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Design thinking practice and research: Building research culture in undergraduate studies

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Introduction

This paper discusses the direction of Edith Cowan University's (ECU) Design department in grounding Design Thinking as the means to cultivate practice-based research in undergraduate level. The need for this initiative is a reaction towards the fact that Western Australian Design education and the profession require a new shift. Currently most design institutes in Western Australia focus on the production of retail products and advertisements. The curriculum prepares students to organise a portfolio and get ready to be hired in specified design disciplines such as graphic design, product design, fashion design and web design. Meanwhile, Design in many countries has developed into trans-disciplinary practice that applies the ways designers think to cultivate innovation in various sectors. For example, Design Thinking is a well-established profession outside of Western Australia. Practices such as IDEO, Think Public, Huddle Design, and many others are good examples of the application of design to broader communities, and have been proven to be effective.

Design Thinking refers to the methods that designers use to identify and approach complex situations with the aim to create radical innovations (Lande, 2011, p.211). The contribution of Design Thinking in economical and social growth has been proven to be valuable. According to Nussbaum (2011):

... the contributions of Design Thinking to the field of design and to society at large are immense. By formalizing the tacit values and behaviors of design, Design Thinking was able to move designers and the power of design from a focus on artifact and aesthetics within a narrow consumerist marketplace to the much wider social space of systems and society. We face huge forces of disruption, the rise and fall of generations, the spread of social media technologies, the urbanization of the planet, the rise and fall of nations, global warming, and overpopulation. Together these forces are eroding our economic, social, and political systems in a once-in-a-century kind of way. Design Thinking made design system-conscious at a key moment in time.

From this point of view, Design Thinking expands the designers' role from being specific specialists in aesthetics and marketing of retail products to contributing radical yet powerful innovations to the growing and changing society. Its user-centred and bottom-up approaches contribute to sustainable development in all areas.

While Design Thinking is slowly taking shape and getting recognition in Western Australia, it is important to educate design students so that they will be able to practice and research in this field. To practice Design Thinking, designers are required to consistently apply user-centred design methods, able to work trans-disciplinarily, and be literate in fields apart from just aesthetic design. Seeing the need of expanding Design Education that aligns with the changes in global design profession, ECU Design is committed to provide study content that will generate graduates who can adapt to the new challenges.

Challenges and Opportunities

The design industry in Western Australia currently focuses on producing retail and aesthetic artifacts that generates profit for their clients. Unfortunately this singular focus is causing two main challenges:

- This industry is over saturated due mainly to the high supply of design graduates, and self-taught 'designers'. This situation is misrepresenting the true value of design while limiting designers to explore the tacit practices that are valuable to social growth;
- The nature of this industry is fast paced and relies heavily on quantity of production. Designers are left with no room to explore, reflect and innovate on their practices to provide broader services and create new values. This has therefore kept the role of design stagnant.

While retail product economy is still crucial to the growth of a society, and by no means this paper is suggesting designers stop developing this industry, the role of design is definitely in need of expansion and broader recognition.

Fortunately, Western Australia is providing new opportunities for the design profession to change. The shift of economic focus is altering the landscape of funding. Social Innovation is an emerging sector that gains rapid momentum. It aims at developing new ideas and sustainable services that contribute benefits to social needs. The Western Australian Government is offering \$4 million a year, from 2012 onwards, in grants to assist the development of social enterprises (Government of Western Australia, 2012). There are therefore growing numbers of social businesses

that require innovative approaches. Design, as a thinking tool, has been identified as a driving force in this development. For example, Social Innovation In Western Australia (SiWA) is focusing on Design Thinking as the means to innovation. This commitment is evidenced in their sub-project SpaceCubed, a co-working space that nurtures innovative start-ups, where a design lab is being set up to provide Design Thinking and Service Design services. Corporations are also starting to care for the society with many projects being initiated to engage with and benefit the communities. For example, National Australia Bank (NAB) Schools First project links education with local businesses and is therefore creating closer knitted communities. This new and vibrant direction requires designers to focus on innovating social services and human experiences.

With new challenges in the economy and in the way the society functions, there are imminent changes taking place in the Western Australian design profession:

- Design is expanding from aesthetic, branding and communication to innovating organisational change. The focus is therefore shifting from a retail product economy to a service economy;
- Designer's roles are changing from 'production' to planning, facilitating and strategising innovation;
- Designers do not have to work only within (traditional) design realms. This means designers will be contributing creative solutions in social innovation, business consultancies, and government sectors.

The application of Design Thinking is therefore a way forward to expand the Western Australian design profession. Design Thinking as a research field is also gaining attention. Academics, researchers and practitioners discuss and investigate the ways designers think (Cross, 2011), evaluate design processes (Currano, Steinert & Leifer, 2012; Gabrysiak, Giese & Seibel, 2012), and the application of Design Thinking in a trans-disciplinary and innovative environment (Brown, 2009; Martin, 2009; Meinel, Leifer & Plattner, 2011). These publications bridge practice and academic research. This therefore presents new research avenues that ECU Design can develop.

Seeing the transformation of the global design profession while contrasting with the lack of expansion of Design in Western Australia, ECU Design is taking the step in

broadening Design Education through cultivating a practice based research culture in undergraduate units that is underpinned by Design Thinking.

Design Thinking Framework and Research Culture

The ECU Design program is divided into 2D Design and 3D Design. Traditionally they focused on design techniques and technologies that are relevant to the retail product economy. There were a limited number of graduates who continued on to postgraduate studies or became involved in practice-based research. Efforts are currently in place to cultivate critical thinking and a research culture from the undergraduate level onwards.

The first step is to embed Design Thinking content in all undergraduate units across 2D and 3D Design. The aim is to generate thinking designers who can merge practice and research. The characteristics of Design Thinking that underpin current design education contents at ECU are:

- **User-centred approach:** Designers need to consider a product or service from a bottom-up approach, which focuses heavily on the end users' experiences. This focus produces design outcomes that circulate around empowering end users and the organisations involved;
- **Co-design and co-creation:** Design is shifting from 'design for people' to 'design with people'. This approach allows services and systems to be developed together with users and stakeholders. The outcome of this method is effective systems and services that will contribute vastly to return on social investments. ECU Design students are gradually being introduced to ethnographical and co-creation methods;
- **Visualisation techniques:** Designers are trained as visual thinkers – they sketch ideas and develop opportunities in visual forms. The impact of this method can be huge if applied to other disciplines. For examples, to visualise an organisation's structure in a glance, or to map users' experiences in a cohesive manner that will help service providers in understanding their services holistically. At ECU Design, students are encouraged to utilise visuals not just as presentation tools, but also as thinking tools;
- **Deconstructing situations:** One of the strongest skills a good designer has is the ability to approach a given problem from multiple directions. This

includes asking the right, and sometimes silly but necessary, questions. This comes from the focus of deconstructing a situation. This attribute is commonly seen in deconstructing an existing issue into segments and re-designing new experiences to provide more effective and innovative solutions;

- **Trans-disciplinary:** Design Thinking embraces diversity of knowledge and skill. This approach emphasises design methods as catalysts to work with various sectors involved in social sectors. At ECU, two levels of trans-disciplinarity are involved: content between 2D and 3D Design is now drawn closer; and students are encouraged to explore design opportunities outside of common design disciplines. They are expected to be involved in social innovation, sustainability, and service delivery.

These attributes are being introduced and emphasised in undergraduate content. For example, the Collaborative Design unit teaches design methods that allow students to approach complex situations in various sectors. This trans-disciplinary thinking process is preparing students to consider design as a platform for innovative ventures. Another example is the Identity unit, where students are given the opportunity to observe and analyse improvement opportunities in Perth City. They then have the semester to develop user-centred solutions that contribute to solving social, economical and environmental issues. This project allows students to develop questioning minds and to explore empathetic design methods. Past semester's works were exhibited at the City Townhall, and have received good public feedback on Designers reaching out to the communities. These efforts are already showing results when students start to think and talk about design in social and economic contexts.

While the Design Thinking framework is slowly but steadily settling into the curriculum, undergraduate students are given opportunities to explore the relationships between practice and research. These efforts include:

- **Industry collaborations:** Collaborations with cross-sectorial bodies will expose students to the broader communities. The new direction in ECU Design emphasises this as the key driver to expand design students' thinking capacity. Currently, ECU Design is partnering with SpaceCubed to initiate and pioneer Design Thinking in Western Australia. SpaceCubed

(www.spacecubed.org) is a co-working space that encourages innovation in business start-ups. ECU Design and SpaceCubed are committed to establish a design lab, called Co-Lab, to offer Design Thinking services for business start-ups, not-for-profit organisations, and government sectors.

Undergraduate students will be involved in developing and running projects to help establish Co-Lab. This initiative aims at introducing students to real life trans-disciplinary research collaborations with industry bodies. Students will be expected to reflect upon collaborative design as research. ECU Design is expanding its industry collaborations to city councils and corporations to explore design technologies, and human-centred design;

- **Merging practice and research:** ECU Design promotes three levels of Design Research – Research for Design (for examples, precedent studies and literature reviews), Research about Design (for examples, design history, theories and philosophies), and Design as Research (for examples, reflective practice, journaling, and rapid prototyping). The Design Thinking framework adds content and cohesiveness to these design research approaches by emphasizing empathy, bottom-up design, and trans-disciplinary practice. These will help students in developing design methods that are appropriate to various situations. Undergraduate students are to be familiar with these research approaches through emphases in all assessments. This will help cultivate the idea that design practice and research are inseparable. This will also bridge undergraduate studies and Higher Degree Research;
- **Encourage publications:** Efforts are made to change students' attitudes towards writing. Writing components are starting to be part of all assessments, whether they are theoretical or practical units. This is aimed at developing critical thinking and encouraging knowledge development. Apart from that, there are plans for the department to establish publications such as booklets, design toolkits, exhibitions and magazines that focus on practice and research. For example, ECU Design's partnership with Co-Lab will result in a publication about design methods for business start-ups. Lecturers, undergraduate and postgraduate students will be collaborating in establishing and contributing to these publications. This allows more in-depth conversations about Design Thinking and other relevant and cutting edge design approaches to take place.

The strategies mentioned are to generate understandings, thinking, and conversations among undergraduate students that focus on practice and research. This will in return expand the relevance of design to the broader communities, while merging the gap between undergraduate and Higher Degree Research studies.

Conclusion

The Design Thinking focused curriculum mentioned might not be new to some design institutes and practices, but this is a new opportunity in Western Australia where the majority of design industry and broader community are unaware of the contribution made by designers' thinking processes. Design Thinking, in this instance, contributes to the cultivation of undergraduate research culture by providing a trans-disciplinary platform for students to learn, develop, and apply design methods in various situations.

While the current efforts toward change at ECU Design are grounded in Design Thinking, the future development will not be limited to just this. The development is organic, forward thinking, and always at the forefront of adapting cutting edge design practice and context. The key ethos is to consistently challenge and expand the roles of designers.

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