Introduction

The need to broaden the scope of design research in the university has material as well as intellectual origins. Two factors have changed the conceptualisation of design research. Firstly, universities are including the design disciplines into their research communities. Secondly, the nature of the design industry is changing from an object based practice to include systems design where problem resolution emerges primarily from conceptualising flows of information rather than through the traditional experiential understanding of materials. During this period in which design education, research and its practices are in global transformation, the adoption of social science research models in the university gives scope for the discipline to establish its value in the broader research community, and can act as a foundation for the development of a design education based on a set of globally transferable and flexible intellectual tools.

Designing And Researching

The practices of the designer are simultaneously technical, intellectual, individual and social and cut across other creative and scientific disciplines. It seems foolish to make too strong a case about the uniqueness of design when other disciplines (like the medical profession) are currently enriching their practices by absorbing new ideas from outside their professional knowledge base (Bolam, Glesson, & Murphy, 2003). There are aspects of designing which are particular to design, but much about the way in which designers work as professionals has resonance in other professional practices. Sometimes the designer has to examine their own practice, sometimes the practice of others. In both circumstances a variety of research strategies are needed.

The way that a design is produced, either as an object or as an organised system of management, are key areas of research that respond to research from within design itself and research that takes a broader view. Designers interested in sustainable outcomes may wish to research the ways in which their products are made and their systems administered, or a company may wish to understand how their design team can be best motivated to work with the material and economic framework they have adopted for a new product. This kind of research needs flexible designers able to explore the broader social and cultural contexts in which an object is conceived, produced and consumed.

Similarly the end user of products and systems can be considered from multiple perspectives. Objects and users interact with one another in different ways in different

circumstances. It is impossible to think of researching end user use of a washing machine, for example, without an examination of gender, physical ability, washing needs, ideological attitudes to environmental issues, concerns over energy consumption and so on. Researching the designer, their products, systems and their relationships with the end user requires an ability to move in and out of different frames of reference. To be able to conceive of such an inter-relationship suggests researching from a single vantage point cannot possibly find a way of revealing the complexity of designing and its effects.

Design Research In Practice

The need for compliance with international research standards is important to Australian research culture, as international research students make up 20% of the nation's postgraduate body (Universities Australia, 2010, p.6) and (according to a variety of analyses) produces between 35% to 75% of Australian universities' research output (SUP RA, 2010). Australian students also need a design education that is transferable internationally. To provide an internationalised design education and to sustain their research outputs it is important that Australian universities become adept in resolving the (international) problem of postgraduate research in design that is currently taking place in an ill defined space between the research practices of cultural theory and engineering. The adoption of social science research methodologies can bridge that conceptual gap.

The forms of design research in industry are also changing, so a new approach to design education is not purely an academic concern. The US industrial consultant and writer on design, Don Norman (2010) has pointed out that the conditions that formed designers and their practice in industrial societies (which was primarily focused upon physical products) has altered beyond recognition. Yet, he observes, we still think of the designer as someone who makes, rather than thinks. Contemporary designers work on organisational structures and systems many of which, as Norman points out, 'involve complex social and political issues'. Decisions about designing are no longer simply questions of acting within professional paradigms (such as designing objects to satisfy consumer demand) but also of thinking about action and its consequences, (such as the social, environmental and sustainable impact of sourcing materials, and manufacturing and distributing goods and services). With this in mind it is imperative that design education matches the reality of design practice.

In the introduction to his book *Design method,* Christopher Jones argued four decades ago for a vision of design that could be understood not just by its processes but also by its

results, and suggested a definition of design as something that initiates change in man made things (Jones, 1991, p.4). This approach is based on the idea that the purpose of a design solution (whether made manifest in object or system form) is to initiate change in order to resolve the indentified problem. A consideration of the dialectical relationship between problem and solution (rather that the creation of the design product), has become a central focus in contemporary debates about the ways in which designers think (Lawson, 2008).

Theorising Design Research

If we accept the premise that design is about initiating change in man-made things, and there is such a compelling body of opinion around this proposition that it can be assumed to be the case (Berman, 2008; Brown, 2009), then the questions of why change is needed and how it is best facilitated become globally applicable. This is because such an approach frames design in terms of social engagement in addition to the ability to make something. Designing is thus re-cast as an acquired system of generative schemes 'where all the thoughts, all the perceptions, and all the actions' (Bourdieu, 1977, p.95) of the creative individual are enacted within the conditions and practices of the broader social context. Thinking of creative practice in design as a dynamic relationship between the habitus of the individual designer/researcher and the wider field in which the design problem sits empowers the researcher because it locates design thinking in the context of a dialectical engagement between ideas and the material world, positioning design in a continuously changing cultural and social environment instead of a purely professional one.

Approaching design and design research in this way makes designing a form of productive thinking that can be materially examined in terms of its potential, and evident, social consequences, making it necessary for the designer to understand the interconnectedness between design decisions and their outcomes, and to take notice of the broader social consequences of design and designing. This premise places both design practice and design research in the social realm, where social research and its practices already sits (Patton, 2002; Cresswell, 2008).

A key issue in the development of a new set of design research practices is the (potentially difficult) dynamic between professional best practice and the more abstract aspirations for research that centre on empowerment and social innovation. Design is largely a material based discipline and needs professional regulation, but at the research level it also needs to be freed from the professional paradigms that might limit the ways in which it is applied. If we

briefly invoke the way in which Pierre Bourdieu (1977) characterises the contestation of practices in the field it should be clear that in design, as in any social practice, dominant values are maintained not solely because they have evolved through use into a value free functional form, but also because of the ways in which they reinforce power relationships.

The positioning of the design researcher is vital to critical research, and the way the researcher locates themself theoretically is facilitated by the concept of reflexivity. Reflexivity incorporates the notion of reflection, but gives it a critical dimension. Anthony Giddens' 'sociological premise is that the narrative of self identity has to be shaped, altered and reflexively sustained in relation to rapidly changing circumstances of social life, on a local and global scale.' This is because that unless the individual understands their life as unfolding against a backdrop of shifting social events 'they will be unable to claim their authenticity' (Giddens, 1991, p.215). There are no convincing reasons why the designer, the designer researcher and the researcher in design should remain untouched by the desire for authenticity.

There is a relationship between using reflexivity as personal praxis and using reflexivity as a research tool. (By praxis I mean the dynamic relationship between thinking and acting, and between theory and practice). It is important to conceptualise the relationship between the reflexive individual and the reflexive practitioner/ researcher. In the struggle for self-identity and the adoption of a reflexive position as a researcher and designer the central concept remains the same; in both circumstances the individual is in a dialogue with the institutions that form them. In both cases that relationship is one that enables praxis, for action is informed through a theorising of the individual's position. The difference lies in the purpose of the praxis. For the reflexive individual concerned with their agency, praxis is about change in habitus. For the researcher, there are two possibilities: the praxis could change personal practice and/or act as an agent of change in the field.

Methodology And Design

In our recent book Jane Pearce and myself (Crouch & Pearce, 2012) have identified ethnography, narrative, and action research as fundamental methodologies for the researcher in design, partly because they are well established in social research, and have already been used in professional contexts such as teaching, nursing and business. These methodologies are flexible and work well within the model of design thinking that this paper has proposed. A key role of research in the social realm is to create knowledge that leads to

the solution of societal problems. Based on this view, research should be capable of leading to action (Greenwood & Levin, 2008). This view of research resonates well with the idea of a design community engaged in research with the social world, and with the premise that an important role of design is to initiate change (Jones, 1991) perhaps easily summarised in Milton Glaser's idea, that 'good design is good citizenship' (Glaser, in Heller & Vienne, 2003, p.ix).

Ethnographic and narrative forms of research, where the focus is on the lived experiences of individuals or groups of people, fits well within a design research frame. Action research, especially participatory action research, where the research purpose is to bring about change, develops from a critical position. A critical dimension can be introduced to all the forms of research mentioned though, if the research purpose includes the intention to understand how change instigated by design affects others. Hence, ethnographic research can be critical (Madison, 2005) if the intention is to understand the impact of design as an agent of change.

By exploring in detail a specific social or cultural group, a key aim of ethnography is to understand how individual members of a cultural group experience that culture. Creswell (2008) emphasises the focus on patterns of daily living. The aim of ethnographers is to look beneath the surface of cultural practices to examine how particular features of the culture impact on the experiences of individual members; in Armstrong's words, 'exploring central questions about the nature of human existence' (2008, p.55).

A good example of critical ethnography is the *Fuel from the Fields* project that sought alternatives to cooking fuels such as wood, charcoal or dung (biofuels traditionally used in a majority of world communities) which are damaging to the health of individuals and the environment (Smith, 2007). The principal researcher had first-hand experience of living in village communities, and these experiences gave her a critical insight into 'the need for designers to gain a good understanding of the contexts in which they are designing and of the people using their products' (Smith, 2007, p.30).

Two examples from the field of design can illustrate the value of narrative to help designers make sense of the world. The Spangler Design Team and Ken Freiberg Design shaped their design praxis on their aspirations to be more involved with people by doing *pro bono* design work by working as designers for non-profit organisations such as the Juvenile Diabetes

Foundation and the Minnesota Homeless Project in the U.S.A. (Baugnet ,2003). Baugnet's record of these events includes accounts of the original motivations of the designers, descriptions of some of their projects, and assessments of the positive impact on their reputation and success. In these stories, the personal dimensions of the experience helped others understand the possibilities for their own design praxis. The stories also encompassed ideas about the optimum conditions that enable such community work to take place, such as the value of working in a small design team and the need to develop a close personal connection with clients.

A second example uses narrative to explore an experience of failure, and in so doing help others understand better the complex nature of design practice. In her autobiography Veronique Vienne examined her early design work, and analysed some of the reasons why her opinion of it has changed. Her narrative describes her design decisions, and examines her changing attitudes to her work (Vienne, 2008). Vienne's autobiographical narrative is useful in understanding how the designer's habitus impacts upon decision making.

Action research can be seen as a particularly suitable approach for designers as it enables designers to make their design processes visible, and is particularly apposite in a climate in which the public is increasingly holding the 'designers of our environment' accountable for their design decisions (Swann, 2002, p.55-6). Action research is distinct from and more than the process of reflection that is characteristic of professional practice best exemplified by Donald Schön (1983) because it is critical and effects change in practices. Kemmis (2003) sees participatory action research as an emancipatory practice because 'the participants in the research make, and learn from, changes they make as they go' (p. 359). In this sense, of thought becoming action, action research can be likened to praxis.

The expectations and achievements of action research depend on the view of practice that the researcher adopts (Kemmis 2003). As Swann points out, the decision-making of professionals is increasingly subject to the scrutiny of those who are affected by its outcomes, and he argued a decade ago that design practices are already moving towards encouraging the participation of users, consumers and the public in the design process (2002). A further argument for participatory research is that participation by those most affected by research outcomes is a means to ensure that the research is relevant (Foth & Axup, 2006). This is amply demonstrated in Siriporn Peter's project with the Phrapradaeng Disabled Persons' Association, where disabled workers worked with her and other partners

to develop a framework for sustainable livelihoods, identifying markets for making, and distributing craft goods (Peters, 2009).

Action research is increasingly used as a tool for designers since it focuses on human action, not analysis of products (Stapleton, 2005) and furthers the development of design communities of practice. Design itself can be understood as a form of action research. The more practitioners engage in action research and identify and document processes and practices, the more the field of design as a whole is enriched by their contributions. By sharing stories of research with others the knowledge base of the field as a whole is developed, particularly when the research results in convincing evidence of exemplary work. Such accounts of research 'come to stand as their own practical theories of practice, from which others can learn' (McNiff & Whitehead, 2006, p.7).

Design research is on the cusp of change as the educational and professional circumstances that surround design are subjected to new stresses causes by global changes in technology and its purpose. For design research to flourish as both a subject for academic debate and as a tool for practice the embracing of social research methods is a valuable beginning in developing a globally transferable design praxis at a personal and institutional level.

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