WHAT IS 21ST CENTURY DESIGN EDUCATION AND ARE WE DOING IT WRONG?

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ABSTRACT

Designers are entrusted with increasingly complex challenges and the stakes have never been higher. The complex, risky and impactful endeavours of modern design reach far beyond the technical constraints and commercial rewards experienced by previous generations; now designers are expected to shoulder the burden of global challenges (e.g., the SDGs), to deal with complex human behaviours and societal concerns, plus the impact of the Anthropocene crisis, whilst navigating (and advocating for) new technologies and the erosion of traditional fields of practice. This is a model of practice where designers are shapers of society, activists and agents for change, rather than service providers. Despite the popularity of television shows that depict design as an aesthetic practice, design is no longer simply about 'making things pretty' or 'making it work better', cheaper to make, nicer to use, or more desirable, although there is still gainful employment in those missions.

In design education, does an over-reliance on traditional skills and artifact production expressed through striking graduate exhibitions, work to the detriment of graduates and the profession, masking the urgent need for a comprehensive review of what, and how we teach design, and why?

This paper aims to provide a critical provocation, seeking to understand the constantly evolving paradigm of design practice, to identify required graduate attributes and models of curricula and pedagogy that ensure that graduates are prepared and armed with the appropriate skillset for future global practice. Is design education still fit for purpose, or are we doing it wrong?

Keywords: Design education, design practice, future focused pedagogy, design futures

1   INTRODUCTION

Designers are entrusted with increasingly complex and impactful challenges [1]. Contemporary design practice is moving from a model where the designer is at the subjective centre of design decision making, involved primarily in artifact creation, to that where the designer is both an activist and facilitator contributing critical know-how to the design of socio-technical systems.

Designers are now expected to shoulder the burden of global challenges, to deal with complex human behaviours and societal concerns, whilst navigating new and emerging fields of practice, and advocating for new technologies and more responsible, ethical and sustainable practice. A model of practice where designers are shapers of society, activists and agents for change, rather than service providers.

Designers are challenged to deal with socio-technical 'wicked problems' that introduce a new level of difficulty and complexity, requiring adaptability to transition across traditional practice boundaries with new interdependencies and interactions. And the role is not merely responding to a client brief, instead designers are now required to work in an ambiguous pre-brief environment, where rather than problem solving, the designer is involved (and/or leading) problem identification and envisioning critical interventions. This requires competency in systems thinking, a well-established understanding of human behaviours and societal and cultural customs, and a design methodology that employs high level critical awareness and thinking, in addition to more traditional creativity and skills-based acumen. Our graduates need to understand complex systems, not just user needs and manufacturing.

Does design education meet these needs, or is it still anchored in a curriculum and pedagogical model that aligns more with the Bauhaus and Ulm school tradition, which although transformational at the time, may not fully address the needs and challenges of 21st century design practice? Are we still focusing on traditional core (artisan) skills (making, drawing, artifact production, etc) or we developing critical thinkers who are adequately prepared to deal with complex scenarios that require not new

products, but a radical societal shift and new behaviours? Do our design projects build cognitive and intellectual abilities, or do they propose more artifacts or services? Should we be focusing more on a non-outcome based approach to design education? Does design curricula create opportunities for Epistemic Freedom or does the Eurocentricity focus of design education continue to be limiting and inhibiting (impacting diversity), and self-perpetuating? Does the current model of design education adequately prepare graduates for the complexities of future practice in a world where we acknowledge, respect and value alternate knowledge systems, address equitably the needs of all global citizens, and protect diverse cultures and contexts with societal and environmentally sustainable solutions? Or do we need to transform design education to meet the needs of a contemporary world in crisis?

2   THE EVOLUTION OF DESIGN

Tonkinwise [2] refers to the 'orders' of design practice, where design practice evolves from craft and a tradition of producing useful goods for people (1st order), towards domains of design for services (2nd order) and design for social innovation (3rd order), with change-oriented design or Transitional Design the 4th order, where a number of discourses including ecosystems science, sociotechnical innovation, and life changes (social psychology) are established. Indeed, it is apparent that we have moved from a client-centred and product manufacturing-centric model, in which designers contributed to mass consumerism, over-consumption, and consumer engineering, to a more considerate user-centred practice, with sustainability and closed loop deliberations, to designing experiences, to challenging established narratives (speculative design), towards a future of high-level complexity and systems level interventions. And now, designers are expected to "deliver 'emergent possibilities' within problem contexts, as opposed to imposing pre-planned and resolved solutions upon a situation" [2].

2.1   Design responsibilities

Advocating for reform from within design practice and demands for the pursuit of social change through design, are now ubiquitous. Alistair Fuad-Luke [3] claimed 'design activism' as an emerging practice in which designers are using "the power of design for the greater good," asking "could the creation of well-being and not goods and services, be a new purpose for design?" Manzini [4] describes designers as facilitators, as triggers for new social conversations, and also as design activists proactively launching socially meaning design initiatives [5]. The WDO definition of Industrial Design [6] as "a strategic problem-solving process that…leads to a better quality of life" also points to greater expectations for design. Designers are now expected to lead critical discourse and creative practice as "facilitators of a system of value co-production" [7] to realise new meanings for societies and cultures, but with the caveat that *"design is not a magic bullet, and we are not the owners of the gun"* [8].

2.2   A new generation of designers

"From disruptive technology to disruptive ideas, the early decades of the twenty-first century can be characterized as a period of non-conformity and new direction" [9]. The next generation of designers are driven by a social conscience and highly concerned about the world they will inherit, with climate change and societal inequality, key concerns. Even these nascent designers are aware that design can no longer be an instrument of consumerism. These students have grown up in a world where the negative impact of global forces is increasing apparent, and societal injustice is more blatant, especially with global connectivity allowing greater access to information not filtered or censored by governments, nor interpreted with bias by self-serving media organisations. This is a generation whose values are less deferential to historical social conventions, who expect their education to empower them to co-design new solutions to global challenges in the most sustainable, culturally sensitive and ethical manner.

3   CRITICAL CONCEPTS FOR DESIGN FUTURES

There is an acceptance that designers typically only design for the wealthy 10% of global communities and those in less affluent developing economies (also known as the other 90% in the Base of the Pyramid model), are less likely to benefit from design, but instead suffer the consequences of globalisation and design-led consumerism, specifically exploitation, resource depletion, pollution, the impact of climate change, and societal and economic inequalities. Criticism of design practice and its role in driving harmful consumerism and 'dangerous' overconsumption e.g., Papanek [10] has persisted for many decades, and whilst design has responded with increasingly sustainable and responsible practice, for many communities design is viewed as an predominately aesthetic practice, producing artifacts for the wealthy. Unfortunately, the adjective *designer*

is now synonymous with *expensive*. Design specialist retailers and brands have sustained this perception with 'designer' products typically sold at vastly inflated prices that bear no relationship to the manufacturing cost, (unlicensed replicas have revealed the real price), creating an elitist sub-culture that values brand, purchase price and prestige, over value. This upmarket consumerism devalues the potential of design to make a broader contribution, diminishing its credibility, and alienating the communities who would most benefit from design intervention. This is not to diminish good product design, which makes a significant contribution to our lives and wellbeing, but the commodification of famous designers (e.g., Eames, Noguchi, Jacobsen, Mies van der Rohe) is undemocratic and alienating; good design should be accessible and affordable for all.

It is evident that design must transition (both in practice and perception) from *invention* to *intervention.* The design profession has a more valuable contribution as an agent of change, acting as provocateur and disruptor, whilst facilitating co-design processes that create opportunity, enhance societal wellbeing and empower stakeholders. And this necessitates a reframing of the practice of design, repositioning it as a profession that is both willing and sufficiently skilled to tackle complex global challenges, especially in a post-Anthropocene future. In addition, design requires a far more diverse participation, at present its prevalent Eurocentrism diminishes design's relevance and value to many global. communities.

3.1 The influence of design?

Parker [11] states that "designers need to assert with greater confidence the distinctive value they can bring to strategic design." But Meyer and Norman [1] note the lack of designers in high-level positions within organizations and government, pointing to the need for a broad, informed knowledge of a wide variety of topics and understanding of modern societal issues, modern ethical concerns, declaring that designers must understand rigorous argumentation and the value of evidence, and must put the needs of the organisation, or society, above the needs and views of any single profession – an area where design has previously been unsuccessful. This is not about discarding core design principles; it is about enhancing the skills that are so central to the design discipline and using them in more open and participatory ways to expand our practice. Design should not be defined by the *form* of the solution, but by the *impact* of the design intervention. Design practice needs to be framed around the role of the designer to facilitate solutions to complex problems, and this will need an enhanced skillset and an ability to work in an integrated and systemic manner, far removed from the craft of artifact production and the celebration of design as independent practice. Is this reflected in design curricula?

4 A CRITIQUE OF DESIGN EDUCATION

There have been many calls to redesign design education, and these derive from different questions, contents and motives. What is apparent is the need for evolution, to include new perspectives and knowledge systems, to prepare graduates to understand complex societal issues, to work outside normal design practice domains, to utilise organisational strategy, and to make impactful contributions in response to global challenges. Loy [9] notes that "*design education should not align itself with entrenched, complacent ill-prepared academia*" and that a rebellion is required for design learning to remain relevant, shouldering its responsibilities in both preparing the designers of the future, and challenging norms of practice. A tension also exists between the responsibility to impart graduate level employability skillsets, and the need to educate future leaders who will reshape their profession.

4.1 Decolonising the curricula

There is a growing movement to question the ethnocentric nature of design education [12], with many linking design education's political and social contexts to large industrial economies. As noted earlier, the design industry is represented predominately by the affluent and Eurocentric, and student cohorts in design education in western countries similarly are not particularly diverse. In the UK, HESA data shows that black, Asian and minority ethnic groups are significantly under-represented comprising 15% of design students, with less than 5% of these are from black Caribbean or African backgrounds [12]. Curriculum and pedagogy can play a significant role in this, with recent educational initiatives such as *decolonising the curriculum,* long overdue. The acknowledgement and valuing of alternative knowledge systems, and the cultural respect that occurs with that, not only adds significant value to design education and practice but facilitates a process where western bias is diminished in the curricula, making design more appealing to non-traditional students from diverse backgrounds. Whilst this does not (as some may fear) mean discarding traditional design knowledge, it does require "delinking design culture from its Eurocentrism and rooting it in local issues, cultures, and identities" [12]. Noel [13] talks of Epistemic

Freedom - *the right to think, theorize, interpret the world, develop own methodologies and write from where one is located and unencumbered by Eurocentrism* – noting that Eurocentricism and *western exceptionalism* is dominant in design curricula, and that this does not provide agency for people who do not see themselves, their worldviews, and their ways of knowing and being, in the curriculum.

4.2 Definitions of practice
It can also be argued that the narrow and traditional 'technical – design for manufacture' definitions of industrial/product design are limiting its appeal as a career choice, and that a *reframing* of practice by professional and regulatory bodies could have educational recruitment implications. If our practice was represented by social innovation, sustainability and strategy rather that mass manufactured products, would design resonate more strongly with young people driven by a social and environment conscience? Could such a reframing enhance gender, ethnic and class diversity amongst the student cohorts?

4.3 Non-traditional career pathways
Graduate employability data from both Australia (DIA) and the UK [14] indicates that 75% of design graduates go into non-traditional areas of employment (with only 25% going into design consultancy or R&D manufacturing roles). Yet most design programmes still offer curricula that is constructed to prepare students solely for traditional employment pathways. Whilst those graduates going into other fields of employment are still empowered by their creative thinking, human-centred and problem framing /solving skills, are their alternative career pathways considered in the design of curricula?

It can also be argued that many universities have a 'laissez-faire' approach to graduate employment; whilst developing *employability* is a key educational agenda, most institutions leave it up to individual graduates to define their career path, secure employment and adapt to change. Whilst pathways to traditional employment are relatively straightforward (and supported by institutional links with the design industry), how do we support the other 75% of our graduates as they establish careers in non-design environments? Are they sufficiently prepared and confident enough to understand and promote their value, and to meaningfully contribute in areas where design has previously been unsuccessful?

4.4 Post-disciplinary design
It is critical that that curricula and school/programme structures are not limiting the vision and capability of graduates. The traditional *silos* of design disciplines prevalent in design education, whilst adequate for traditional vocational training, may not adequately prepare students for post-disciplinary design practice. If we accept that the role of design is increasingly to create value at the intersections of organisational disciplines, then designers not only need to think and act in more fluid, autodidactic and creatively optimistic ways [15], but also to stop self-identifying within narrow practice parameters. In a post-disciplinary context, designers need to identify as creative and strategic thinkers, and not limit or define themselves by specific and traditional outputs. However, practice boundaries have proved useful in design education, to allow students to focus and specialise, and to avoid producing generalists who may not have the specific skills and knowledge to gain employment and meet employer expectations in graduate level positions. How in the limited timeframe of an undergraduate design degree programme, do we balance these tensions, to deliver such comprehensive graduate attributes, for now and the future?

5   TOWARDS A MORE PROGRESSIVE PEDAGOGY
It is apparent that a new approach to design education is required, so what and how should we teach? What are the values and attributes that we need to instil in our graduates? Designers need to be sustainable, responsible, ethical, socially focused, develop a strong understanding of human behaviours and organisational strategy, and have the confidence and acumen to deliver impactful and strategic practice, rather than merely provide a service. Design is at its most valuable and influential when it is engaged at the strategic problem discovery stage, rather than responding to a prescriptive client brief.

5.1 Aims
The aim of any educational model at its most basic is to deliver appropriate skills and knowledge that allow graduates to succeed in their chosen profession. However, at a higher level, design education cannot be seen as vocational training, we have an educational responsibility to not only deliver technical competency and creative capability, but to instil a set of values and characteristics that will define their future practice, including self-efficacy and advocacy, confidence, adaptability and resilience, critical

thinking and reflective practice. To deliver graduates who will redefine the role of design, taking design practice into new realms of possibilities, and impacts. We can anticipate some of the responsibilities the next generation of designers will face; but how do we prepare them for those challenges?

5.2 What we should teach

Contemporary concerns have changed the emphases in design education, focussing on the capability of designers to make a positive societal contribution, through user cultural and environmentally focussed themes [5]. Our curriculum must ensure they are well prepared for practice in design for social impact, design for health and well-being, design for sustainability, experience design, interaction design, service design, systems design and strategic design. It is essential that graduates are well versed in these new and emerging areas of practice, with an appreciation of values (human, societal, cultural), respect for alternative knowledge systems, and a socially focused, responsible and ethical approach. To add value in employment outside of design industries, they would benefit from learning strategic thinking, forecasting/fore sighting, organisational management, behavioural psychology, and entrepreneurship, and developing acumen in influencing and persuasion, codesign/cofuturing, and behavior change.

5.3 Graduate attributes

Whilst it is essential that we teach the fundamental skills and knowledge that will serve to secure graduates their initial employment, our responsibility is to deliver graduates to industry who are prepared for future practice and primed to lead their professions into new and uncharted areas of practice. For this they will need robust processes to drive creativity and innovation, well-honed critical thinking for design, a reflective practice and a methodology that accepts and values alternate knowledge systems and different cultural perspectives. They will also need a robust, human centred, non-Eurocentric design perspective, and be comfortable with new and emerging areas of practice. They will need to be capable of operating effectively, and with influence, outside of traditional design practice, to advocate for, and extend design practice into other spheres of activity; organisational, strategic and policy. And they will need to be coherent and convincing storytellers, activists, and agents for change.

Graduates must be ready to operate outside their professional boundaries in post-disciplinary practice. For this, they need exposure to emerging and non-traditional practice areas, be highly skilled in design for digital futures (virtual, augmented, immersive etc), adaptable and post-disciplinary thinkers.

5.4 How we should teach

The next generation of designers are very different learners from previous generations. Additionally, as discussed earlier, designers are expected to navigate diverse explorative futures, where an agile skillset is being applied to increasingly complex wicked problems. To achieve the desired graduate attributes, design education must move from the traditional master-apprentice model to a learner-centric model (with students as partners), shifting the power balance to ensure student empowerment and ownership of the learning journey. This can be achieved through active engagement, self-directed learning and establishing student agency at any early stage. It is useful to develop a social construction of learning using the design studio pedagogical model to build trust and confidence, and to socialise assessment (self and peer) to make it a learning experience, rather than an authoritative grading paradigm. It is important to respect and develop the students' individual design identity, and facilitate personalisation and customisation of the curriculum, and their individual learning journey.

5.5 Redefining the design project

In design education, the design project serves solely as a vehicle for student learning, yet it is too often quantified on the aesthetic and technical quality of the outcome. However, one must question whether it is appropriate for design lecturers to be prescriptively directing the project journey and the outcome; should we just be providing the parameters and guiding and supporting students appropriately? Design projects should be open ended and ambiguous, requiring students to respond to scenarios and challenges, without predetermined outcomes. We need to replace artifact-focused curricula and prescriptive design briefs, which stifle creativity through inbuilt parameters and constraints.

Project briefs should afford students the agency to use research and ethnographic processes to explore the context, understand the users and other stakeholders, identify prevalent behaviours and areas of concern, and then define the problem to be addressed through an appropriate design intervention. This model requires lecturers to present a large and complex scenario/societal issue (e.g., how to enable an

ageing workforce?) and allow students to scope the project down to a manageable and distinct problem, and then define the parameters of their project journey and design intent.

Such design projects require students to assume a leadership role, rather than merely responding to a set problem or a directed outcome. Initially this approach can be confronting for those who are more comfortable with well-defined design briefs, however it also empowers students to work in a more holistic manner, to develop their own methodology, and to take ownership of both the design process and their own learning journey [16]. Not only does this facilitate unexpected project journeys and outcomes but has also proved valuable in preparing graduates for undetermined future practice. Graduates need experience in both navigating the 'wicked problem' space and working effectively in non-design environments. They must understand the value of design and how to use their skills to make meaningful contributions – this may not be in artifact production, but in facilitating users and other stakeholders through a co-design process, assisting governments and corporations to develop policies, strategies and services, and decoding behavioural patterns and developing behavior change models. Engaging students in partnered studio projects with external partners (industry, community, government agencies) enables familiarity with those processes, building confidence and proficiency.

6   DISCUSSIONS
In future practice, designers will need to be agile, interdisciplinary creative thinkers who confidently explore poorly defined problems and complex scenarios and societal behaviours, and then deliver innovative solutions. Does current design education instil the required values, or are we doing it wrong? This paper intends to serve as a provocation, to stimulate conversation, to question whether the design education models that have served us so well since the Bauhaus, are still fit for purpose.

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