A GRAND DAY OUT: EMPATHIC APPROACHES TO DESIGN

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ABSTRACT
Design education is facing some interesting and challenging times. Students need to be equipped with all the necessary designing skills, whilst being effective interdisciplinary team players and sensitive design researchers. There has been increasing recognition that products and environments need to satisfy functional as well as supra-functional needs (including social, cultural, emotional, aspirational and spiritual). Designers can no longer rely on market intelligence reports on which to make user assumptions and predict user behaviour. More appropriate research approaches are necessary to ensure that develop empathy, shared understanding, and sensitivity to how others communicate. We live in a verbo-centric culture, yet we experience the world visually. More appropriate research methods are essential so that we understand users' experiences from all perspectives, not just through the spoken word.
This paper discusses the emerging shift from passive users to more active users who participate within the design research and designing process as collaborators, which also resonates with the way in which we teach our students to co-create knowledge. With this shift of balance of power and authority, comes the need for our design students to be aware and skilled in multiple design research methods. This paper puts forward a number of methods, which have been developed to increase more empathic design outcomes, whilst incorporating principles of universal access and barrier free design. It examines why it is that many systems and services, which we all use, are so badly designed and what tools are available to the design educator to support a more collaborative approach to designing.

Keywords: empathic design, supra-functionality, agent based software, design research methods.

1 INTRODUCTION

Supra-functionality (e.g. emotional, social and cultural needs) has a significant impact on purchase decision-making, user-product bonding and brand loyalty [1]. Bearing in mind that user needs, expectations, and aspirations are ever changing, the designer has many challenges to ensure that their design outcomes are appropriate and relevant. We are realising that design is less about products and more about satisfying user needs beyond the utilitarian functional needs. As a profession, we have moved away from designer-centric approaches (e.g. the designer is distant from the user and professes good taste), to more user-centred ones (e.g. the designer acknowledges the need to study

the user), but more recently towards more designer/user approaches [2-6]. With increased user expectation of products, a more balanced approach to functionality and supra-functionality is more important than ever. Rather than designing *for*, we need to be designing *with* the users. This latest shift in design research thinking and professional practice is known as *empathic design* [7]. It engages the user as a collaborator within the information creation process. Through their research the designer becomes closer to the user, and through this intimate relationship together they create meaning from the user experience and aspirations. Users (consumers of products) are acknowledged as significant sources and co-creators of insight, innovation, and vision of how products and environments could be. Finding ways of teaching empathic design thinking to new designers through the use of applied design research methods and appropriate computer applications is described later in this paper.

"*Design serves to solve three distinct problems: aesthetics, function and soul. And meaningful design employs all three to create provocative and lasting ideas.*" [8]

2 DESIGN EDUCATION

As design educators, not only do we need to prepare our design students for the current requirements of the profession, but also for jobs and skills that have not yet been established or developed. Developing an empathic approach to designing based on immersive research methods would seem to be a good place to start. Finding ways to shift students' perspectives on the world seems to be critical. The range of tools available to support the design process has increased greatly with the expansion in the World Wide Web and Web 2.0, and the subsequent growth in the blogosphere has substantially changed the way design students obtain data and transform this into information. Many of these social networking applications are helping to transcend the need for universities to support virtual learning environments.

3 EMPATHIC DESIGN RESEARCH

The empathic design research approach is grounded in the experiences of the user, which, combined with the researcher's understanding of the phenomena, is the essence of qualitative design research. Once designers gather a variety of textual, verbal, and visual data through methods such as in-depth multiple interviews and observation of users, an incubation period follows that provides designers with the opportunity to reflect and allow thoughts and feelings to develop. This inner thought-feeling process is critical in that it changes the designer from within. The empathic horizon is the ability of the designer to empathise, and to some degree understand the experiences of others to enable more intuitive design outcomes [9]. They become altered by the act of expanding their horizon. Whilst scientific research relies on objectivity, empathic design research builds on the synergy of individuals, developing relationships and embracing subjectivity for its positive values, whilst recognising the limitations. The designer and user are both dynamic elements in the researching process. Incubation time allows the designer to make previously unrelated connections, identify emerging patterns and ultimately innovative design outcomes [10]. Unlike traditional researchers, designers need to transform this type of data into information that will form the basis of concept generation. This process involves imagining a design solution/outcome that may transcend what already exists, and this may require designers to suspend reality in order to develop more visionary ideas and concepts. This approach emphasises transformation within the designer in order for empathy and deep understanding to

develop. Fulton Suri [11] understands empathy as "our intuitive ability to identify with other people's thoughts and feelings – their motivations, emotional and mental models, values, priorities, preferences and inner conflicts", while the Oxford English Dictionary defines empathy as "the ability to understand and share the feelings of another."

4 A GRAND DAY OUT

Understanding why some designs fail to meet the necessary standards of functionality and supra-functionality is crucial to improving design and the world in which we live. One explanation is the inability of designers to be able to shift perspectives; to anticipate the needs of others, and to design intuitively, but this should not really be that difficult. We can all recall experiences in which we encounter novel situations that lead to us feeling frustrated and confused. It may be due to the lack of appropriate feedback from an automated teller machine or trying to manoeuvre a child's buggy through a revolving door. If we consider the example of taking a journey - any journey - by public transport, one is immediately presented with numerous examples of frustrating design, which has failed to acknowledge both functional and supra-functional requirements. If our experience of encountering systems and designs is to be improved then designers need to become sensitized to the experience.

Many research methods rely upon a degree of objectivity, the researcher is standing outside the system looking in, making observations, recordings etc. Another approach which has been termed 'participant observer' [12] involves the researcher taking on the role of user, experiencing reality, recording their impressions and frustrations, successes and triumphs. The aim is to observe incongruities, changes in behaviour, adaptations, both minor and major frustrations. Each of these represents opportunities for improvements in the design of objects and systems. Unfortunately it is often difficult to do this, given our natural tendency to adapt to an environment. Patricia Moore's groundbreaking research involved extensive long-term immersion as an elderly woman with the help of restricted mobility, clothing and prosthetics [13, 14]. This work paved the way for more creative approaches to capturing design relevant research material. As designers we need to make ordinary, everyday activities feel extraordinary. This requires us to make visible activities that can become so familiar to individuals they almost become invisible (e.g. bus journey home, brushing one's teeth). Immersive techniques and approaches enable designers to view life from different perspectives and develop a more empathic understanding of the user experience.

As designers respond to an aging population, it is imperative that the need to incorporate both the functional and supra-functional features within design solutions is recognised. This means designing systems and artefacts which take into account the possibility that users may be visually impaired or have mobility issues, avoiding stigmatizing the user by drawing unnecessary attention to these features. The subtle use of back lighting to illuminate buttons or audio feedback and the use of well thought through colours, surface textures and materials can all help to improve both the functional and the supra-functional features of the design environment.

Taking 'a grand day out' for example, the designer takes a journey adopting the role of participant observer, recording impressions, asking questions, perhaps indulging in role play, becoming immersed in the experience, in this way developing an empathic understanding. In public buildings and on public transport there is clearly an increased recognition of the needs of disabled and elderly users e.g. kneeling buses, large tactile buttons, support handles. Undoubtedly this represents a vast improvement in many ways, however the challenge is to make these systems less intrusive and more inclusive,

to employ empathic design research methods to bring about new design perspectives and to consider the supra-functional needs of users.

In public environments (e.g. spaces, buildings and public buses/trains) the user is exposed to numerous visual cues that are often not intuitive to them. They do not "read" the environment and therefore often experience difficulty and confusion whilst attempting to complete relatively simple tasks (e.g. purchasing tickets from automated ticket machines). Tackling the functional requirements of the automated ticked machine presents one set of problems, but how can this type of technology address the supra-functional needs of users?

Indulging in a thought experiment may help envisage how the supra-functional needs may be addressed. Assume for a moment that the machine knows who is using it. Information may be encoded on the user's credit card, identifying them as a visually impaired user, for example. When the visually impaired user swipes their credit card the machine can address them by name and adapt its interface to suit their requirements e.g. providing a large-print display and/or audio output. Incorporating voice recognition and audio outputs could result in a very different sort of interaction between the user and machine. To some this may seem a nightmare prospect, reminiscent of Douglas Adams' [15] vision of the future, where lifts and dispensing machines have irritating personalities and are always wishing you to 'have a nice day'. However it is possible to envisage machines built with adaptive interfaces which present information in the most suitable format, based on a person's needs, thus making it possible to address the supra-functional requirements of the user, providing the user with personalized feedback.

As we support empathic design, we also believe in developing design experiences that empower the user. With the number of aging citizens on the increase, design outcomes will also need to respond to the increase in disabilities (physical, mental and sensory) that will impact upon this aging group of the population. The designer needs to be socially responsible for design outcomes and the impact that their designs have upon the user. To ignore or overlook the significance of this growing user group will lead to missed opportunities for the development of new products and services.

5 DEVELOPMENTS IN SUPPORTIVE DESIGN SOFTWARE

Recent developments in software designed to support the collaborative design process are reported by Liapis [16]. The types of tools required to assist the design process can be described as constructivist in approach [17]. Individuals can safely collaborate by respecting the individual's contribution to the knowledge community. Both the sharing of practice and communication is an essential element in developing a collaborative design environment [18].

The ability to search large visual databases and receive information from multiple databases using RSS (Really Simple Syndication) feeds means that the design student can rapidly access vast amounts of information. Inevitably this has led to greater complexity, leading to the need to develop agent-based applications, which can assist users to filter and organise information [19].

Some recently completed research at Gray's School of Art (Ibid.) has focused on the development of applications that support the collaborative design process. These include a brief analysis tool and a collaborative mind mapping tool that use key words to search databases for relevant articles and websites. A visual organiser helps create storyboards, which employ an algorithm capable of searching large visual databases for images that contain similar visual information such as shape, colour, composition etc. Also included in this software is the ability to track the development of concepts as they

are worked on by a number of individuals by providing a visual history that can be reviewed. This technology provides a suite of applications that encourage students to work collaboratively, research extensively, and review and reflect on the development of concepts. For a more extensive description of the available technology, see Malins *et al* [20]. Despite the development of various technologies that can support the design educator's task, developing empathic design strategies remains a priority.

6 CONCLUSION

This paper has discussed the need to develop an empathic approach to design through the adoption of design research methods, which involve developing ways in which the designer can shift their field of view in order to see the world, as others perceive it. We suggest the need to develop a questioning approach that looks for opportunities to develop inclusive design, which responds to both our functional and supra-functional, needs as human beings. As design is becoming less about the final object and more about designing positive user experiences, designers need to become more involved in developing more empathic understanding which will lead to more intuitive design outcomes.

As a set of methods for supporting more effective product development, this approach helps to capture design relevant information in real time, directly, without any filtering out of details and helps to refine the designer's researching skills. However, the main disadvantages are that such approach requires considerable skill in being able to observe the environment and being able to frame the most appropriate questions without leading respondents towards particular answers. The designer needs to invest in researching activities that may not have been part of their traditional skill set or tool kit as a practicing designer. This approach can also be perceived as relatively intrusive, can upset normal routines, introduce the element of novelty and thus adversely impact upon capturing authentic data.

"*The creative professions are evolving from end-product limitations to product-plus-experience orientations – a holistic approach to design thinking that is a key enabler for solving the complex and challenging problems that face our world today and tomorrow*." [8]

Combining intuitive research methods based on a participatory approach may help in understanding why designs fail as well as providing insights into how to improve our environment.

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