

CREATING CONFIDENCE IN AN ALIENATING EDUCATIONAL ENVIRONMENT

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ABSTRACT

Design education is in transition as content becomes driven by sustainable practice and, most recently, ideas emerging in relation to post-sustainable practice. Over the past two decades design courses around the world have been constantly reviewed and revised to create approaches to design thinking and practice that consider the broadest implications of design on environment and societies with the economic considerations dependent on meeting those imperatives. This has radicalised the content taught at a project level, for example with the introduction of product service systems, and at the level of specifics, such as in relation to material specification.

As fundamental in educational terms, design graduate attributes have had to evolve as in order to apply new knowledge and understanding in professional practice graduates have to have a broader understanding of the drivers behind their decisions and become proactive in directing project briefs beyond traditional industry practice. To present a return brief based on sustainable design practices, or more radically to participate in design activism, demands that higher education provides students the opportunities to develop an understanding of the basis for design programs they are part of at a point in time and the leadership role they are expected to take. This involves design education inculcating the confidence through experience of presenting their work and opinion, based on comprehensive understanding of their design philosophy and sustainable practice, or post-sustainable practice strategies in action. This paper summarises the changes and highlights related issues of transferable skills, student recruitment and graduate attributes.

Keywords: Recruitment, transferable skills, program drivers, transition, education

1 INTRODUCTION: THE CHANGED ROLE OF THE PRODUCT DESIGNER

Weimer's seminal work on changing the balance of power in the classroom in higher education [1] has never been more relevant than it is now in relation to Product Design education. In twenty short years the history of Product Design has been rewritten from a new perspective [2] and degree programs have been revised radically and are still under constant evolution. There is no longer consensus on the drivers underpinning design programs around the world and one of the issues with this debate is the effect on the confidence of design graduates facing a world where the views taught at many Universities are not universally applauded by an industry lagging behind academia and the practices expected at University not common to their employers. For students it is essential that they gain enough confidence in their educational values and their ability to cope with conflict and debate to operate effectively on graduation. It may be their work environment has an initially negative response to some of the attitudes inculcated at University. This is particularly important if these courses are to have long-term impacts on design practice and production, consumerism and social change. To do this, the Product Design Educator needs to clarify for the student contrasts in the development of the professional discipline and the development of the academic discipline and the overall aspirations of design theorists for the future of the discipline. The roles and specific applications of transferable and discipline specific graduate attributes need to be explained to the students and opportunities provided to develop those attributes. It may even be that Product Design education has reached the point where 'design thinking' has become an aspirational graduate attribute for all undergraduates and the reasons for this are explained below. Finally the students need to be equipped to deal with potential conflicts between the views they have developed at University and attitudes they may encounter in employment without becoming alienated. To respond to the changing attitudes, understandings, knowledge and skills required by the Product Design graduate, the evolution of the professional discipline and its

associated educational base is summarised with observations relating to differences in skills and attributes being developed in students at a particular point in time.

2 COMMERCIAL DESIGN PRACTICE

When Product Design began as a commercial profession in the 1770s with the application of division of labour principles to production to increase the consistency of output, it was marketing led with catalogue sales and pre-ordering being more commercially successful in practice than the craftsman-led model previously employed. This demand was combined with the need for the new breed of designers to respond to target market trends to create innovations for a wider market than the localised markets the individual craftsman was used to responding to [3]. This industrial design model continued throughout the nineteenth and twentieth century, becoming more sophisticated in practice but with the driver still essentially being commercial, focussed on providing the maximum profit possible for the client. Considerations in relation to the user, such as ergonomics, were developed over the last century but still linked to commerciality, with improved products being those that sold well and received good customer reviews.

By the mid nineteen eighties, commercially focussed design was arguably at its peak with large multidisciplinary consultancies dominating the Product Design landscape with commercial client-led design. Stephen Bayley, in the popular 1985 Conran Dictionary of Design, dismissed the groundbreaking Papanek, with his call to designers to shift their focus to design for need, as ‘a cult figure while ecology was fashionable during the early seventies’ [4]. Work was abundant, styling was integral (as illustrated in the priorities of the Conran Dictionary of Design), novelty and commercial success were arguably the main criteria for evaluating ‘good’ design, not even function and not design for need. Built in obsolescence was prevalent, end of life was not considered and the work of ‘celebrity’ designers was featured in design publications. Philippe Starck was an example of a celebrity designer who at that time had little expressed interest in social and environmental responsibility, or even function, with drama a key ingredient in his designs in line with developments in the fine art movements of the time discussed in the 1991 book *The Shock of the New* [5] written by Robert Hughes. In design for manufacturing, ‘Lights Out’ production was the aim, with the division of labour taken to the point where human interaction was eliminated [6] as far as possible. The impact of design decisions on the daily life of the factory worker was not a strongly featured factor.

2.1 Commercial design education

In recruitment terms, the ideal student would be one with a flair for the dramatic and a marketing point of view. Valued practical skills of the time included sketching, rendering and workshop prototype making whilst abilities for styling and novelty were all important. Structures, an ability to explore and exploit the constraints and opportunities of process and materials and design methodology, design development skills, testing and product evaluation made up the majority of the discipline specific understandings and knowledge. In terms of transferable skills, verbal and visual presentation skills, but not teamwork, were integral to the role of the designer at this time and there was no course requirement in mainstream design programs to have any understanding of where or how raw materials were sourced, conversion issues, impact on communities and environment of design decisions etc and therefore research skills were also not essential transferable skills for educators to inculcate.

3 HUMAN CENTERED DESIGN

In the nineties recession hit the UK. Design drivers changed. Value-adding and risk avoidance became important as design empires tumbled. Design consultancies contracted. Decisions made in the eighties caused major problems in the nineties – ‘Lights Out’ production had resulted in disillusioned workers and dramatically reduced quality meant that in the nineties designers’ focus had to shift to include improving working conditions in factory production in order to regain quality brought about by the investment of workers in their products. Cell production was prevalent, with designers’ redesigning products to suit. For the first time, designers had to think about their products in broader terms than the finished object in isolation. The ‘Green Design’ movement emerged [7] with environmental impact as the driver for change. This started to affect Product Design education in the mid nineties, although it was still seen at this time as an addition, with ‘Green Design’ predominantly an elective in mainstream design degrees. Alongside this movement, was a growing demand for more user-centred products. Participatory design and Universal design started to impact

the design discourse, and subsequently the curriculum, led by the Royal College of Art, UK. This was a significant change in priorities for the professional Product Designer and design education. For two hundred years designers had been commercial client focussed but in the nineties they had to start to become specifically user-centred, considering not only ergonomics but have a more ethnographic understanding that included the need to consult effectively with user groups, plus have an understanding of the impact of their design decisions on workers, and also respond to the growing imperative to consider the environmental impact of their work.

At this point, in the late nineties, Product Design education changed. Situation based design began where students were no longer asked to design a product, for example a kettle or conference table, instead they were asked to evaluate the situation surrounding the activity and respond with a design to support that activity. This resulted in the introduction of additional tools, such as activity research in learning, taking consumer research to a higher, more empathetic level.

3.1 Human centred design education

This change in project work led to the need to develop dramatically different skills and approaches in the students. Designers who wanted to stay at a desk and create new forms could not operate in the new environment with major manufacturers demanding more from design graduates, including the ability to research users and create return briefs. Design graduates needed to be able to communicate beyond the presentation skills they had formerly required, because of the new need to talk and listen to all stakeholders as part of the design process. Observation, questioning, evaluation and role-playing became part of the design education experience. The approach of the major design consultancy, IDEO, epitomised this change. Role playing, small answers to big questions, the subjugation of the design ego and collaborative design are all characteristics of the practice of this commercially successful company. At this time, leading design degree programs and leading design consultancies operated on a similar basis, although this was not the case with all industry employers.

4 SUSTAINABLE DESIGN

With the end of the twentieth and the start of the twenty-first century the drivers changed again. Environmental impact markers could no longer be ignored or trivialised. The Brundtland commission definition that: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" led to the initiation of sustainable design and production strategies such as those listed by Ryan in his book *Digital Eco-Sense: Sustainability and ICT – a New Terrain for Innovation* [8] which were taken up to varying degrees by different University Product Design programs. For ten years debate over the credibility of climate change predictions dominated the design discourse. During this time, well intentioned 'Green Designs' and 'Eco Designs' [9] came under scrutiny with the development of a professional approach to lifecycle, as exemplified in the text 'Cradle to Cradle' [10]. Leonardo da Vinci said that everything was connected to everything else and the complexity of lifecycle analysis is often hotly debated as results from lifecycle inventory and weighting aspects can be controversial [11]. With debate on the mechanisms for lifecycle still ongoing, lifecycle inventory and assessment became fundamental to design process and therefore design education. This impacts again on the attributes of a graduate designer as mapping, statistical research, evaluation and organisational skills become essential to the role.

For design education, the sustainability imperative gradually emerged as a shift in design education projects from commercial to socially responsible. Even the design celebrity Philippe Starck had changed his outlook "We have to replace beauty, which is a cultural concept, with goodness, which is a humanist concept." [12] The student designer was no longer emulating iconic designers, but looking towards the complexities of designing within social and environmental responsibilities as well as still meeting the economic viability imperative behind the creation of products.

The book *The Next Industrial Revolution* [13] highlights the Product Service Systems approach as a design response to the sustainability imperative, with services over products. From the design educator's point of view, this heralded the need to teach students to apply design thinking to much broader commercial and business issues, and questioned the teaching of traditional production areas within design education, such as working with the constraints and opportunities of production technologies, and exploring the potential and limitations of materials. Psychology became an integral part of design education.

4.1 Sustainable design education

These developments have had major impacts on the transferable skills and discipline specific graduate attributes the Product Design educator had to work on developing within the curriculum, for example in relation to social responsibility and internationalization. From a narrow focus on the design development of a product within the manufacturing capabilities and established market area of a client, the design graduate remit extended dramatically to include tracking the entire lifecycle of the product and all its elements, from raw materials, through production, the user phase and end of life. This involved not only the environmental impact but also the impacts on communities of all design decisions along the way. This extended beyond national specification to international, requiring the designer to become familiar with difficult issues, for example, the credibility of an authorizing body in a foreign country in establishing the environmental credentials of a supplier as in the debate in Australia over the independent FSC versus the industry linked AFS. This becomes incredibly complex, requiring transferable skills relating to mapping, research, analysis and evaluation that had formerly not been necessary. Product Design education had to integrate into its curriculum debate on the competing interests of natural habitats, communities and the atmosphere with the economic interests of the client. Transport miles, manufacture liability legislation for end of life, socio-cultural sustainability, all these issues had to become part of the understanding of the Product Designer in order to operate within the sustainable design parameters established at this time. Not surprisingly, team working and record keeping also had to become essential abilities of the Product design graduate.

5 SOCIOLOGY AND ETHICS

In his book *Demonstrating Relevance: Response - Ability, Theory, Practice and Imagination of Socially Responsive Communication* [14], Oliver Vobej argues that 'Good design does good'. Makepeace [15] would qualify that statement with design that is thought to be good is 'a snapshot of our aspirations' for that time and certainly it is only possible to work within the understanding and knowledge of a particular point in time, and design decisions taken at that time may with hindsight prove damaging in an unforeseen way. However, of interest to the design historian – and the Product Design educator – is the shift in the fundamental role of the design profession from commercial to sociological. It is no longer considered sufficient to create products for business reasons with a full knowledge of design lifecycle, complexities such as the impact on communities of sourcing raw materials, the impact on the lives of workers during the production phase, the by-products and related industries that emerge to service the central production processes, the environmental impact of the user phase, the cradle to cradle imperative, the interaction aspect of the design and the value adding etc as outlined by Ryan, now design must action positive change.

5.1 Educational response

Sociology and philosophy began to impact design education. Ethics was introduced through projects focussed on designing for the third world such as *Design for the Other 90%* [16]. Texts, such as *Design Revolution: 100 Products that Empower People* [17] influence the way education responds to the changing role of the designer and courses become more abstract. Learning through making underwent a revival as programs shifted focus from advanced technology to appropriate technology. Ethnographic mapping became an important skill and imagination as many students were trying to design for living conditions, cultures and situations they had no life experience of. Cultural intelligence had to become part of Product Design education as part of providing a broader understanding of socio cultural sustainability with the challenges of globalisation.

6 DESIGN ACTIVISM AND REVOLUTION

Finally, current thinking has gone beyond sustainability, with post-sustainability (challenging sustaining the unsustainable current systems of production, distribution and consumption) and sustainment emerging to impact academia. These delve into the idea of design not as a profession but as a way of thinking for all people, and takes 'connection' to the level of politics. This connection is beyond the legislative connection that emerged during sustainable design practices, beyond the linking of pressure on governments to manage supplies sustainably (both for the environment and local communities) to politics as in challenging ideas of democracy and the entirety of current production systems. Sustainment, described by Fry [18] also goes beyond the da Vinci's everything is connected to everything else to include design in time, that is to work on the basis that 'Design Designs' and that

therefore everything brought into being must be considered for its future impact on the developing collective psyche and culture of future generations. An example of this is the development of the Internet and the impact that has on the understandings and behaviour of future generations.

In terms of Product Design education, this means a significant increase in the theoretical component of design education to include sociology and politics as drivers for design decisions. In project terms, it moves beyond the eighties approach of re-designing a hospital trolley that is working inefficiently, beyond the nineties approach of reviewing the situation the trolley is operated within to see if a more effective solution can be developed (not necessarily a new trolley or even a product, perhaps instead a new way of organising the department so that the trolley is no longer needed), beyond the first decade of the 2000s approach to sustainable design where situational design is transparently linked to lifecycle that includes social, environmental and economic drivers (positive growth), to finally post-sustainable design where the imperative is on design activism where the designer might challenge if the hospital was even the best place for patients to be cared for at all.

6.1 Design thinking and politics

In practical terms this has led to a radical change in the content of Product Design courses. Politics, philosophy and a design history revisited [19] compete in the curriculum with conventional programs on working with processes and materials. Systems thinking on production is now a political debate, rather than a practical one. Material consideration is about the materiality of culture rather than the design implications of specification and the design opportunities provided by a material innovation.

As particular design programs have become more abstract and theoretical, and more removed from actual design and production considerations, this has led to design courses being opened up to encompass broader complex problem consideration, commonly termed 'wicked' problems [20]. In some Universities there has been the development of strategies, such as the 'bouncing ball' [21], to address 'wicked' problems across disciplines with a degree of expertise. However, equally there have been a growing number of design Masters courses that are open to students with no design background, who tackle 'wicked' design problems at necessarily a superficial level and create solutions that are not then able to be effectively tested and developed. This approach has begun to seep into undergraduate programs with the technology streams removed in favour of increased theory from humanities disciplines. Students must develop an ability to map and operate within a complex web of competing theoretical interest but their ability to apply those skills, and persist with the evolution of a design concept fed by directed research is reduced.

7 DIVIDING THE DESIGN DISCIPLINE

The idea that design is a process, an approach, a way of thinking strategically, has received considerable favour as illustrated when IDEO featured on the cover of Business Week in May 2004 [22]. IDEO are now involved in on-line crowd sourcing as a problem framing and problem solving technique, and offer 'design thinking' and 'strategic thinking' to a broad range of businesses, beyond a Product Design service. In educational terms, if Product Design is to be subsumed into a general design thinking approach then there is a real danger that learning about the design of actual products will be overwhelmed by the 'cult of the amateur' [23] where the specifics of responding responsibly, understanding of systems that are in place and working to improve them with sophisticated strategies such as flexible design and design for disassembly will be lost. At this time there is a need for the radical redesign of all products using sustainable design principles, such as Product Service Systems thinking and lifecycle analysis yet modularity in education and the increase of electives in undergraduate programs can undermine the development of specialist understanding, knowledge and skills of a discipline.

If, however, the broader design-as-planning approach was separated from the professional discipline approach, it could be used to improve the thinking skills of all undergraduates as a design approach to problem framing and solving with a political, sociological and philosophical basis that could be applied in any undergraduate discipline. This would contribute to an overall general education imperative. If 'Design Thinking' was then created as a core, separate transferable skills program that all disciplines could take part in then students could still address 'wicked' problems, bringing their own experiences and place within the university to the teams involved. It could also then become a graduate attribute as a way of approaching difficult issues. Meanwhile Product design students could

also take the course, but during their undergraduate degree address more specific design and production issues and improve conditions worldwide.

8 CONCLUSION

Student confidence in Product Design has undergone serious attack in the last twenty years as responsibility for the world's environmental and social problems is laid at their door. The pace of change in the profile of Product Design education is extreme. As academia responds to the sustainability imperative and the challenge of post-sustainability, one issue that is important is that in developing Product Design courses in new directions, with new remits, the students are provided with not only the content of the program, but the approach, skills and understanding of how to then operate in a way that does not compromise their education within a transitioning industrial landscape through the development of related graduate attributes. This aspect of the introduction of new course aims should not be overlooked. Providing students with the background and philosophical basis of developments in the profession and academia in the last twenty years as a graduate attribute and creating learning experiences that are transparent in their motivation and aims will contribute to rebuilding confidence and give them the depth of knowledge of the issues that they need to make the transition into the outside world.

In order to provide students with the clarity of understanding that they need in relation to this issue, design educators need to have clarity themselves. Recognising the development of different approaches and applications of design, dividing courses and introducing a new language of design that reflects that division, will contribute to supporting design education and more effective design practice for the future.

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