.0 Market Research		
	1.1 What Is Market Research?		
	<ul style="list-style-type: none"> Why is market research important? Targeting your market Market research methods 	<ul style="list-style-type: none"> <i>Explain why market research is important</i> <i>Consider the important factors when targeting a market</i> <i>Identify market research methods</i> 	
	1.2 What Is Your Competitive Advantage?		
2	<ul style="list-style-type: none"> What is your competitive advantage? Why do you need competitive advantage? Identifying your competition Direct and indirect competitors Determining your competitive advantage How to build a competitive advantage 	<ul style="list-style-type: none"> <i>Learn how to identify competitors</i> <i>Determine your competitive advantage</i> <i>Identify the steps in researching a market</i> <i>Define the five forces of Michael Porter.</i> 	
	2.0 Marketing your Product/Service		
3	2.1 Developing your Marketing Mix		
	<ul style="list-style-type: none"> Product and its components Developing price strategies Determining place (Distribution) strategies 	<ul style="list-style-type: none"> <i>Understanding combination of four P's</i> <i>Describe various types of product strategies</i> <i>Specify ways to apply place (distribution) strategies</i> <i>Explain the methods used in developing pricing strategies</i> 	
	2.2 Promoting your Product/Service		
4	<ul style="list-style-type: none"> The elements of communication Choosing a promotional mix Developing a promotional plan Developing a media planning 	<ul style="list-style-type: none"> <i>Summarize the basic principles of promotion</i> <i>Define the elements in a promotional mix</i> <i>Examine what's included in a promotional plan</i> <i>Discuss how to implement the media planning.</i> 	
	3.0 Financial Statements		
5	3.1 The cost of doing business		
	<ul style="list-style-type: none"> What is a fixed cost? What is a variable cost Interest of knowing fixed What is a profit? How to obtain it? Total costs What is a net profit? 	<ul style="list-style-type: none"> <i>Define and provide examples of fixed cost</i> <i>Define and provide examples of variables</i> <i>Explain how variable cost are calculated</i> <i>Explain how to calculate Net Profit</i> 	
	4.2 The Balance Sheet		
8	<ul style="list-style-type: none"> What is a balance sheet? Elements of balance sheet Non current asset Current asset Liabilities and Equity 	<ul style="list-style-type: none"> <i>Identify the purpose and components of a balance sheet</i> <i>Explain how balance sheets are prepared</i> <i>Provide two methods used to analyse balance sheets</i> 	
	5.0 Business communication		
12	<ul style="list-style-type: none"> What is communication Components of communication Different types of communication Challenges of communication 	<ul style="list-style-type: none"> <i>Define communication within business</i> <i>Identify and explain different types of communication</i> <i>Provide examples for each type of communication</i> <i>Explain challenges of communication with diversity</i> 	

	<ul style="list-style-type: none"> • Diversity and communication • Intercultural communication 	
	6.0 Compiling a Business plan	
13	<ul style="list-style-type: none"> • Components of business plan. • Business plans from an entrepreneurial and investor's perspective • Positive and negative features of a business 	<ul style="list-style-type: none"> • <i>Define a business plan</i> • <i>Discuss entrepreneurial and investors' perspectives of a business plan</i> • <i>Explain the features of a business plan that attract or repel investors</i>
	6.1 Discuss the content of a business plan	
14	<ul style="list-style-type: none"> • Marketing plan • Financing • Operation • Supporting documents 	<ul style="list-style-type: none"> • <i>Do a marketing plan</i> • <i>Do a financial plan</i> • <i>Do an operating plan</i> • <i>Provide supporting documents for a business plan.</i>



CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

FACULTY OF INFORMATICS & DESIGN

LEARNER GUIDE

NATIONAL DIPLOMAL: GRAPHIC DESIGN

SUBJECT: PROFESSIONAL PRACTICE 3

(PGP 300S)

Lecturer: Mr. Gabriel F KABULUKU

1 Aim:

Welcome to Professional Practice 2016. Professional Practice is one of the courses covered towards the National Diploma in Graphic Design. Congnisant of the volatile economic environment confronting most nations today, and the seemingly deteriorating pool of salaried work, the Professional Practice (Business study) curriculum is designed to give students the

knowledge needed to start, own and run own business/practice, as well as prepare them for the work environment. At this stage Professional Practice will focus on very specific topics, such as how to protect business and why, more specifically why to mitigate risk by paying insurance, why to pay taxes. The students must have a clear understanding of management and different areas of management, this includes project management, production management, strategic management, just to mention the few. To achieve the course's objective the following teaching and assessment approaches are adopted:

1.1 Teaching:

- Lessons taught in class are complemented by visits to the industry/businesses.
- Power point presentations are encouraged through which students gain the confidence and expertise needed when speaking to small and large groups of people.
- Case studies, worksheets and projects are utilised to emphasise key concepts.

1.2 Assessment:

- Formative assessment tasks are utilised to gauge student's understanding. For instance, students are encouraged to complete the "in text" questions that appear regularly at the end of each lesson.
- Projects meant to simulate real life situations are carried out both as formative and summative assessment.
- A variety of other methods of assessment are encouraged. These may include worksheets, assignments, projects, case studies, oral presentations and written tests.

1.3 Critical Cross-Field Outcomes (CCFO)

The aim of CCFO's is to direct educational activities towards the development of learners within a social and economic environment. Critical outcomes are part of the basic approach to this course.

2 Where your lecturer may be contacted

- Cape Town Office: Room 2.32 B, Design Building
Phone: (021) 460-3450
- Bellville office: Room 0108
Email: kabulukug@cput.ac.za

3 Participation and absenteeism

Attendance of all classes is compulsory. Any work given in class may be used for assessment. Missed work cannot be made up later and a zero will be recorded that will form part of the calculation of the year mark. It should be noted that missed classes would still require the student to find out what material was missed. It is the student's responsibility to make copies of fellow student's notes, handouts or assignments if it was impossible to attend a particular session.

4 Assessment and schedules

Course evaluation is continuous, through formative and summative assessments and final mark will be calculated as follows:

TERMS	Assessment	Weighting	Dates
Term 1	Class test and/ or project	15%	To be announced
Term 2	Class test and/ or project	30%	To be announced
Term 3	Class test and/ or project	25%	To be announced
Term 4	Class test and/ or project	30/0%	To be announced
		100%	

Note: Students have the opportunity to look at an answer paper after it has been marked.

5 Directives for Assignments and Projects

- Assignments/projects must be typed on one side of an A4 paper, in a readable font of 12 points, using 1.5 line spacing and justified aligned, with proper sub-headings, paragraph headings and page numbering. **No "hand written" assignments or projects will be accepted.**
- For assignments and projects, students are advised to strictly adhere to the prescriptions and the suggestion of the Harvard Citation Method Guide available from the faculty librarian.
- The use of only black ink is permissible. No other colour or fonts will be accepted.
- Each assignment of more than one page must be stapled. No binding, paper clips, torn corners or plastic sheets may be used.
- Cover page of the assignments and projects must clearly be identified with: Name of University, Name of Course (e.g. ND: Graphic Design) Assignment/Project No, Assignment/Project Title, Surname, Initials, Student No, Lecturer and due date.

6 Publication of marks

It is customary to receive progress report four (4) times a year, indicating your progress in all your subjects, including Professional Practice. Students are advised to **check their marks** every term and discuss any irregularities with the lecturer/tutorial lecturer in their first class/tutorial of the new term. A student ***cannot leave queries from the first or second term until the last term.***

NOTE:

- If you do not receive a report, please check your mark with your **lecturer/tutorial lecturer** in the first session of the new term.
- Marks for the 4th term will **NOT** be disclosed or discussed until moderation has been finalised, marks ratified and published.

In the case of test/project marks, all efforts will be made to ensure that students receive their assessment marks ten (10) days after taking the test. On publication of such marks, students are allowed five days (5) to query the marks.

7. Expectations of Students:

7.1 Behaviour/Class conduct

Students are expected to be punctual. Be respectful of fellow students and staff. Switch cell phone off. No physical or verbal disruptive behaviour will be tolerated. No unnecessary exiting of class will be allowed. No use of unacceptable language during class.

7.2 Attendance

Attendance of lectures and tutorials is compulsory. An attendance register must be signed and an attendance mark may be registered with each completed assignment (a minimum attendance of 80% is required).

7.3 Participation

A mark may be allocated for your participation during lectures and tutorials.

7.4 Submission of assignments

- With every assignment, instructions regarding due dates are provided.
- All projects must be handed in, during classes except otherwise stated.

- **Late assignments:** any assignments will have a 10% per day deducted from the final mark for being late. The first 10% is deducted at the end of the class as noted in the previous point.
- **Re-submission:** no resubmission will be accommodated.
- **Group projects:** Where group projects, are allowed, a maximum of five students may form a group. Each will obtain the same mark, unless otherwise indicated by the group. The lecturer is not liable for incomplete information on the front page and subsequent non-allocation of marks for students whose information has been omitted on the front page.
- **As a precaution, it is advisable to make and retain a hard (photocopy) or soft copy of the project/assignment.**

7.5 Rules and responsibilities

Students must familiarize themselves with all rules, policies and responsibilities as outlined in this course guide.

Absence from any assessment without a very good reason will result in a “0” being awarded. If sufficient grounds for a substitute assessment exist, the necessary documents (e.g. sick certificate) will be required.

7.5.1 Late hand-in procedures:

Option 1: If your work is late with no valid excuse, a minus ten percent (-10%) per day for up to three (3) days, then 0% will apply. This arrangement is maintained regardless of whether there is a scheduled class thereafter or not. The onus rests on the student to initiate contact for the hand in. **Please** note that your project/assignment is late immediately after the specified deadline time.

Option 2: Your work is late, but you have a valid excuse eg a medical certificate. Please note that a medical report is the only accepted valid excuse and the following procedure applies:

- Inform the lecturer via email that you are ill. The medical certificate must be valid at the time of your hand in/test. You need to hand in on the first (1st) day your medical certificate states you should return. You must produce the **original medical certificate** when you hand-in or write a test.

Option 3: Valid Excuse, e.g. Self Medication, transportation issues, etc. not covered in option 1 2 above, you must e-mail your project to your lecturer **BEFORE** the deadline. Make an arrangement to hand-in the hard copy of the assignment before or **on your** return.

N/B:

- Any query regarding a mark allocated for an assessment must be raised not later than one day after viewing the script and obviously, not later than five (5) days after publication of the marks as noted earlier.

7.6 Missed project/assignments/Test

All missed projects/assignments/tests that are supported by a valid excuse will be re-scheduled (written) for the beginning of the 4th term only, regardless of the term in which they occurred. Hence, if you have two or more missed assessments, you may have to write all of them on the same day at the beginning of the fourth term.

N/B: the format of the missed assessments will be strictly a test and regardless of whether it was an assignment/project that was missed. The scope of such a test will cover everything taught right up to the time of the test.

8 Syllabus and Schedule

<i>Professional practice 3</i>	
<i>You + { Your Business + Proper Management Skills + Your Employment } → { MONEY Excellent professional Career }</i>	
<i>To grow the South African economy, we all have to Think Like Entrepreneurs</i>	
<i>Learning Concept</i>	<i>Objective</i>
1.0 Protecting Your Business	
<ul style="list-style-type: none">• Why do we need protection?• What can be protected?• What tools do we have for protection?	<ul style="list-style-type: none">• <i>Explain why we need to protect our ideas or business.</i>• <i>Note the types of ideas or works that can be protected.</i>• <i>Examine the general tools that can be used to protect our ideas or businesses</i>
1.1 Legal Issues	
<ul style="list-style-type: none">• Benefits of Intellectual Property• Copyright and patent• Laws Protecting Your Works	<ul style="list-style-type: none">• <i>Explain the value to entrepreneurs of intellectual property law</i>

<ul style="list-style-type: none"> • Business Contracts • Seeking Remedy • Consumer protection Act 	<ul style="list-style-type: none"> • <i>Distinguish the types of work covered by each form of intellectual property protection</i> • <i>Describe the conditions needed for valid business contracts</i> • <i>Explain legal remedies for contract and intellectual property law violations</i>
1.2 Insurance	
<ul style="list-style-type: none"> • Understanding insurance • Types of business insurance • Buying Insurance • Reducing Business Risk 	<ul style="list-style-type: none"> • <i>Relate insurance to risk management</i> • <i>Describe different business insurance needs and options</i> • <i>Distinguish the qualities of a good insurance agent and good policies</i> • <i>Create a plan for reducing business risk</i>
2.0 Taxes & Government Regulations	
2.1 Taxes & Your Business	
<ul style="list-style-type: none"> • Why do businesses pay taxes? • What are the risks if business does not pay tax? • What taxes do businesses pay? 	<ul style="list-style-type: none"> • <i>Explain how the government uses tax money</i> • <i>Describe the purposes of business taxes</i> • <i>Suggest ways that businesses can reduce their taxes</i>
2.2 Government Regulations or requirements	
<ul style="list-style-type: none"> • Government as a regulator • Laws Employee protection (see SA labour law for • Laws protecting consumers (see the SA consumer protection Act) • Laws protecting the environment 	<ul style="list-style-type: none"> • <i>Understand the role of government regulation</i> • <i>Describe how laws require business owners to protect employees</i> • <i>Recognize unfair business practices related to customers</i> • <i>Describe requirements to protect the environment</i>
2.2.1 Statutory institutions in South Africa	
<ul style="list-style-type: none"> • Companies and intellectual Property commission (CIPC) • South Revenue Service (SARS) 	<ul style="list-style-type: none"> • <i>Understand the role and mandate of the (CIPC)</i> • <i>Understand the role and mandate of the SARS</i>
3 Business Management	
3.1 How to Manage a Business	
<ul style="list-style-type: none"> • Definition of management • Functions of management: planning, controlling, directing and leading • Levels of management and areas of management • Management versus leadership 	<ul style="list-style-type: none"> • <i>Define management</i> • <i>Study the management function of planning, organizing directing and controlling</i> • <i>Examine the benefits and cost of planning</i> • <i>Examine the importance of organising</i> • <i>Understand the different levels of management and associated responsibilities.</i>
3.2 Business Communication	
<ul style="list-style-type: none"> • What is communication • Types of communication • Importance of communication within business • How to improve communication • Barriers to communication • Communication and diversity • Intercultural communication 	<ul style="list-style-type: none"> • <i>Define communication</i> • <i>Explain different types of communication</i> • <i>Emphasis on the importance of communication</i> • <i>Outline barriers to communication</i>
4 Strategic Management and SWOT Analysis	
<ul style="list-style-type: none"> • Traditional management? versus strategic management • The Strategic Management process • Importance of strategic management • Vision and mission statement • Analysis of the external Environment • Analysis of the internal Environment • 	<ul style="list-style-type: none"> • <i>Strategic management defined</i> • <i>Understand the critical tasks that make up the strategic management process</i> • <i>Understand the importance of strategic management</i>
4.1 Project management	

<ul style="list-style-type: none"> • What is project management • Differences between project and project management • Different techniques used • Project Life Cycle • 	<ul style="list-style-type: none"> • <i>Define a mission</i> • <i>Define a vision</i> • <i>Explain external environmental analysis</i> • <i>Explain internal environmental analysis</i> • <i>Discuss the long term objectives</i> • <i>Discuss the short term objectives</i> • <i>Define implementation</i> • <i>Define control</i>
5.0 Managing Production, Distribution, & Operations	
5.1 Managing production & distribution	
<ul style="list-style-type: none"> • Site Selection and layout planning • Production management • Distribution management 	<ul style="list-style-type: none"> • <i>Learn about site selection and layout planning</i> • <i>Examine the tasks and tools of production management</i> • <i>Identify some tips on how to boost daily productivity</i> • <i>Explore activities within distribution management</i>
5.2 Managing Operations	
<ul style="list-style-type: none"> • Business day to day operations • Once off operations • Project management • General business policies • Customer service policies 	<ul style="list-style-type: none"> • <i>Define operations</i> • <i>Understand how business day- to- day operations differ from once-off operations</i> • <i>Examine project management and project management processes</i> • <i>Study general operating policies</i> • <i>Learn the importance of customer service policies</i>
6.0 Managing Purchasing & Inventory	
6.1 Managing Purchasing	
<ul style="list-style-type: none"> • What is purchasing? • Managing purchasing • The process of purchasing 	<ul style="list-style-type: none"> • <i>Define purchasing</i> • <i>Explore the factors in purchasing management</i> • <i>Learn about the process of purchasing</i>
6.2 Managing Inventory	
<ul style="list-style-type: none"> • Why manage inventory? • Planning inventory level • Controlling inventory levels 	<ul style="list-style-type: none"> • <i>Learn why managing inventory is important</i> • <i>Investigate ways to plan inventory levels and investments</i> • <i>Research methods for controlling inventory levels</i>
7 DESIGN MANAGEMENT	
<ul style="list-style-type: none"> • Design important for businesses? • Strategic design management • Approaches to design management • How design contributes to a business's strategy • How design can contribute to the marketing mix 	<ul style="list-style-type: none"> • <i>Describe design's importance for businesses</i> • <i>Describe the strategic role of design</i> • <i>Describe the different approaches to design management</i> • <i>Explain what design can contribute to a business's strategy and the marketing mix</i>
8.0 A Business's Electronic Environment	
<ul style="list-style-type: none"> • Introduction: the Electronic Environment 	<ul style="list-style-type: none"> • <i>Define the electronic environment of a business</i> • <i>Evaluation of the electronic environment as a component of the external environment of a business</i> • <i>Examine the impact of the electronic environment on a business</i>
8.1 E-Commerce	
<ul style="list-style-type: none"> • E-commerce as a component of the external environment of a business • Importance of E-commerce • Disadvantages of E-commerce • The critical success factors of E-commerce 	<ul style="list-style-type: none"> • <i>Define electronic commerce</i> • <i>Describe the various categories of E-commerce</i> • <i>Describe the benefits of e-commerce to the organization, Consumer and the society.</i> • <i>Describe the disadvantages of e-commerce to the organization and Consumer</i> • <i>Understand the critical success factors of entrepreneurship.</i>
8.2 Electronic Payment Systems	
<ul style="list-style-type: none"> • Introduction E-commerce payment systems • Advantages of Electronic Payments • Disadvantages of Electronic Payment Systems 	<ul style="list-style-type: none"> • <i>Define an E-commerce payment system</i> • <i>Identify the Advantages of Electronic Payments</i> • <i>Describe the disadvantages of Electronic Payment Systems</i>

APPENDIX F



**WORLD DESIGN CAPITAL 2014 OPPORTUNITIES FOR TRANSFORMING BUSINESS
STUDIES CURRICULA**

by

MICHELLE ANDREA BARNES

Proposal for thesis to be submitted in fulfilment of the requirements for the degree

Master of Technology: Design

in the Faculty of Informatics and Design

at the Cape Peninsula University of Technology

Supervisor: Prof Mugendi K M'Rithaa

Co-supervisor: Prof James Garraway

Cape Town

26 November 2013

CPUT copyright information

The thesis may not be published either in part (in scholarly, scientific or technical journals), or as a whole (as a monograph), unless permission has been obtained from the University

DECLARATION

I, Michelle Andrea Barnes, declare that the contents of this thesis represent my own unaided work, and that the 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.

Signed

Date

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2. Clarification of keywords and terminology

Introduction to the clarification of keywords and terminology

This research is positioned at the place where several well-defined disciplines overlap, namely education, design and economics, consequently the following list of keywords and terminology is necessarily long to ensure nothing remains unclear.

Business Studies

'Business studies' is the subject offered to students regarding aspects of business; it is referred to as professional practice in design programmes in the Faculty of Informatics and Design (FID) at the Cape Peninsula University of Technology (CPUT). Typically, the subject, which is taught in many countries contains aspects of economics, finance, accountancy, marketing and organisational studies.

Cohesion, social cohesion

The tendency for a group to be in unity while working towards a goal is known as social cohesion, it is multi-factored but includes social relations, emotions and perceived unity. In a general way, "social cohesion is the extent to which people work together when crisis strikes or opportunity knocks and is a key factor shaping economic performance" (Easterly, Ritzan & Woolcock, 2006).

Corporate Social Investment (CSI)

CSI refers to a company's financial and non-cash contributions to disadvantaged communities and individuals for the purposes of social upliftment and welfare and is part of the growing relationship between the business sector and the SA government to contribute to promoting national developmental objectives (Dialogue SA, n.d.).

Curricula

Curricula are the planned interactions of students with educational content, materials resources and processes for the evaluation of attainment of educational objectives. A curriculum would include: a statement of intended aims and objectives, content, experiences, outcomes and processes of an educational programme, including a description of the training structure (entry requirements, length and organisation of the programme) and also including its flexibilities and assessment system and a description of expected methods of learning, teaching, feedback and supervision (McClusky & Smith, 2008).

Design for sustainability

"Design for sustainability (DfS) is the interface of sustainable production and consumption" (Spangenberg, Fuad-Luke & Blincoe, 2010). It "stipulates that we should limit the exploitation of natural resources for the manufacture of new product, but focus instead on new ways of thinking" (Fry in Ambole, M'Rithaa, Moalosi, & Molokwane, 2012). Thus DfS may be thought

of as the philosophy of designing physical objects and services to comply with the principles of social, economic and ecological sustainability.

Economic resilience

A term I can find no-where, which to me means that a student not only possesses the 'graduate attributes' (a well-defined term, see (Cape Higher Education Consortium (CHEC), 2013; Griesel & Parker, 2009; Bath, Smith, Stein, & Swann, 2004), which enables them to attain well-paying professional employment in their chosen career field, but also includes the graduate having skills necessary to thrive economically when there is no employer to provide a job – an increasingly common condition for graduates in neoliberalism. Economic resilience will be described more fully within the findings of the literature review and as a result of the research findings.

Graduate attributes

Graduate attributes include problem solving, time and resource management, life-long learning, communication and self-management (Griesel & Parker, 2009; Yorke & Knight, 2006); see Section 5.4.1 for further elaboration.

Higher education institutions (HEIs)

In this context HEIs include any university, university of technology (UoT) and tertiary colleges.

Information Age

A term that loosely refers to the post-Industrial Revolution period, characterised by an economy based in information computerisation, also called the Digital Age or the Computer Age. Its essence is captured by Manuel Castells in the preface to his highly considered first volume of *The Rise of the Network Society: The Information Age: Economy, Society and Culture* as follows, "The constitution of a new culture based on multimodal communication and digital information processing creates a generational divide between those born before the Internet Age (1969) and those who grew up being digital" (Castells, 2010)

Multi-national enterprises (MNEs), multi-national corporations

MNEs are business corporations that are registered in more than one country. Many originate in Europe or USA and have proliferated with the growth in globalisation and world trade.

Neoliberalism, neoliberal capitalism

Refers to a de-regulated capitalist economy where certain economic checks and balances have been rescinded or liberalised, notably in the financial and banking sectors. Usage of the term began in the 1970s when the aforementioned liberalisation of regulations began. Characteristics include, "limited state regulation of the economy, privatization of state enterprises and responsibilities, a greatly reduced welfare state and weak trade unions" (Kotz,

2005). The term and implications will be discussed in-depth in the literature review in Section 5.2.4.

Social entrepreneurship

“Social entrepreneurship is a process by which citizens build or transform institutions to advance solutions to social problems, such as poverty, illness, illiteracy, environmental destruction, human rights abuses and corruption in order to make a better life for many” (Bornstein & Davies, 2010). It uses both business principles and those of non-profit organisations. In a corporate environment the term Corporate Social Responsibility (CSI) is used.

Social equity

Social equity is a sub-text of sustainable development and includes equal opportunity for all in a safe and healthy environment.

Socially responsible design

Socially responsible design (SRD) now “focuses on products, environments, services and systems that can alleviate real world problems and improve quality of life” (Davey, Wootton, Thomas, *et al.*, 2007).

Transformation

A change or alteration, especially a radical one (World English Dictionary); to give a different form to; to change the character of (*Webster’s Comprehensive Dictionary*, 2004, Trident Press, Florida)

World Design Capital (WDC)

The International Council of Societies of Industrial Designers (Icsid) created a promotional project called “World Design Capital”, whereby cities are awarded for accomplishments in the field of design. Four World Design Capital (WDC) awards have been made since inception: Torino (2008), Seoul (2010), Helsinki (2012) and Cape Town (2014).

3. Background to research problem

Earning a living is becoming increasingly precarious for graduates and others in the prevailing job-scarce neo-liberalism. Today it is not unusual to find graduates unemployed; surveys in South Africa indicate that graduate unemployment is due to the quality of graduates available, that there are not enough entry-level positions for graduates and firms are not prepared to take on inexperienced graduates at the middle-management level where there is a skills shortage (Pauw, Oosthuizen, & Van der Westhuizen, 2006; Fatoki, 2010).

There is thus a growing burden on South African HEIs to promote ways of thinking and being in students that promotes the ability to obtain employment or even the ability to create their own employment on graduation. Usually this translates into promoting entrepreneurial education in the academy as a way of providing employment through business growth. Despite the emphasis on this (Naidoo, 2003; Tovey, 2009; Carey & Matlay, 2010), there is a growing body of literature indicating there is not enough evidence that business education does indeed promote business growth and therefore job-creation for graduates and others (Fairlie, 2009; Nicolaidis, 2011; Matlay, 2006). Given this problematic situation, the undergraduate learning programme must transform students' ways of thinking about themselves and their chosen careers in such a way that they are most likely to thrive in a job-scarce economy.

As with many HEIs, the business studies curricula offered to students within FID at CPUT has not adapted sufficiently to the changing nature of capitalism from that of the mid twentieth century where a university qualification more-or-less guaranteed employment and a relatively comfortable standard of living, to the prevailing situation where graduate unemployment is rising alarmingly, notably in the arts and social sciences (Pauw, Oosthuizen & van der Westhuizen, 2006) and (Cape Higher Education Consortium (CHEC), 2013). Adjacent to this situation, the changing nature of entrepreneurial opportunities which now includes CSI, ecologically sustainable opportunities and internet businesses, so work opportunities may go unrecognised by the graduate as these opportunities may not fit the received business studies paradigm learning.

Too many design graduates are not sufficiently equipped to thrive economically, (be economically resilient), through the current business studies curricula within design programmes at CPUT.

In a job-scarce economy, individuals are forced to rely on their own mettle, becoming as entrepreneurial as possible to survive economically. Under-equipped graduates will face economic deprivation in an age in which graduate unemployment is rising.

The investment in education is not contributing to the national product in cases where graduates remain under- or un- employed. Individual economic hardship often leads to mental anguish, depression and impacts society in the form of health and welfare burden, poverty and in certain circumstances, crime. On a national basis, growing unemployment degrades and destabilises society and tends to produce periods of chaos and hardship for citizens, encouraging socio-political systems like fascism, dictatorships and small, corrupt ruling elite groups. This reduces personal freedom for the majority of citizens in a nation that has fought so hard to achieve democratic rights for all citizens.

Problem statement:

The business studies curriculum at CPUT is not providing design graduates with sufficient economic resilience in the prevailing job-scarce neoliberalist economic paradigm in South Africa.

4. Context of research opportunity

There is an opportunity for design schools in the Cape Town surrounds to collaborate with World Design Capital 2014 (WDC 2014) projects. As CPUT has shown interest and participation in the run-up to the WDC 2014 award (Ambole, M'Rithaa, Moalosi, *et al.*, 2012) it is well-placed to gain from this synergistic relationship to expand the business studies programme, to include social entrepreneurship learning in keeping with WDC motives and societal needs. The work integrated learning, (WIL) programme which places students in industry may also gain valuable contacts for future students in years to come.

Design students collaborating with local and regional government, business and civil society in social entrepreneurial projects, promoted through WDC 2014 mechanisms will gain insight into entrepreneurial thinking and aid the design graduate in being better prepared to interface with the world of work (WoW) on graduation.

Design students would gain practical, relevant experience including business management which would enhance their learning in dealing with economic realities. The reputation of the design department business studies programme would be enlarged. FID would gain valuable real-world contacts for collaborative projects for future students which would further enhance graduate employability and the reputation of the Faculty and CPUT.

As Cape Town is the first African city to be chosen as a WDC, the local design student and design HEI who participate in social entrepreneurship projects related to WDC 2014 have unique opportunities to boost network contacts with the WDC network partners. The FID design department WIL programme stands to benefit beyond the WDC 2014 period as relationships formed then are maintained and expanded upon in future years in fulfilment of the university mission namely (CPUT, n.d.):

Cape Peninsula University of Technology Mission Statement:

The four aims that comprise our mission:

We will build a university that is highly efficient, sustainable and environmentally conscious

*We will be known for the high quality of our teaching and learning and the **relevance of our curriculum***

We will create a vibrant and well-resourced living and learning environment for our students

*We will **enhance and develop the quality and effectiveness of our research and knowledge production.***

5 Literature review

Firstly, a review of what WDC means to Cape Town and the economic history of the City will be briefly considered, then an examination of capitalism and neoliberal capitalism will be undertaken, to afford understanding of the economic backdrop of the research problems and questions. Next the business studies curriculum and entrepreneurial qualities will be considered in the light of promoting economic resilience in students and graduates.

5.1 World Design Capital (WDC) 2014

The WDC concept was founded with the express idea that design is a tool for development and can be used for social, cultural and economic improvement. Global appeal and collaboration are encouraged so that design networks worldwide promote design to their various governments. The WDC concept honours cities striving to attain these goals.

Once the WDC status was awarded, Cape Town chose as its main theme: Live Design, Transform Life, with four sub-themes (Icsid, n.d.)

1. **African Innovation. Global Conversation:** African ideas that speak to the world
2. **Bridging The Divide:** Design that reconnects our city and reconciles our communities.
3. **Today For Tomorrow:** Sustainable solutions for people and planet.
4. **Beautiful Spaces. Beautiful Things:** Inspiring architecture, interiors, food, fashion, jewellery, craft, art and creativity.

The overall importance of integrating a city divided by its *apartheid* past and economic inclusion of all community sectors is seen as a key feature of WDC 2014. The four themes decided upon will be used to promote projects which give evidence of how design improves lives in the local African context and positions Cape Town for a sustainable future. CPUT's mission statement in Section 4.3 above, thus integrates well with the objectives of WDC 2014.

Gillian Benjamin, board member of the WDC 2014 company, Cape Town Design, said in an interview in the journal Management SA in April 2013 (Rossouw, 2013), that it is crucial that Cape Town be positioned as a design and innovation excellence city, especially in the emerging market sphere where Cape Town is facing challenges of basic services delivery and sanitation which typically accompany rapid urbanisation. Consequently, she asserts that there is a strong desire for community participation in keeping with the ethos of WDC awards.

The Western Cape Design 2040 Strategic Framework considers various avenues to promote design within the Western Cape. It recognises that South African business generally does not hold design in any special regard for conducting business. Cape Town business is on the lowest rung but one, of the design maturity ladder recognising 'design as styling' only, (Elk & Bloom, 2012).

The World Design Survey of 2010 which was commissioned when Seoul was awarded WDC status in 2010, recognises that, "there is a gap between design-intensity and sophistication of the Western Cape and SA economies generally" (Seoul Metropolitan Government, 2010) compared with global competitor countries (Boting, Standish, Marais, *et al.*, 2013). Specifically mentioned was South Korea, a country of similar population size to South Africa which has 237 design education institutions whereas SA has about 50. Also included in the survey was the fact that SA and the Western Cape, "has very few internationally-recognised design-lead brands with strong export performance".

There appears to be plenty of scope to showcase design for social, sustainable purposes to improve the lives of Capetonians also to get recognition from government and civil society of design as a creative force for social good and that this should be necessarily considered in planning a sustainable future.

On the 31st October 2013 the programme for the WDC 2014 was announced, it includes 450 projects of the more than 1250 publicly submitted projects and have been rigorously scrutinised and officially recognised by the Cape Town Design Company. In addition to this, a community design project from each of Cape Town's 111 municipal wards is also anticipated. The Executive Mayor of the City, Alderman Patricia de Lille announced that they will be using "excellence of design, to design the change we want to see in our city". Aside from the four recognised sub-themes, (see above) the final projects were organised into six clusters (Urquart, n.d.)

1. Lifestyle enhancers
2. Business that builds
3. Sustainability solutions
4. Connections that unite
5. Education that elevates and
6. Community improvement

The official launch of WDC 2014 is on 31 December 2013.

5.2 Cape Town today: socio-economic legacy of apartheid

Cape Town is considered the least integrated of all South African cities post the 1994 first democratic elections (Turok, 2001a). Deep social and spacial differences still remain between many traditional suburbs and township or informal settlement areas throughout the City. The merging of local municipalities into the 'Unicity' in 2000 has shown some promise of a more integrated and coordinated effort to address some of the worst inequalities.

Whilst the great hope and euphoria of the Mandela years of government (1994 – 1999) are fondly remembered, the newly elected government overlooked an uncompromising force in neoliberal capitalism in seeking to fulfill the dreams of economic and social freedom for all people who were enslaved by *apartheid* and colonialism. How may Cape Town develop economically in a neoliberalist economy given the colonial past?

5.3 Knowledge transfer in Cape Town: learning global competitiveness from multinational business entities (MNEs)

South Africa is a small but global player in the world economy and must thus compete internationally to survive. Knowledge and the transfer and diffusion of knowledge is a key factor in global competition – see Fagerberg & Verspagen (2002) in (Lorentzen, Muller, Manamela & Gastrow, 2011). Cape Town has some potential 'smart specialisation' opportunities in certain sectors namely agro-processing, retail, tourism and the creative and design sphere which have been recognised as occurring through the 'spillover' effect of knowledge from multinational business entities (MNEs) (Elk & Bloom, 2012).

As much competitive knowledge and new technologically findings are brought about by internationally global businesses (MNEs), policy and relationship with MNEs are seen as important for economic advancement of a city or region. The interaction between global competitors and local capabilities has an important implication for local 'spillover' of knowledge

into the community (Lorentzen, Muller, Manamela, *et al.*, 2011). By implication, local education and business need to take cognisance of this situation, of the knowledge to be gained and how to integrate this into local teaching, learning and business, to best advantage.

5.4 The Cape Town economic outlook

The survey described by Lorentzen *et al* in 5.2.1 above was performed in 2010; it demonstrated that the creative and design sector was characterised by the convergence of multimedia and telecommunications technologies for use in the creative fields; it emphasised that MNEs contributed through global knowledge absorption into local business via their own innovation requirements. The synergy between MNEs and the local design community was recognised in the form of the East City Design Initiative, the cooperation with local design education institutions and the potential for entrepreneurial expansion.

A virtuous circle effect Cape Town has stems from its natural beauty; the spectacular setting attracts skilled knowledge workers from elsewhere who often start or contribute to local business through their high quality tertiary education and innovative business principles. The survey concluded that unless there was recognition of the varying capabilities within identified sectors, including the creative and design sector, no amount of policy or strategy to assist with competitiveness would be of use (Lorentzen, Muller, Manamela, *et al.*, 2011); there is clearly an opportunity here for education institutions to grasp.

It appears that a 'skilling up' of local citizen through their picking up of tips (the spillover effect), from international businesses will enable them to compete globally and is a commonly perceived way of encouraging Cape Town's global competitiveness. This sounds rather like 'trickle down economics' – a phrase that has come to mean government tax cuts notably for business and the wealthy and limiting government spending, (often by curbing welfare services). The concept of the 'trickle' is that these cuts stimulate economic growth as business has more funds available for investment due to the tax breaks. Business is then more inclined to invest in infrastructure which enables greater production and employment and thus even poorer individuals share in the benefit as they trickle down through this process. It was particularly advocated during the Reagan presidency in the USA, (1980- 1988) and the Thatcher years in the UK (1979 – 1990). In an age when economic growth is scarce, more than a 'trickle' is required.

5.5 Cape Town: from early twentieth century economic heritage to future vision

Since early in the last century and despite the expanding fortunes of Johannesburg and the Witwatersrand mining industry generally, Cape Town became a cultural, administrative and service centre. Significant contributors to the Cape Town economy included manufacturing industries like clothing, textile, paper, printing, light engineering, food and beverages, all established by the end of the First World War (Wilkinson, 2000).

The first official racial separation in Cape Town occurred in 1901 done ostensibly to avoid the spread of bubonic plague. The Natives Act (Urban Areas Act) of 1923 lead to the local establishment of the 'model Native village' of Langa in 1927. By the 1920s the Municipality began developing housing in the Cape Flats region for working-class Coloured families but many residential areas remained mixed. Formal land use zoning occurred in the 1930s and included an ambitious dockland. Duncan Dock was completed in the 1950s by which time the

Nationalist Party (NP) had narrowly won power (1948). The Group Areas Act of 1950 had a devastating affect on local communities and culminated in forced removals in the 1960s of about 150 000 people from inner city, (notably District Six in the East part of the City) to housing estates on the Cape Flats.

By the 1990s the City CBD and areas to the North and South held 37% of housing, but 80% of jobs causing huge daily commuter traffic adding strain to bus, train and road routes as was recorded in the then Cape Town City Council Report of 1996 (Turok, 2001b). Poorer people live on average about six km further from their place of employment than wealthier residents which is unusual by world norms and is primarily due to policy. This situation has overburdened public bus and train transport particularly and has meant the City has had to subsidise those services heavily to ensure poorer workers can afford transport to work.

Reintegrating into the world economy after the isolation of the *apartheid* years was firmly in mind in the negotiations that led to the peaceful transition of power to the democratically elected ANC government in 1994. What was not necessarily appreciated by the negotiators was the changed nature of the way international business was conducted. Neoliberalism gained legitimacy during the negotiations mainly through the declining economy of the time. Investment in GDP had slipped from about 26% in 1980 to 15% in the early 1990s and negotiating parties were warned that the economy was in decline and that they needed to be careful not to exacerbate the position, as Alan Hirsch (2005) says:

The spectre of a shrinking economy imposed a terrifying parameter on the new government...Economic conservatives and representatives of business frequently warned the ANC that it should 'not kill the golden goose' in its efforts to rectify South Africa's inequalities, through higher taxes for example.

As a modern city seeking to establish itself as a world-class city, Cape Town is firmly bound in neoliberalist tradition of profit-making. Simultaneously the City is unable to compete effectively internationally because much of the local population has had no access to world-class education and mostly lives in the same (or worse) circumstances as in the colonialist past. This means that Cape Town's ability to compete often depends on foreign knowledge-workers who settle in the City (Lorentzen, Muller, Manamela, *et al.*, 2011), and a small section of the local population (mostly Whites), who have managed to attain competitive education. There is thus the recognition that economic competitiveness requires upgrading of both local education and living conditions equally for all citizens.

Inequalities in income, space, earning power, employment, access to education, transportation, health care and basic services mean Cape Town cannot be described as "socially cohesive" in the sense that Fukuyama intends in his definition of "an instantiated, informal norm, that promotes co-operation between individuals" (Fukuyama, 2001).

Nevertheless this does not mean that there is no social cohesion if we remember that the term has several domains, including common values, civic culture and order, social solidarity, social networks, social capital and a sense of place identity (Forrest & Kearns, 2001). Cape Town

cannot be said to have much 'social capital' either. Robert Putnam (2001) describes the term as:

...networks and the associated norms of reciprocity, (that) have value for the people who are in them and at least in some instances, demonstrable externalities so that there are both public and private faces of social capital ...

More socially cohesive societies are ones where there are fewer opportunities for division or when societal diversity may can be capitalised upon. What is also true about social cohesion is that, (particularly in low-income countries), it is vital when it comes to implementing policy reform and low social cohesion is one of the main reasons policies fail (Easterly, Ritzan & Woolcock, 2006).

Whichever way we think about Cape Town, many of its poorer areas have lost much social cohesion, experience intolerable social dislocation and are thin on social capital. Even in more affluent areas where people have moved firmly in to the 'Information Age', society has reorganised into excessive individualism which displays only a veneer of social cohesion in many instances. If anything, "a dynamic technologically innovative economy will by its very nature interrupt existing social relations" (Fukuyama, 1999).

WDC opportunities like "Open Design Cape Town" and "Creative Week" have given movement to including all citizens in initiatives to create and design within the greater City (OPEN DESIGN Cape Town, n.d.). A further collaborative project between FID Design Department and the City of Cape Town Solid Waste Management Department (the SWaMP Project) where students and researchers have been tasked with designing solutions to solid waste collection in informal settlements is typical of a WDC opportunity that promotes student and graduate awareness and participation in solving real-world problems and includes the possibility of commercialisation of solutions found in keeping with WDC2014 spirit, CPUT mission statement, sustainable responsible design (Melles, Vere & Mistic, 2011) and this research study.

5.6 A critique on neoliberal capitalism

Early capitalism

Our modern concept of capitalism stems from Englishman Adam Smith. He wrote "*An Inquiry into the Nature and Causes of the Wealth of Nations*" in 1776 and said the following:

*Every individual endeavours to employ his capital so that its produce may be of greatest value. He generally neither intends to promote the public interest, nor knows how much he is promoting it. He intends only his own security, only his own gain. And he is in this led by an **invisible hand** to promote an end which was no part of his intention. By pursuing his own interest, he frequently promotes that of society more effectually than when he really intends to promote it.*

Although we still use Smith's term "invisible hand" we generally mean it to be what we now call the 'free market' or 'capitalism'. Smith's statement is quoted and misquoted by politicians and economists alike to serve their purposes. Further reading of Smith's work indicates that he used the term ironically and was contemptuous of anyone who wanted a special advantage over others, specifically he cites the case of merchants who expect tariffs to be imposed on imports (Rothschild, 1994).

The wary and the cautious

Smith was not alone in his wariness of those who wanted an unfair advantage and politicians, economists and philosophers throughout modern history have understood the need to guard against a dominance of the powerful. Franklin Delano Roosevelt (32nd president of the USA from 1933 – 1945), who took office at the height of the Great Depression, is an example of a statesman who understood the need to maintain a balance between ordinary citizens and the economically powerful. He was mindful that the stock market crash of 1929 was precipitated by bankers who allowed borrowers access to funds to purchase shares in the speculative stock bubble of the 1920s which led to the crash (Samuelson & Nordhaus, 2010a). At his inauguration in March 1933 (Roosevelt, 1933) he challenged bankers and moneylenders as he remarked:

.... faced by failure of credit they have proposed only the lending of more money. Stripped of the lure of profit by which to induce our people to follow their false leadership, they have resorted to exhortations, pleading tearfully for restored confidence.... The money changers have fled from their high seats in the temple of our civilization. We may now restore that temple to the ancient truths. The measure of the restoration lies in the extent to which we apply social values more noble than mere monetary profit.

These words sound hauntingly true in the 21st century when we consider the financial crisis that occurred in 2008.

The opposition

The thoughts of philosopher Karl Marx (1818 - 1883), also sound an eerie warning from across the centuries. His theories about society, economics and politics indicate that society progresses through class struggle. He was a keen critic of capitalism recognising that the owner of the means of production would always hold the upper hand over the individuals whose only way of earning a living was to sell her/his services to the capitalist. He saw the 'surplus value of labour' (the difference between what the labourer was paid and the true worth of his labour effort) as effectively being stolen by the capitalist. He believed that the labourer would grow increasingly dependent on the capitalist for his living and that without some means of balancing the relationship, the labourer would end in severe poverty and a slave to the capitalist. He inferred that capitalism would self-destruct and leave a socialist government by the working-class instead. Ultimately he saw a universal class-less communism supplanting even socialism. The real impact of his work has only been felt since his death and shapes socio-political-economic thinking everywhere to this day. He is considered the originator of studies in sociology and perhaps his impact is best described by South American revolutionary Ernesto (Che) Guevara (1960):

The merit of Marx is he suddenly produces a qualitative change in the history of social thought. He interprets history, understands its dynamic, predicts the future, but in addition to predicting it, he expresses a revolutionary concept: the world must not only be interpreted, it must be transformed. Man ceases to be the slave and tool of his environment and converts himself into the architect of his own destiny.

Despite Marx's enormous influence on society, he could not predict that his socialist-communist ideals would be derailed by history. The fall of the Berlin Wall in May 1989 and the venturing of China into the world "free market" economy would have amazed him. Capitalism appears to have triumphed for the moment.

A capitalist evolution

Capitalism evolved during the 20th Century, the American economy boomed during and after the Second World War, (WWII). In time, unskilled and even middle-income earners in the USA and elsewhere have felt the effects of technological advancements and globalisation in diminishing their earning-power. As the economic concept of 'comparative advantage' gained adherents, more and more nations began trading their specialised goods on the international open market. In many countries this meant that lower and middle-income workers earning capacity declined in their home country as goods were manufactured in nations where wages were lower. Changes in the world monetary system occurred in the 1970s. These changes included lobbying by the banking and financial sectors for relaxing or liberalising banking regulations. Consequent to this the so-called 'FIRE' industries (finance, insurance and real-estate) gained predominance over manufacturing (Samuelson & Nordhaus, 2010b). Highly skilled workers, especially in finance increased their incomes as the unskilled and middle-income earners share of income fell.

A capitalist revolution

The combination of the fractional banking deposits, liberalising of banking regulations and technological advances (Samuelson & Nordhaus, 2010b) have turned capitalism into what we now call neoliberalism. It appears to lead to crises of under-consumption where real wages stagnate and profits continue to grow. However what is at work is over-investment in fixed capital (Kotz, 2011) and leads to an "asset-induced" over-investment bubble. Firms invest more in fixed capital to cope with the apparent increase in demand but when demand falls to 'normal' levels, (i.e. asset value deflates to a real market-related value) the over-investment in capital becomes apparent as was amply demonstrated in the 2008 financial crisis. Kotz, (ibid); history demonstrates that from 1980 – 2007 it was the long-term rise in household debt levels that led to the crisis.

The domino effect: bringing the crisis home

Despite the fact that the South African banking sector had minimal exposure to the contagion that caused many US and European banks to collapse, South Africa lost more than one million jobs due to the severe depression in global markets caused by the banking crisis of 2008; many other small open economies were pushed into a similar circumstance (Statistics South Africa, 2013).

We live within an economic system, devised by humans, that places no intrinsic value on humans and yet we are human. We have seen how this system evolved to entrench the powerful, now we must understand how to transform ourselves to rule the system instead of the system ruling us. We can learn from our mistakes, but we are pitifully slow to do so as is illustrated here by Ann Pettifor (2010):

The tragedy of our predicament is the result of ignoring, denying and even concealing lessons known to our predecessors, especially those that dealt with the Credit Crunch of the 1920s and 1930s. The most important of these lessons is that the interests of the private financial sector are opposed to the interest of society as a whole, and therefore have to be carefully regulated by bodies accountable to the public.

5.7 Business Studies curricula in design studies at CPUT

5.7.1 The common business studies teaching model

In many HEIs the world over, including CPUT, the 'bank manager' model of teaching business studies still applies, this model insists that what the student must be able to do is provide a business plan to a bank manager when asking for a loan. A business plan would include an introduction, executive summary, financial and marketing plans with a costing model, and include staffing and capital requirements (Parker, 2006); (Anon, 2006) and (Carey & Matlay, 2010). Whilst all this information is necessary in a business course, it is not sufficient to enhance a student's understanding of, (amongst others) personal entrepreneurial traits, creativity and innovation and what makes a specific product or service a commercial success. It is only useful to someone who is looking to expand an existing business and no banker would lend money willingly to an inexperienced graduate, no matter how entrepreneurial their idea, given the overwhelming failure rate of new businesses (van Scheers, 2011). In design disciplines however, it is possible to teach entrepreneurship and business studies to students in a less alien way that promotes innovation and indirectly, economic resilience (Carey & Matlay, 2010).

5.7.2 Why this needs to change: the dialectic

Neoliberal capitalism isn't working economically for the majority of citizens or the planet; MNEs may assist small business via CSI but if an emergent business grows enough to compete, it will be wiped out by the hegemonic position of the MNE. Added to this contradiction is a second one: as the vast majority of assets and wealth are owned by about two percent of the population (Klein, 2007) and this is only worsening with the shrinking and down-grading of middle-class employment, it should be obvious that the growing pool of unemployed and working poor cannot buy what is for sale; Marx was correct; capitalism will implode unless a way is found to allow small business to flourish and compete equally with MNEs, monopolies and oligopolies. Fair business competition can only occur if there is a societal paradigm shift which recognises that neoliberalism is unsustainable and appreciates the necessity of educating people to be enterprising and economically resilient in a sustainable way. In a business studies curriculum this means taking cognisance of the vulnerability of neoliberal thinking and moving beyond the bank manager model as a way of preparing graduates for socio-economic reality.

Derrida makes the point that there is a tension that exists between the dream of democracy and the reality and that it is in this space that education belongs (Giroux, 2005). Pedagogy must intervene to create citizens who participate in public life, question institutional authority and recognise and act on the dream-reality differential, as Giroux (2005) himself says:

Pedagogy is in this sense, central to democracy because it represents an essential dimension of justice, offering the conditions necessary for the individual to become autonomous in order to make choices participate in and shape public life and develop a socially committed notion of justice.

It appears that the structure of democratic society is dependent on education not only to facilitate earning a living but also to maintain a healthy democracy.

5.8 Economic resilience in graduates

As indicated in the term section 2.2, I have been unable to find a term that defines economic resilience, the nearest I can find is 'career resilience' described in 5.5.1 below but it is linked to social resilience and transformative potential which we are discussing here.

5.9 Graduate attributes: employment versus employability: getting a job versus career resilience

In the South African context research on graduate attributes refers to the skills and abilities employers expect graduates to have. Attributes include problem solving, time and resource management, life-long learning, communication and self-management (Griesel & Parker, 2009) and (Yorke & Knight, 2006). Barrie adds that the term is used to describe core underlying skills that universities generally believe students should develop in the years of study. They are separate from discipline-specific skills or knowledge and include attributes people develop that contribute to their agency for social good "in an unknown future" (Barrie, 2007); this speaks also to Giroux's concept of education being central to democracy.

Bettina Brown sees the notion of graduate attributes somewhat differently; she terms this 'career resilience'. Career resilient characteristics include: adaptability to change, teamwork, effective communication, a positive flexible attitude, continuous learning, willingness to take risks and self-confidence. She emphasises employment versus employability, where employment indicates a person may be an employee but employability includes more. She recognises the shift in the relationship towards a greater self-reliance, self-management and self-development on the part of the employee, which speaks to Barrie's learning attributes and technical skills (Brown, 1996) but also sees that the relationship change means individuals can no longer expect to have only one job for life. Individuals are expected to maintain their own employability and move on to other jobs in time.

It is noteworthy that in the period between Brown's 'career resilience' (1996) and Griesel and Parker's 'graduate attributes' (2009) terms, the manner of describing what is expected of the

graduate has changed, nevertheless both perspectives envisage that the graduate is still employed by someone, i.e. the graduate remains an employee.

Up until the 1960s the employer/employee relationship was thought of almost as a parent/child relationship where employees frequently worked for one employer for life, but this has been shifting since then to more of a partnership where both parties expect a constant development by the employee to maintain employability. This partnership is facilitated by the employer through available training and use of new technology or tools. Career resilience nevertheless still refers to some form of employment albeit at a more self-directed, personal level to make a difference to the organisation where one is employed but where the employer is no longer responsible for job-security of employees (Brown, 1996).

This emphasis on attributes employers and HEIs expect the graduate to have masks the reality of shrinking job opportunities for the graduate as well as others, notably since the 2008 global economic crisis.

5.10 Entrepreneurial and self-employment attributes

Before investigating entrepreneurial attributes, we need to be clear on what entrepreneurial activity is (Rwigema & Venter, 2004):

... a process of conceptualising, organising, launching and through innovation, nurturing a business opportunity into a potentially high-growth venture in a complex, unstable environment.

Self-employment means anyone running their own business dealing directly with consumers; it would include tradesmen like plumbers and electricians or even medical practitioners. The self-employed personal enterprise need not be innovative nor have high-growth potential and is thus not entrepreneurial as defined above, nevertheless the self-employed person does share some of the entrepreneur's characteristics mentioned below.

Traits of the typical 21st century entrepreneur would include being hard-working, a fast-learner, socially connected, a risk manager, self-sufficient and a wealth-seeker. This modern entrepreneur acknowledges risk and recognises the need to manage it. In previous decades the entrepreneur was viewed as a "risk-taker" and socially isolated (Katz & Green, 2009). In today's internet world, being connected is seen as essential to being a successful entrepreneur.

It should be clear from this discussion that equipping graduates to thrive in an increasingly economically competitive society requires continual adjustment of the pedagogic programme, both to use opportunities that arise and also to question epistemological and ontological thinking which may have become outmoded.

6 Research questions

Restatement of problem:

The business studies curriculum at CPUT is not providing design graduates with sufficient economic resilience in the prevailing job-scarce neoliberalist economic paradigm in South Africa.

2.1 What curricula components promote economic resilience in the design graduate in the current economy?

2.2 How can WDC2014 opportunities help transform curricula in business studies in design within FID to promote economic resilience?

	Sub question	Source of data	Objective
6.1.1	What is meant by economic resilience?	Literature review, data analysis	Define economic resilience
6.1.2	How does economic resilience differ from graduate attributes and entrepreneurial attributes?	Literature review, data analysis	Distinguish between these terms for clarity and further research
6.1.3	What economic resilience components are currently included in the business studies curricula?	Existing design programme study guides, SAQA curricula definitions and business study lesson plan schedules	Establish gaps and deficits in the curricula where economic resilience is not being included
	Sub question	Source of data	Objective
6.2.1	What WDC2014 opportunities are available to design students?	Interviews with WDC2014 design industry leaders and WIL programme coordinator	Clarify WDC2014 components suitable for teaching and learning purposes
6.2.2	How can these opportunities be included in the academic programme for business studies in design?	Interviews with WIL programme coordinator, design programme lecturers and business studies lecturers	Translate WDC2014 opportunities into academically sound teaching and learning principles suitable for inclusion in curricula

3 Aims and objectives of the research

	Aims		Objectives
7.1	Determine inputs for the business studies curricula that enable design graduates to thrive in a job-scarce economy	7.1.1	Tabulate economic resilience attributes determined through literature review, interviews and video-graphic research findings
7.2	Focus the employment and entrepreneurial component of the Business Studies curricula of the Design offering within FID through WDC collaborative opportunities	7.2.1	Tabulate entrepreneurial and employability attributes and skills currently included in the business studies programme and add components identified through research findings
7.3	Promote the “Quad-helix” relationships of education, industry, government and civil society to further the WIL programme through WDC2014 opportunities	7.3.1	Identify and tabulate any potentially useful contacts within the quad helix developed through WDC2014 links for the WIL Programme

7 Research design and methodology

Activity Theory (AT) will be used as a theoretical framework as this study explores how both an individual and a group or network within society constructs meaning and how this may translate into economic resilience. This speaks to the first generation founding principles of AT as well as the second and third generation elaborations which consider the cultural diversity insensitivities of subjects within an activity system (AS) as well as the complexities imposed by dealing with “a constellation of activity systems” (Engeström, 2001).

The research includes exploring societal understanding of what it means to be economically resilient and how this concept may be incorporated into a business studies programme, given the constraints of neoliberalism. Ontologically this requires a nominalist stance, speaking to the validity of the individual’s experience, and not regarding social reality as fixed. In particular the social realist ontology of Margaret Archer (Luckett & Luckett, 2009) and more traditional Activity Theory ontology of the cognition of the individual in society, versus merely situated learning theory, will be considered (Jonassen, 2000).

The philosophical underpinning of this study looks at what is considered as knowledge or truth and relates to what an individual within society can know and believe applies to them, thus epistemologically the lens is subjective, or anti-positivist. The axiology includes value assumptions of the researcher which inform the research, particularly through the criticalist stance which seeks to change the reality of under-preparedness of graduates to thrive in neoliberalism. The overall paradigm of the research is that of the radical humanist (Burrell &

Morgan, 1979); the researcher believes the economic reality of neoliberalism suppresses the interests of the majority of human beings living within this system and that this injustice needs to be undone. Whilst it is not the purpose of this work to overturn neoliberalism, better ways of thriving within this socioeconomic constraint are sought. Radical humanism seeks to improve organisational structures through emancipation and thus resonates with transforming business studies curricula in neoliberalism (Morgan, 1980).

As the questions hinge about what promotes economic resilience and how to include this in curricula in an academically sound way, it is important to consider the students' perspectives and how they are able to learn. To this end, Lev Vygotsky's "zone of proximal development" (ZPD) education psychology concept will be engaged. The ZPD is described by Wood and Wood, (1996) "as the gap between what a learner can achieve alone by independent problem-solving and what can be achieved with guidance". The ZPD concept is used in Vygotsky's AT framework which views the individual as seen within their own historical cultural context and understands that we all build our own learning framework based on our context.

Leont'ev and later Engeström expanded and elaborated on Vygotsky's original theory to make it applicable to groups of people rather than merely individuals. Subsequent to this, Engeström considered the network interaction of two or more activity systems (AS) and showed how new learning was possible amongst interacting ASs, (third generation AT) (Engeström, 2001). His addition to Vygotsky's original triangle diagram included showing that societal rules, culture and dividing of various tasks within an AS were all inter-related and really inseparable from the individual or groups in whatever activity was engaged.

Below is Engeström's elaborated AT diagram showing the inter-connectedness of elements in any human activity system, the subject in this context is the student, or students in an AS, the mediating artefacts are the human activities undertaken to attain goal(s) (object), the outcome of which is new learning and thus a transformed individual or AS. Rules, culture and how activities are divided and organised to achieve the desired outcome are inseparable from whole activity process; see figure 1 below.

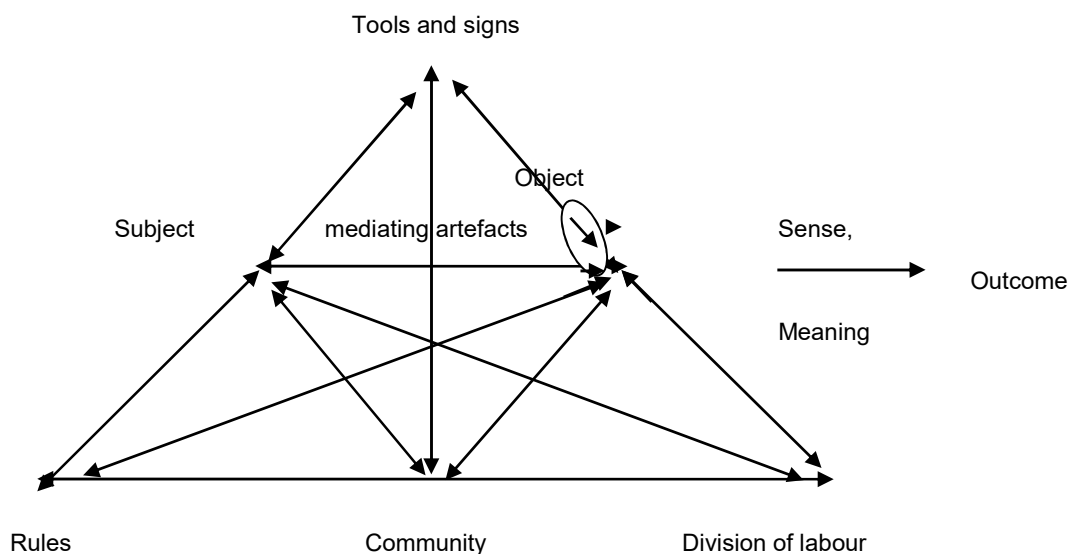


Figure 1: Engeström’s model of AT from ‘...the structure of a human activity system’ (Engeström 1987), cited in (Engeström, 2001, p135)

7.1 Investigation methods/sampling methodology

The data collection methods will include semi-structured interviews with local design industry members, CPUT design lecturers, FID WIL programme coordinator and returning Bachelor of Technology and Masters of Technology students in FID.

Where opportunities arise, as in the case of the Cape Town Design Network’s “Design Dialogues: The Business of Design” meeting of 19th September 2013, recording of the six design industry panellists has occurred. Special ethical clearance to collect data was obtained from the Faculty Ethics Committee beforehand.

Non-probability sampling of the type commonly used in qualitative studies is used; this includes purposive sampling where the research uses a wide range of methods to locate all possible cases of a highly specific and difficult to reach population as in the case of the Design Dialogues meeting mentioned above. Convenience sampling will be used in the student surveys as this is deemed adequate for the study.

Permission has been obtained from the HoD Design to enable interviews with design lecturers and students to occur. Individual permission will be obtained from participants when the time comes. Each participant will be made aware of the purpose of the study, the nature of their participation and details of data and information confidentiality, conservation of data and that their participation is voluntary and may be withdrawn at any time without prejudice to themselves in any way.

There is no need for special ethical approval beyond what is obvious as the nature of the research does not involve participants who are unable to give informed consent or other sensitive circumstances expressly mentioned in FID Research Ethics Review Checklist.

7.2 Data analysis

Hermeneutics

An exegetical approach to the data gathered in this study shall be used in an effort to allow the true meaning and intention of the data source to speak clearly and to avoid unintended bias by the researcher. A thematic analysis of the semi-structured interviews and video recordings shall be undertaken in an effort to uncover useful traits for transforming the business studies curricula.

8 Delineation of the research

8.1	Only projects that engage with WDC2014 directly will be considered
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8.2	No data will be collected from the various other design disciplines in FID, namely fashion, interior, jewellery or surface design, nor will any other HEIs offering design locally be included Only data from graphic and industrial design within FID at CPUT will be used.
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9 Contribution of research

	Theoretical contribution
9.1	Findings have significance for the curricula development and teaching and learning practices of business studies within design disciplines at CPUT, specifically regarding relevancy in a changing economic paradigm
	Practical contribution
9.2	CPUT Design programme gains an enhanced reputation for relevance as improved future graduate economic resilience is realised; CPUT becomes preferred supplier of design education
9.3	CPUT WIL programme relations with industry, civil society and local government benefit facilitating further student placements and academic- 'quad-helix' collaboration in years to come an
9.4	A contribution is made to enhancing the reputation of Cape Town as a design centre of excellence through the quality of design education offered

10 Timeframe

10.1 Michelle Barnes: Masters of Technology in Design (M. Tech: Design)

	<i>April 2013</i>	<i>July 2013</i>	<i>Oct 2013</i>	<i>Jan 2014</i>	<i>April 2014</i>	<i>July 2014</i>	<i>Oct 2014</i>	<i>Jan 2015</i>
ACTIVITY								
<i>Topic Definition + Literature Review</i>								
<i>Literature Review + Proposal Writing</i>								
<i>Instrumentation Construction</i>								
<i>Data Collection</i>								
<i>Coding</i>								
<i>Data Analysis</i>								
<i>Thesis/ First Draft</i>								
<i>Thesis/ Final Draft + Defence</i>								
<i>Copy Editing + Final Submission</i>								

Proposed Time Frame for Study

11 Expected outcomes, results and contributions of the research

This research will examine various ASs of design activity in Cape Town, exclusively around WDC2014 opportunities and create annotated AT diagrams of these various activities in an effort to explore their interaction with each other, HEIs, civil society and the economy. In this way it is hoped that opportunities for collaborative learning may be exposed in what Engeström refers to as the “expansive cycle”. Where this kind of collaborative learning occurs, a new way of doing and being happens; the AS has moved through Vygotsky’s ZPD. This may include:

- New and relevant inputs for components to the Business Studies programme in design
- Validation of existing components and modules
- Clarification of out-dated and irrelevant course material for discarding in FID Design Dept. Business Studies programme
- Information on findings useful for other non-business disciplines within the Faculty/CPUT
- Contribution is expected to enhance:
 - graduate employability
 - graduate entrepreneurial behaviour
 - community participation of graduates
 - general economic resilience of graduate

12 Summary

This research shall examine ways of making design graduates more economically resilient in a job-scarce neoliberalist paradigm. Philosophically, the radical humanist’s position is taken as this study seeks to improve economic choice for design graduates in an era where the evolved economic system unnaturally deprives the majority of citizens of necessary economic means and thus needs to be amended.

The study proposes to use the engagement of design students with WDC 2014 projects, the local design industry, metropolitan government and communities to explore better inputs for the business studies curricula that contribute to graduate economic resilience. The literature review provides understanding of the origins of neoliberalism, of Cape Town’s own micro economy which developed under the *apartheid* regime and also a review of business studies, student learning and desirable graduate employability attributes.

Activity Theory is used as a framework for understanding human engagement with learning and with improved learning outcomes with a criticalist conceptual lens in examining the current position.

Tensions within the study include using a Marxist theory of activity to engage the extreme form of capitalist economic system we call neoliberalism in an effort to make that system function more effectively. There exists a further tension uncovered in the literature review which reveals that there are many studies providing information on desirable graduate attributes but they assume students will gain employment on graduation; reality is proving we can no longer continue in this assumption.

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APPENDIX G

Proof of registration for Masters studies: 2018:



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PROOF OF REGISTRATION

31-OCT-2018

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NAME: MA BARNES

REGISTERED FOR THE PERIOD: 29-JAN-2018 20-DECQ018

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